

https://dspace.org/

Assessing Quality of Work Life of Urology Doctors in South Africa, Using a Validated Questionnaire

Mataruka, Gerald

2025
University of the Witwatersrand, Johannesburg
https://hdl.handle.net/10539/47981
Mataruka, Gerald . (2025). Assessing Quality of Work Life of Urology Doctors in South Africa, Using a Validated Questionnaire [Master`s dissertation, University of the Witwatersrand, Johannesburg]. WIReDSpace. https://hdl.handle.net/10539/47981

Downloaded from a DSpace repository. https://dspace.org/



ASSESSING QUALITY OF WORK LIFE OF UROLOGY DOCTORS IN SOUTH AFRICA, USING A VALIDATED QUESTIONNAIRE

DR GERALD TATENDA MATARUKA

STUDENT NUMBER: 303894

SUPERVISORS:

Professor AHMED ADAM MBBCh, MMed, FC Urol (SA), DipPEC, Dip LapSurg

Dr NAZEEMA ARIEFDIEN MBBCh, FC Psych (SA)

Johannesburg March 2025

DECLARATION

I, Gerald Tatenda Mataruka (Student number: 303894), declare that the research that was conducted in line with the requirements established by the University of the Witwatersrand for the Degree of Master of Medicine in Urology. The distribution of survey questionnaires, acquisition of data, analysis and interpretation of data and drafting of the report were all my own work.

DEDICATION

I would firstly like to thank the Almighty God, Jehovah Jireh, whose grace has been abundant and has brought me this far. The support of my wife Sarah has been invaluable, thank you for all the sacrifices for our family. To my daughter Natsai you inspire me daily to be a better version of myself and remind me that the future will be indeed brighter.

To my late mother Martha, you have always been my greatest cheer leader, and I know this accomplishment will leave you dancing and smiling from above. To my dad Oscar, your words "Urowe Chikoro mfana" have stayed with me since day one.

To the rest of my siblings, family and friends I thank you for the support, encouragement, understanding of all the sacrifices it took for me to complete this journey.

PRESENTATION AND PUBLICATIONS ARISING FROM THIS STUDY

This research was presented at the South African Association of Urology congress in September 2024.

The study was submitted for consideration of publication with the Wits Journal of Clinical Medicine.

ABSTRACT

Background: Worldwide doctors face many challenges in their jobs which predisposes them to burnout. Rates of burnout among medical staff has been shown to be on the rise. Doctors in urology are vulnerable to burnout, as shown in studies, and South African doctors face unique challenges which affect the quality of their work life. The effects of burnout are dire and negatively affects patient outcomes. To our knowledge no work on quality of work life of South African doctors has been published.

Objectives: To analyse quality of work life and burnout amongst South African Urology medical staff.

Methods: An anonymous online survey using a validated questionnaire, the NIOSH wellbeing questionnaire, was sent to urology doctors to evaluate quality of work life and burnout in South African urology medical staff. Responses were collected from 2nd May to 2nd July 2024.

Results: 122 urology doctors completed the survey, of which 101 of these responses were used. Survey response rate was 25.8%. Only 36% of Urology medical staff would choose a career in medicine again. 29.7% of respondents worked more than 80 hours a week. 28% of urology medical staff felt disrespected at work, and only 35% feeling the organization they worked for cared for their general work satisfaction. Rates of workplace bullying were high at 48.5%.

Rates of burnout were found to be high at 58%, with many factors lowering quality of work life such as job satisfaction, not having a mentor, workplace bullying, excessive stress and anxiety, depression and a lack of planned solitary activities. Prevalence of depression was 11.9%.

Conclusions: This study showed that burnout and poor quality of work life are prevalent among South African physicians working in Urology practice, particularly among trainees and early career professionals. Interventions to promote work wellness need to be implemented to provide respite for this growing problem by improving work environment and culture, addressing staff shortages, restructuring schedules to avoid long hours, and eradicating workplace bullying. Protective strategies may include planned solitary activities for relaxation, yoga, book clubs and social events. Interventions need to be directed at both individual and organizational levels to achieve best results.

Keywords

Burnout, Quality of Work life, South Africa, Urology medical staff, National Institute of

Occupational Safety and Health.

ACKNOWLEDGEMENTS

Special thanks and appreciation to my supervisors Dr. Nazeema Ariefdien and Prof Ahmed Adam for all their insights, guidance, support and critical input into this research.

TABLE OF CONTENTS

DECLARATION 2

DEDICATION 2

PRESENTATION ARISING FROM THIS STUDY 2

ABSTRACT 3

ACKNOWLEDGEMENTS 5

LIST OF TABLES 6

LIST OF ABBREVIATIONS 6

I. INTRODUCTION 8

II. MATERIALS AND METHODS 9

III. RESULTS 10

IV. DISCUSSION 12

V. CONCLUSION 22

REFERENCES 24

Not for examination purposes:

APPENDIX 1: Survey (Declaration, Consent, Questionnaire) 28

APPENDIX 2: Approved Protocol 63

APPENDIX 3: Ethics Clearance Certificate 77

LIST OF TABLES

Table 1. Demographic and practice data of participants

Table 2. Factors associated with burnout in South African Urology medical staff

Table 3. Programs and services available in the workplace

Table 4. Burnout among Urology medical staff in different countries

LIST OF ABBREVIATIONS

NIOSH: National Institute of Occupational Safety and Health

QOWL: Quality of Work Life

UMS: Urology Medical Staff

SA: South Africa

ANOVA: Analysis of Variance

HREC : Human Research Ethics Committee

INTRODUCTION

Quality of work life (QOWL) encompasses the ability of workers to juggle work and their individualized needs. QOWL examines many facets of one's career including interactions with colleagues, individual autonomy, authority in the organization,[1] remuneration, growth opportunities, work conditions, job security and work-life balance. [2]

Previous studies indicated that 59% of medical doctors were happy with their work life, much less than the 89% demonstrated in non-medical professions.[3] Up-to 20% of Urology medical staff (UMS), revealed being grossly discontented with their careers, and undergoing some degree of strain when at work. [2]

Doctors' welfare, when negative, is detrimental to care of patients, associated with practitioner mistakes and doctors leaving the profession.[4]

Burnout syndrome is a state of physical, mental and emotional depletion which is the result of enormous never-ending demands, which leaves the individual inundated and demotivated when unable to meet demands.[5] With time one may be detached or despise their work, and ultimately performance is substandard. [3,5]

This syndrome was redefined into three categories: i) High emotional exhaustion (chronic fatigue and low motivation), ii) high depersonalization (feeling distant from one's job, cynicism and negativism) and iii) low personal accomplishment. [6]

Over the past 5 years Urology has been one of the highest risk disciplines susceptible to burnout. [3] Variable burnout rates between 21% and 100% have been demonstrated among South African doctors. [7]

The sequelae of burnout were shown to manifest in 4 different areas being physical (heart disease, fatigue), psychological (depression, substance abuse), professional (decreased productivity, absenteeism) and organisational (malpractice, financial losses). [7] Burnout is often overlooked, either because it goes unrecognized or, due to associated stigma, individuals may fear that admitting to it will make them appear weak or incapable [8]

The National Institute of Occupational Safety and Health (NIOSH) developed a self-report questionnaire which broadly evaluates worker well-being across 5 domains: "work evaluation and experience, workplace culture and policies, physical environment and safety of workplace, health

status, and experiences outside of work. This tool has been shown to be reliable in many publications, [9] and parts of its domains significantly associated with burnout[10].

South Africa (SA) is a country with a population of 63 million[11] and a gross domestic product of $377.78 billion [12]. SA has 347 registered Urologists, of which 50 are full-time employed in the public sector.[13] The Urologist-to-population ratio is 0.56 per 100 000.[13] 7 medical schools train Urologists in SA, with 65 trainees currently enrolled.

In SA and in Africa, the literature is sparse when searching for QOWL in doctors, let alone UMS. No South African publications were found on QOWL of doctors during our search, and of the available literature on burnout, none solely assessed burnout in Urology staff on a nationwide scale. South African health care sector workers are plagued by many challenges, being overworked, understaffed making Urology services difficult to access for many patients.

We hypothesized that due to some of these reasons, the QOWL in SA UMS is somewhat poor and may lead to burnout, poor retention of staff and exacerbate skills shortages. Our objective was to analyse the quality of work life and burnout amongst South African UMS and see if any differences existed between them and UMS in other countries.

Burnout rates among different specialties of SA doctors are broad[7,] hence we sought to obtain better understanding of this among UMS, by evaluating a large cohort of only UMS. The end points was to determine which factors led to poor quality of work life and predisposed to burnout. Upon identifying the main factors involved, we hope urology departments and employers can improve work conditions and adequately support their staff.

MATERIALS AND METHODS

An observational analytical cohort study was conducted on South African UMS (medical officers, registrars (trainees) and consultants) by inviting them to participate in an anonymous survey which was distributed electronically. At least 6 months urology work experience and having practiced urology within the previous 12 months were criteria for eligibility.

Data was collected via use of a validated questionnaire developed by NIOSH, the NIOSH Wellbeing questionnaire. [9] 20 questions focussed on demographics, while 45 were on work experiences, work environment, physical and mental health, and experiences and activities outside of work. This nationwide survey was distributed via email and WhatsApp platforms of the South African Urological Association.

Confirmatory factor analysis of the NIOSH Wellbeing questionnaire has been performed in prior studies, which led to removal of items with low variance. [14] These items were omitted from the results and discussion in our manuscript.

The survey was created and hosted on SurveyMonkey. Completing the survey took 20mins on average. No incentive was offered to participants. Responses were collected from 2nd May to 2nd July 2024.

NIOSH allows for redistribution and administering of its questionnaire in its current form without restrictions. Ethics approval (Ethics number M231020) was granted by the University of Witwatersrand Human Research Ethics committee.

Data was analysed using version 29 IBM SPSS Statistics. Descriptive statistics were run to present the demographic and professional profiles of the study participants, as well as to describe their feedback on the various "Quality of work life" and "burnout" variables assessed in the study. Descriptive statistics were presented as frequencies and percentages for categorical variables and as means with standard deviation for continuous variables. For job satisfaction and other outcomes measured on a continuous scale, similar comparisons were performed using one-way analysis of variance (ANOVA). The Pearson correlation coefficient was run to examine the nature and strength of linear covariance between some quality-of-life related factors and outcomes. Differences in outcomes were examined using Fisher's exact test and Pearson's chi-square test.

Statistical significance testing was set at the 95% confidence level, therefore p-values lower than 0.05 denoted statistical significance.

RESULTS

Demographics

122 participants responded to the survey, of which 101 were complete responses, and therefore were used for the analysis. Survey Completion rate was 82% (101/122). The overall response rate was 25.8%.

The response rate for practicing urologists was 13.5% (47/347), registrars (trainees) 46,2% (30/65) and medical officers 40% (24/60). Demographic and practice data are included in table 1.

Category	**Number, n**	**Percent %**
Gender		
Male	82	81.2%
Female	18	17.8%
Rather not say	1	1%
Total	101	100%
Age		
Under 30	12	11.9%
30-35	31	30.7%
36-40	16	15.8%
41-45	11	10.9%
46-50	11	10.9%
51-55	7	6.9%
56-60	7	6.9%
61-65	5	5,0%
66-70	1	1,0%
Total	101	100%
Marital status		
Married	69	68.3%
Cohabiting	6	5.9%
Divorced	5	5.0%
Widowed	1	1.0%
Never Married	20	19.8%
Total	101	100%
Number of children		

None	30	29.7%
1 child	14	13.9%
2-3 children	50	49.5%
More than 3 children	7	6.9%
Total	101	100%
Job role		
Medical officer	24	23.8%
Junior registrar	16	15.8%
Senior registrar	14	13.9%
Junior consultant (<10 years)	21	20.8%
Senior consultant (> 10 years)	23	22.8%
University professor	3	3%
Total	101	100%
Work environment (can choose multiple)		
University teaching hospital	61	60.4%
General hospital (public)	36	35.6%
Private practice	39	38.6%
Other healthcare institutions	4	4%
Yearly remuneration (after tax) in millions of Rand		
<0.8	13	12.9%
0.8-1.0	36	35.6%
1.0-1.25	7	6.9%
1.25-1.5	9	8.9%
1.5-2.0	9	8.9%
>2.0	13	12.9%
Rather not say	14	13.9%

Total	101	100
Any other job, beside main job?		
Yes	32	31.7%
No	69	68.3%
Total	101	100%

Table 1: Demographic and practice data

Work evaluation and experience

22.8% (23/101) UMS reported taking insufficient vacation. Median hours worked by UMS, in a typical week, was 61-80 hours by 30.7%, with 22.7% working between 81-100hours and 6.9% working over 100 hours. 28.7% (29/101) of UMS worked extra hours for more than 10 days per month.

59.4% (60/101) of UMS reported having a mentor, with those with mentors showing higher job satisfaction scores 3.27 (CI 2.56-3.98) compared with scores 2.95 (CI 2.15 – 3.75) in those without mentors (p=0.04). If given the choice 23.8% (24/101) of UMS would not choose Medicine again as a career.

23.3% (10/43) of UMS <35 years, were less likely to reselect a career in medicine as compared to the older age groups (p<0.05). Of those choosing a career in medicine again, 77.9% (60/77) would reselect Urology as a specialty.

83.2% (84/101) of UMS were satisfied with their job, while only 56.5% (57/101) were satisfied with their wages. 23.7% (24/101) of UMS reported poor job security.

A significant proportion of UMS reported experiencing negative feelings of anxiety 41.6% (42/101), anger 34.6% (35/101), gloom 23.8% (24/101), and discouragement 31.7% (32/101) at least a few times a week.

66.3% (67/101) of UMS reported experiencing fatigue at least once a week whilst working.

97% (98/101) of UMS agreed that their work served a greater purpose and was meaningful to them.

58.4% (59/101) of UMS self-reported suffering from burnout whilst working in Urology. Having a mentor was surprisingly associated with increased burnout rates (p=0.004), shown in table 2

below.

Factors associated with burnout in South African UMS	**P Value**
Having a mentor	0.004
Poor job satisfaction	0.021
Poor wage satisfaction	0.044
Poor satisfaction with employee benefits	0.01
Negative feelings (anxiety, anger, gloom, and discouragement) while on the job	<0.001
Experiencing fatigue while working	<0.001
Never having enough time to get everything done on the job	0.032
Lack of common spaces or activity hubs	0.045
Lack of stress management programs	0.028
Demands of work affecting personal life at least once a week	<0.001
Feeling organization is not committed to employee well-being	<0.001
Workplace bullying and being put down by colleagues or superiors	0.005
Workplace bullying and being put down by colleagues or superiors (Trainees)	0.001
Poor physical health	0.003
Suffering from musculoskeletal issues	0.03
Poor mental health in the last month	<0.001
Feeling down or hopeless nearly every day	<0.001
Depression	0.026
Being bothered by little interest or pleasure in life	0.005
Feelings of anxiety at work	<0.001
Moderate or extreme difficulty in concentrating or making decisions while working	0.002
Moderate or severe worry about finances, health and social relationships	0.001

Lack of planned solitary or relaxation activities at least a few times a week	0.002

Table 2: Factors associated with burnout in South African UMS.

Workplace policies and culture

28% (28/100) of UMS felt they were not treated with respect in their organization, while 29.6% (29/98) felt their contributions were not valued. Only 35.7% (35/98) of UMS felt their organization cared about their general work satisfaction. 47.6% (48/101) of respondents felt they received recognition for a job well done. Table 3 below shows different workplace health initiatives available in the workplace.

Category	**Number, n**	**Percent %**
Health promotion initiatives exist in workplace?		
Yes	28	30.8
No	30	33.0
Don't know	33	36.2
Doesn't apply	10	0%
Total	91	100%
Onsite fitness centres or gym membership discounts?		
Yes	3	3.3%
No	81	90%
Don't know	6	6.6%
Does not apply	11	0%
Total	90	100%
Common activity spaces or hubs		
Yes	8	8.8%

No	76	83.5%
Don’t know	7	7.7%
Does not apply	10	0%
Total	91	100%
Smoking cessation programmes		
Yes	4	4.5%
No	62	70.5%
Don’t know	22	25%
Does not apply	13	0%
Total	88	100%
Alcohol and substance abuse programs		
Yes	4	4.5%
No	59	67.1%
Don’t know	25	28.4%
Does not apply	13	0%
Total	88	100%
Stress management programs		
Yes	5	5.4%
No	65	69.9%
Don’t know	23	24.7%
Does not apply	8	0%
Total	93	100%
Access to health snack and lunch options		
Yes	28	29.2%
No	63	65.6%
Don’t know	5	5.2%

Does not apply	5	0%
Total	96	100%

Table 3: Programs and services available in the workplace

Workplace physical environment and safety climate

37.7% (38/101) of respondents felt unsafe in the workplace, and 63.6% (61/96) of participants felt management did not respond quickly regarding issues of workplace safety.
26.7% (27/101) of UMS felt discriminated against due to age, 36.6% (37/101) due to race, and 23.7% (24/101) due to gender. 6.9% (7/101) of UMS experienced sexual harassment in the previous 12 months while at work. 13.9% (14/101) were exposed to physical violence at work.

41.6% (42/101) of UMS reported being bullied or threatened while at work and 48.5% (49/101) of respondents revealing being put down or addressed unprofessionally by coworkers or superiors. Workplace bullying and being put down by colleagues or superiors were both associated with burnout (p=0.005), and trainees (21/29) were more vulnerable when compared to urologists (12/49) (p=0.001).

20.8% reported suffering work (21/100) related injuries in the previous 12 months, of which 38.1% (8/21) of these required some form of treatment, change in job activity or lost time from work.

Health Status

Only 5.9% (6/101) of UMS described their physical health as poor, and on average the health of UMS was not good for 6.4 days in a month (95% CI 5.0-7.8 days). 34.7% (35/101) reported suffering from musculoskeletal issues.

20.8% (21/101) reported currently experiencing chronic insomnia which was defined as occurring on 3 or more nights per week, for at least 3 months and not attributable to another health problem.

On average, in the past 30 days, the mental health of UMS was not good for 7.7 days (95% CI 6.1-9.3 days). When UMS were asked how often they experienced stress, on a weekly basis, 42.6% (43/101) stressed about their health, 60.4% (61/101) about their finances, 65.4% (66/101) by family and social relationships, and 76.3% (77/101) stressed by their work.

11.9% (12/101) of UMS reported being currently depressed. 9.9% (10/101) of respondents reported feeling down or hopeless nearly every day, while 10.9% (11/101) reported being bothered by little interest or pleasure in life.

12.9% (13/101) of UMS felt anxious or on edge, nearly every day, and 10.9% (11/101) bothered by not being able to control or stop worrying.

Electronic cigarettes were used by 10.9% (11/101) of UMS, while 8% (8/101) reported cigarette use. UMS consumed 3.2 alcoholic beverages (95% CI 2.4-4.1 beverages) in a typical week (One drink = one beer (330mls), glass of wine (125mls), shot of liquor/spirits (25mls)). 76.2% (77/101) of UMS reported consuming at least 2 servings of fruit and vegetables every day.

64.3% (65/101) of UMS slept 6 hours or less at night, with 65.4% (66/101) reporting feeling sleepy at work in the preceding 7 days.

19.8% (20/101) of UD had moderate or extreme difficulty in concentrating or making decisions while working. At least once a day: 28.8% (29/101) of UMS did not concentrate well enough on their work, 19.8% (20/101) did not work as carefully as they should have, 11.9% (12/101) did not work when they should have been, and 8% (8/101) got less work done compared to others.

Home, community and society

75% (75/100) of UMS were moderately or severely worried about being able to maintain the standard or life that they enjoy, and 62% (62/100) were worried about not having enough income to cover monthly bills.

18% of participants rarely or did not receive any social and emotional support from family or friends. 10% (10/100) of UMS planned solitary or relaxation activities at least a few times a week.

DISCUSSION

The study objective was to analyse quality of work life and burnout amongst South African UMS. Ours is the first study to examine QOWL in South African UMS, as no previous studies were found after a thorough review of the literature.

The response rate for practicing urologists was 13.5% and was the lowest among the different participants. This we postulate due to some private urologists being difficult to get hold of due to non-updated practice contact details, being very busy or not affiliated and unreachable via South

African Urological association platforms. Several factors negatively impacting QOWL were identified. UMS in SA work many hours each week, even beyond 80 or 100 hours a week, and don't take enough vacation. This is exacerbated by insufficient sleep, chronic insomnia and leading to increased fatigue, decreased productivity and decreased levels of concentration which may result in adverse outcomes to patients.

UMS <35 years were least likely to choose a career in medicine again. Another study which had similar findings postulated that this could be due to job and work life expectations[15] therefore interventions specific to this age group need to be sought. Remorse related to choosing urology was low, with 78% choosing urology again, as in a United states study at 83%.[2]

Most UMS in SA harbour feelings of distrust and disappointment with management due to issues of safety, being undervalued, not being heard and not enough initiatives that promote worker wellness. These factors impact job satisfaction and wages and the poor relationship with management lead to some doctors leaving the specialty. [15]

Having a mentor improved job satisfaction levels, as a mentor typically 'coaches' on how to navigate some of the challenges faced by UMS.[16] Terry et al showed that generic and developmental mentoring could alleviate burnout.[17] Surprisingly in our study burnout was increased in those with mentors and we postulate that this may be related to increased expectations or pressure that comes with having a mentor, which may lead to one overworking themselves leading to burnout.

Most UMS conceded that demands of work affect their personal life, and this was very concerning as many UMS had poor support from friends and family. SA UMS reported widespread support from supervisors and coworkers, however high rates of workplace bullying (48.5%) were found, though not as high as seen among American urology residents at 90%.[18] Our study did show that urology registrars are more vulnerable to bullying when compared to qualified urologists. A shift in how UMS relates with one another is needed to improve the working environment, and sufficient support and recourse be provided to trainees who experience this.

Burnout rates in SA UMS were high at 58%, more than the 46.2% found in a study done on SA doctors in a Johannesburg tertiary hospital [7]. When compared to other countries SA trainees had highest burnout rates, while SA urologist burnout rates were 2nd to Portugal, shown in table 4 below Different methodologies between studies may account for differences. South Africa

Urologist per capita of 0.56 per 100 000 was much lower than European and North African countries [13].

Country	*Population (in millions)*	*GDP (in trillionss $)*	*Urologists per capita per 100 000*	*Burnout rates (Urologists)*	*Burnout rates (Trainees)*
South Africa (our study)	63	0.38	0.56	52.3%	73.3%
Indonesia[12, 19]	277.5	1.37	0.10	23.4%	17.6%
Brazil[12,20]	216.4	2.17	2.19	15.5% (covid)	
Canada[12,22,23]	40.1	2.14	1.69	31.8%	70%
USA[12,24]	334.9	27.4	4.17	41.3%	38%
Italy[12,24]	58.8	2.25	2.34	49.3%	49%
Portugal[12,24]	10.5	0.29	3.50	68%	68%
France[12,24]	68.2	3.03	1.09	26%	26%
Belgium[12,24]	11.8	0.63	4.43	35.7%	36%

Table 4: Burnout among urology medical staff in different countries

Depressive symptoms were found to be prevalent in UMS, close to 12%. This contrasted with findings of another South African study with prevalence of depression being 53.51%[7]. The effects of depression can be very detrimental both to the individual and the system in which they function in.[7]

This study emphasizes the importance of employers and urology departments improving work conditions, addressing staff shortages, and restructuring work schedules to avoid long work hours. Issues of workplace bullying and undermining of others, found in this study, need to be taken seriously as they contribute to burnout.

A culture shift of good peer support, being treated with respect, workplace appreciation,[24] mentorship programmes,[24] encouraging solitary relaxation activities, would all lead to increased job satisfaction and decrease burnout. Exercise, non-medical reading, mindfulness, yoga and meditation were shown to improve burnout rates.[23,25]

Stress reduction initiatives, and programmes to promote health and wellbeing need implementing to alleviate burnout. Improving the availability and accessibility of these initiatives is protective against burnout. [22] Often these exist but the doctors are unaware of how they can access them easily, a finding from our study.

A culture of openness and support will encourage UMS to seek help, without fear of stigma. [26] Achieving this would require a collaborative effort with employers, supervisors and wellness departments. Regular wellness surveys, wellness committees, educational seminars and workshops are interventions that have been shown to decrease burnout[22]

More research into this area is needed particularly in SA to better understand and better define the magnitude of the problem to direct initiatives.

Limitations

Some limitations may have arisen from this study, one of which was the slightly low response rate of 25.8%. A meta-analysis by Wu et al showed that the average online survey response rate is 44%[27], while Fosnacht et al showed that surveys with smaller sample sizes of less than 500 need 20-25% response rates to provide confident estimates.[28]

This survey was long, on average taking 20mins to complete. Even though the survey was anonymous, some participants may have hesitated to complete it.

Questionnaires are unable to extract nuanced and detailed responses from participants. Response bias may have occurred, with respondents structuring their answers according to what they think the study seeks. This survey was only conducted on doctors working in urology and other medical staff such as nurses were not considered.

CONCLUSIONS

Our study is the first to highlight several factors which impact QOWL in SA UMS and lead to burnout. Burnout and depressive symptom rates are high at 58%, and 11.9% respectively. Burnout rates among urology trainees and urologists is amongst the highest when compared with other countries. Several changes to workplace culture, mentorship programmes, stress reduction and wellness interventions are needed to ameliorate the burden.

Interventions that we propose include structured mentorship programmes for Urology trainees; improved staffing; time off for solitary activities such as yoga, meditation and mindfulness; physical exercise; regular wellness surveys; wellness committees; to name but a few. A collaborative effort between employers, supervisors and wellness departments is needed to achieve meaningful impact. A follow-up study reviewing the nursing experience is planned for in future.

ETHICS APPROVAL

Ethics was obtained through the University of the Witwatersrand Medical School Human

Research Ethics Committee (HREC) (medical) with certificate number: M231020.

Participant consent was taken prior to participants to commencing the survey, after an information sheet of the study was presented electronically.

Consent for publication

Not applicable.

AVAILABILITY OF DATA AND MATERIALS

The datasets used and/or analysed during the current study are available from the first

author or corresponding author upon reasonable request.

COMPETING INTEREST

The authors declare that they have no competing or conflicting interests.

FUNDING

No funding was required, applied for or received for this study.

AUTHOR CONTRIBUTIONS: CREDIT

GM Participated in conceptualisation, data curation, methodology, writing of original draft as well as in the review, editing and approval of the manuscript.

AA Participated in conceptualisation, data curation, methodology, supervision as well as in the review, editing and approval of the manuscript.

NA Participated in conceptualisation, data curation, methodology, supervision as well as in the review, editing and approval of the manuscript

ACKNOWLEDGEMENTS

Would like to thank the South African Urology Association for assistance with survey distribution.

REFERENCES

1. Storman M, Storman D, Maciąg J. Quality of work-life among young medical doctors in Poland. *International Journal of Occupational Safety and Ergonomics*. 2022;28(3):1611-1617. doi:10.1080/10803548.2021.1917201

2. Pruthi NR, Deal A, Langston J, et al. Factors Related to Job Satisfaction in Urology. *Urol Pract*. 2016;3(3):169-174. doi:10.1016/j.urpr.2015.06.001

3. Medscape National Physician Burnout & Suicide Report 2020: The Generational Divide. Accessed Sept 02, 2024. https://www.medscape.com/slideshow/2020-lifestyle-burnout-6012460#1

4. O'neill A, Baldwin D, Cortese S, et al. Impact of intrawork rest breaks on doctors' performance and well-being: Systematic review. *BMJ Open*. 2022;12(12). doi:10.1136/bmjopen-2022-062469

5. Rodríguez-Socarrás M, Skjold Kingo P, Uvin P, Østergren P, Patruno G, Edison E, Kasivisvanathan V, Vásquez JL, Esperto F, Gómez Rivas J. Lifestyle among urology trainees and young urologist in the context of burn-out syndrome. Actas Urol Esp (Engl Ed). 2020 Jan-Feb;44(1):19-26. English, Spanish. doi: 10.1016/j.acuro.2019.03.010. Epub 2019 Sep 19. PMID: 31542187.

6. Maslach C, Jackson SE. The measurement of experienced burnout. J Organ Behav. 1981;2(2):99–113. DOI: 10.1002/job.4030020205

7. Nazeema A, Lowton K, Tenea Z, Anic A, Jayrajh P. Study of burnout and depressive symptoms in doctors at a central level, state hospital. S Afr J Psychiatr. 2023 Feb 28;29:1866. doi: 10.4102/sajpsychiatry.v29i0.1866. PMID: 36876032; PMCID: PMC9982476.

8. Mukendi A. The hidden struggle of overworked urology residents “the hour”: The overlooked burnout, a narrative review. *UroPrecision*, 2024, 2(1): 16–23 https://doi.org/10.1002/uro2.44

9. Chari R, Sauter SL, Petrun Sayers EL, Huang W, Fisher GG, Chang CC. Development of the National Institute for Occupational Safety and Health Worker Well-Being Questionnaire. *J Occup Environ Med*. 2022;64(8):707-717. doi:10.1097/JOM.0000000000002585

10. Farewell, C.V., Mauirro, E., VanWieren, C. *et al.* Investigation of key domains associated with worker well-being and burnout and turnover in the early care and education workforce. *Int Arch Occup Environ Health* **96**, 891–901 (2023). https://doi.org/10.1007/s00420-023-01977-6

11. Department of Statistics South Africa: South Africa’s population surpasses 63 million mark. https://www.statssa.gov.za/?p=17430 (Accessed 04/09/2024).

12. World bank group: Data. Country search. https://data.worldbank.org/?_gl=1*1ts25fe*_gcl_au*NjU2MzgxNzUxLjE3MjU0MTk4NTg. (Accessed 23/09/2024).

13. John J. Urology Pathways for the primary care physician. South African Medical Journal 2024; 114(4):e1670. . https://doi.org/10.7196/SAMJ.2024.v114i4.1670

14. Powers, J.N., Farewell, C.V., Mauirro, E. *et al.* The NIOSH Worker Well-Being Questionnaire (WellBQ): A Psychometric Assessment with the Early Childhood Education Workforce. *Early Childhood Educ J* (2024). https://doi.org/10.1007/s10643-024-01631-x

15. Payne S, Kane A, Thomas K et al. Factors influencing when urologists leave full time practice. British Association of Urological Surgeons. https://www.baus.org.uk/_userfiles/pages/files/professionals/baus%20business/BAUSBU%20report-2%20(002).pdf . Accessed 20 September 2024.

16. Marchalik R, Marchalik D, Wang H, Pasieka H. Drivers and sequelae of burnout in U.S. dermatology trainees. *Int J Womens Dermatol*. 2021;7(5):780-786. doi:10.1016/j.ijwd.2021.05.001

17. Terry T, Redfern N, French G. Mentoring for urologists. Journal of Clinical Urology. 2019;12(2):158-162. https://doi.org/10.1177/2051415818802440

18. Chowdhury ML, Husainat MM, Suson KD. Workplace Bullying of Urology Residents: Implications for the Patient and Provider. *Urology*. 2019;127:30-35. DOI: 10.1016/j.urology.2018.11.062

19. Rustandi, R., Rahman, F., Manduaru, R. *et al.* Prevalence of burnout among urologist and its risk factors in Indonesia. *Afr J Urol* **30**, 13 (2024). https://doi.org/10.1186/s12301-024-00417-2

20. da Silva AGT, Diaz JO, Görgen ARH, Schwengber VH, de Oliveira RT, Tavares PM, Rosito TE. Brazilian Urologist's mental health aspects auring the Covid-19 pandemic. Int Braz J Urol. 2021 Jul-Aug;47(4):882-886 doi: 10.1590/S1677-5538.IBJU.2020.0869. PMID: 33566473; PMCID: PMC8321475.

21. Chan EP, Stringer LS, Forster A, et al. Burnout in Canadian urology: Cohort analysis from the 2018 Canadian Urological Association census. Can Urol Assoc J 2021;15(6Suppl1):S5-15. http://dx.doi.org/10.5489/cuaj.7232

22. Pang KH, Webb TE, Esperto F, Osman NI. Is urologist burnout different on the other side of the pond? A European perspective. Can Urol Assoc J. 2021 Jun;15(6 Suppl 1):S25-S30. doi: 10.5489/cuaj.7227. PMID: 34406927; PMCID: PMC8418241. doi: 10.5489/cuaj.7227

23. Johnstone J, Gabara A, Hopman WM, Touma NJ. Impact of the COVID-19 pandemic on the burnout rates of graduating Canadian Urology residents. *BJU Int*. 2022;130(3):389-393. doi:10.1111/bju.15834

24. Marchalik D, C Goldman C, F L Carvalho F, et al. Resident burnout in USA and European urology residents: an international concern. *BJU Int*. 2019;124(2):349-356. doi:10.1111/bju.14774

25. Aryankhesal A, Mohammadibakhsh R, Hamidi Y, Alidoost S, Behzadifar M, Sohrabi R, Farhadi Z. Interventions on reducing burnout in physicians and nurses: A systematic review. Med J Islam Repub Iran. 2019 Jul 31;33:77. doi: 10.34171/mjiri.33.77. PMID: 31696071; PMCID: PMC6825380.

26. Razai MS, Kooner P, Majeed A. Strategies and Interventions to Improve Healthcare Professionals' Well-Being and Reduce Burnout. J Prim Care Community Health. 2023 Jan-Dec;14:21501319231178641 doi: 10.1177/21501319231178641. PMID: 37246649; PMCID: PMC10233581.

27. Meng-Jia Wu, Kelly Zhao, Francisca Fils-Aime, Response rates of online surveys in published research: A meta-analysis, Computers in Human Behavior Reports, Volume 7, 2022,100206, ISSN 2451-9588, https://doi.org/10.1016/j.chbr.2022.100206.

28. K. Fosnacht, S. Sarraf, E. Howe, L.K. Peck. How important are high response rates for college surveys? The Review of Higher Education, 40 (2) (2017), pp. 245-265, 10.1353/rhe.2017.0003

Quality of work life of South African Urology doctors! Welcome! I would like to invite you to participate in filling out this questionnaire.

Various studies have shown that the field of urology is one of the medical disciplines that is experiencing increasing levels of burnout. Recently more colleagues in our field report being overwhelmed or burnt-out.

This study seeks to investigate to what extent this is the case in the South African setting amongst its Urology doctors (medical officers, registrars, consultants, professors).

This survey asks about aspects of your job and workplace, your health, and your life outside of work. The information will help provide a better understanding of how workers in your field are doing and identify ways to improve worker well-being.

By completing this survey, you are consenting to your **anonymised** responses being used as part of the survey results.

You can choose not to participate. There are no right or wrong answers. Just base your answers on what you think.

The survey is anonymous.

You will not be requested to complete any personal identifying data.

Only the primary researcher will have access to entirety of raw data/responses from participants.

Please try to complete the survey in one sitting. It will take about 15-20 minutes to complete. If you have more than one job, please answer questions as they apply to your **main** job.

NB: Participation is voluntary.

Quality of work life of South African Urology doctors!

Ethics and support information

Should you feel any part of the survey overwhelming or triggering negative feelings based on prior experiences, please feel to contact the South African Depression and Anxiety group on the following:

SADAG office number: 0112344837 (8am-8pm)

Healthcare workers care network: 0800 21 21 21 SMS 43001

Cipla Mental health helpline: 0800 456 789. SMS: 32312

Cipla Whatsapp chat line: 076 882 2775 (8am-5pm)

This study has been approved by the Human Research Ethics Committee (Medical) of the University of the Witwatersrand, Johannesburg ("Committee"). A principal function of this Committee is to safeguard the rights and dignity of all human subjects who agree to participate in a research project and the integrity of the research.

If you have any concern over the way the study is being conducted, please contact the Chairperson of this Committee who is Professor Paul Ruff, who may be contacted via any one member of the secretariat. The telephone numbers for the Committee secretariat are 0717172700/7234/2656/7252 and the e-mail addresses are:

Zanele.Ndlovu@wits.ac.za, Rhulani.Mukansi@wits.ac.za, Mapula.Ramaila@wits.ac.za and lain.Burns@wits.ac.za

For any queries: drgmataruka@gmail.com. Tel: 084 269 7815

Thank you for taking your time to read this document.
April 2024.

Quality of work life of South African Urology doctors!

Demographics

* 1. What is your age group? (years)

0	Under 30	0	46-50	0	66-70
0	30-35	0	57-55	0	Above 70
0	36-40	0	56-60		
0	41-45	0	61-65		

* 2. What is your gender?

0 Male

0 Female

0 Non-binary

0 Rather not say

* 3. What is your marital status?

0 Never married

0 Married

0 Divorced

0 Widowed

0 Co-habiting

4. How many children do you have?

0 None

0 1 child

0 2-3 children

0 More than 3 children

* 5. How many years of experience do you have in Urology (either as medical officer/ registrar/ consultant)?

0 Less than 3 years

0 3-5 years

0 6-70 years

0 11-15 years

0 76-20 years

0 More than 20 years

* 6. What is your job role?

0 University professor

0 Senior Consultant (>10 years)

0 Junior Consultant (<10 years)

0 Senior Registrar (3rd or 4th year)

0 Junior Registrar (1st or 2nd year)

0 Medical Officer

*7. What environment do you work in? (This question allows for more than one answer).

D University (Teaching Hospital)

D General Hospital (Public)

D Private Practice (hospital and consulting rooms)

D Other Healthcare Institutions

D Rural

D Peri-urban

D Urban

D Other

8. How much money do you earn? (remuneration after tax per annum)

Q Less than RB00 000 Q Rl 250 000 - Rl 500 000 0 Rather not say

Q RB00 000 - Rl 000 000 Q Rl 500 000 - R2 000 000

Q Rl 000 000 - Rl 250 000 Q More than R2 000 000

Quality of work life of South African Urology doctors!

* 9. Does your work allow you to take enough leave (vacation)?

0 Yes

0 Sometimes

Q No

*10. Do you supervise others at work as a part of your **main** job?

0 Yes

Q No

* 11. In your **main** job, how often are you allowed to change your starting and finishing times on a daily basis?

0 Often

0 Sometimes

0 Rarely

0 Never

12. In your **main** job, how are you paid?

0 Salaried

0 Paid by the hour

0 Paid per case/patient

0 Other

13. Do you have any other jobs besides your main job or do any other work for pay?

0 Yes

Q No

* 14. In your **main** job, how long have you worked for your current employer?

0 Less than 6 months

0 6-72 months

0 13-24 months

0 2-3 years

0 4-5 years

0 6-10 years

0 77-20 years

0 More than 20 years

* 15. In a typical week, what is the average number of hours that you work? (including after hours and overtime)

0 Less than 20 hours

0 27-40 hours

0 41-60 hours

0 67-80 hours

0 81-100 hours

0 More than 700 hours

* 16. In a typical month, on how many days do you work extra hours? (Beyond your usual schedule)

Oo

0 1-2

0 3-4

0 5-7

0 8-70

0 More than 10

* 17. Do you have a mentor in your field of work?

0 Yes

Q No

* 18. Would you choose a career in Medicine again?

0 Yes

Q No

0 Maybe

Quality of work life of South African Urology doctors!

* 19. Would you choose a career in Urology again?

0 Yes

Q No

0 Maybe (unsure)

* 20. Whilst working in Urology, have you suffered from burnout?

0 Yes

Q No

0 Maybe (unsure)

Quality of work life of South African Urology doctors!

Work Satisfaction

The questions in this section ask how you feel about different aspects of your job. If you have more than one job, please answer questions as they apply to your **main** job.

* 21. How satisfied are you with the following aspects of your work:

	Very satisfied	Somewhat satisfied	Not too satisfied	Not at all satisfied
Your job (overall)	0	0	0	0
Your wages				

* 22. I am ___with my chances for advancement on the job.

0 Very satisfied

0 Somewhat satisfied

0 Somewhat dissatisfied

0 Very dissatisfied

0 Does not apply

* 23. How satisfied are you with your employee benefits?

0 Very satisfied **O** Somewhat satisfied **O** Not too satisfied **O** Not at all satisfied

0 Does not apply

* 24. I can count on the following for support when I need it:

	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree	Does not apply
My supervisor	0	0	0	0	0
My coworkers					

* 25. How much do you agree/disagree with the following statements?

	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree
I feel my job is secure				
I am given a lot of freedom to decide how to do my own work	0	0	0	0
I never seem to have enough time to get everything done on my job	0	0	0	0
The work I do is meaningful to me				
The work I do serves a greater	0	0	0	0

* 26. How often do you experience the following feelings when at work?

	Always (every day)	Very often (a few times a week)	Often (once a week)	Sometimes (a few times a month)	Rarely (once a month or less)	Almost never (a few times a year or less)	Never
Enthusiastic	○	○	○	○	○	○	○
Energetic	○	○	○	○	○	○	○
Content	○	○	○	○	○	○	○
At Ease	○	○	○	○	○	○	○
Anxious	○	○	○	○	○	○	○
Angry	○	○	○	○	○	○	○
Gloomy	○	○	○	○	○	○	○
Discouraged	○	○	○	○	○	○	○

* 27. How often do you experience fatigue when you are working?

- ○ Always (everyday)
- ○ Very often (a few times a week)
- ○ Often (once a week)
- ○ Sometimes (a few times a month)
- ○ Rarely (once a month or less)
- ○ Almost never (a few times a year or less)
- ○ Never

* 28. How often do you experience the following sentiments:

	Always (everyday)	Very often (a few times a week)	Often (once a week)	Sometimes (a few times a month)	Rarely (once a month or less)	Almost never (a few times a year or less)	Never
My work inspires me	○	○	○	○	○	○	○
I am immersed in my work	○	○	○	○	○	○	○
When I get up in the morning, I feel like going to work	○	○	○	○	○	○	○

Quality of work life of South African Urology doctors!

Organization programs and benefits

The questions in this section ask how you feel about your organization and about

Benefits and health programs available at work. If you have more than one job, please answer questions as they apply to your **main** job

* 29. How much do you agree or disagree with the following statements?

	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree	Does not apply
At my organization, I am treated with respect.	0	0	0	0	
My organization values my contributions.	0	0	0	0	
My organization cares about my general satisfaction at work.	0	0	0	0	0
My organization is willing to extend resources in order to help me perform my job to the best of my ability.	0	0	0	0	0
I trust the management at my organization.	0	0	0	0	
My organization is committed to employee health and well-being.	0	0	0	0	0

My organization encourages me and provides opportunities to engage in healthy behaviors, such as being physically active, eating a healthy diet, living tobacco free, and managing my stress.

* 30. I receive recognition for a job well done.

0 Strongly agree

0 Somewhat agree

0 Somewhat disagree

0 Strongly disagree

* 31. Are the following benefits offered by your employer?

Health insurance	
Assistance with education/tuition	
Retirement (employer contributions to retirement savings)	
Paid maternity leave	
Paid paternity leave	
Paid sick leave	
Other paid caregiving leave (for example, to care for sick family members)	
Paid disability leave	
Paid vacation days	

Other paid leave (for example, bereavement, emergency, etc)	0	0	0	
	0	**0**	**0**	**0**
Ability to take unpaid leave	0	0	0	
Transit options (such as help with transportation to and from work)	**0**	**0**	**0**	**0**
	0	0	0	
On-site medical care	**0**	**0**	**0**	**0**
Employee assistance programs (such as programs that help workers with personal or work- related problems)	0	0	0	
	0	**0**	**0**	**0**

* 32. Are the following health and wellness programs or services available to you at the place where you work?

	Yes	No	Don't know	Does not apply
Health education and promotion programs (wellness programs)	0	0	0	0
On-site fitness centers or gym membership				

discounts (includes a gym and/or space for group classes)	0	0	0	0
Common spaces or activity hubs (areas for group activities, such as socializing, exercise classes, etc.)	0	0	0	0
Smoking cessation programs	0	0	0	0
Alcohol and substance programs	0	0	0	0
Stress management programs				
Access to healthy lunch and snack options				

* 33. How often do the demands of your job interfere with your personal life?

0 Always (every day)

0 Very often (a few times a week)

0 Often (once a week)

0 Sometimes (a few times a month)

0 Rarely (once a month or less)

0 Almost never (a few times a year or less)

0 Never

* 34. How often do the demands of your personal life interfere with your work on the job?

0 Always (every day)

0 Very often (a few times a week)

0 Often (once a week)

0 Sometimes (a few times a month)

0 Rarely (once a month or less)

0 Almost never (a few times a year or less)

0 Never

* 35. I have the freedom to vary my work schedule

0 Strongly agree

0 Somewhat agree

0 Somewhat disagree

0 Strongly disagree

* 36. I have the freedom to work wherever is best for me-either at home or at my organization

0 Strongly agree

0 Somewhat agree

0 Somewhat disagree

0 Strongly disagree

0 Does not apply

Quality of work life of South African Urology doctors!

Work environment and safety conditions

The questions in this section ask about physical characteristics of your work environment
and safety conditions where you work. If you have more than one job, please answer questions as they apply to your **main** job.

* 37. Overall, how safe do you think your workplace is?

* 0 Very safe

0 Somewhat safe

0 Somewhat unsafe

0 Very unsafe

* 38. Please indicate how much you agree or disagree with each of the following statements about safety practices at your workplace

	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree	Does not apply
Management reacts quickly to solve the problem when told about safety hazards.	0	0	0	0	0
Management insists on thorough and regular safety audits and inspections.	0	0	0	0	0
Management provides all the equipment needed to do the job safely.	0	0	0	0	0
Management invests a lot of time and money in safety training for workers.	0	0	0	0	0
Management listens carefully to workers' ideas about improving safety.					

Management gives safety personnel the power they need to do their job.

* 39. On my present job, this is how I feel about the following topics:

	Very satisfied	Somewhat satisfied		Not too satisfied
The environmental conditions (heating, lighting, ventilation, etc.)	0	0	0	
The physical surroundings (for example, building infrastructure, work area layout, design)	0	0	0	0
The pleasantness of the work environment	0	0	0	0
Accommodations for disabilities and/or special needs (wheelchair ramps, lactation rooms, etc.)	0	0	0	0

* 40. How much do you agree or disagree with the following statements?

	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree
I feel discriminated against in my job because of my age.	0	0	0	0
I feel discriminated against in my job because of				

my race or ethnic origin.

I feel discriminated against in my job because of my gender.	0	0	0	0

* 41. Have you experienced the following, in the past 12 months, whilst at work?

	Yes	No	Does not apply
Were you sexually harassed by anyone while you were on the job?	0	0	
Were you exposed to physical violence while you were on the job?	**0**	**0**	**0**
Were you bullied, threatened, or harassed in any other way by anyone while you were on the job?			
Have you been in a situation where any of your superiors or coworkers put you down or were condescending to you, made demeaning remarks about you, or addressed you in unprofessional terms?	**0**	**0**	**0**

Quality of work life of South African Urology doctors!

Physical and mental health

* 42. Would you say that in general, your health is poor, fair, good, very good, or

excellent?

0 Excellent

0 Very good

0 Good

0 Fair

0 Poor

43. Now, thinking about your physical health, which includes physical illness and injury, during the past 30 days, for how many days was your physical health **not good?**

0 15 30



* 44. Have you ever had any of the following diagnoses?

	Have currently	In the past	Never
Arthritis	0	0	0
Other musculoskeletal disorders (for example, back pain, neck pain, other pain)	0	0	0
Asthma	0	0	0
Lung disease, other than asthma (for example, chronic obstructive pulmonary			

disease [COPD], chronic branchitis, emphysema

Cancer			
Depression			
Diabetes			
Heart disease			
High blood pressure			

* 45. Have you ever had chronic insomnia? (occurs 3 or more nights a week, lasts more than 3 months, and cannot be fully explained by another health problem)

- Have currently
- In the past
- Never

46. Now, thinking about your mental health, which includes stress, depression, anxiety, and problems with emotions, during the past 30 days, for how many days was your mental health **not good?**

Enter number of days (0-30)

0 15 30

* 47. How often do you experience stress with regard to the following topics?

	Always (every day)	Very often (a few times a week)	Almost never (a few times a week)	Sometimes (once a month)	Rarely (a few times a month or less)	Often (a few times a year or less)	Never
Your work		○	○	○	○	○	○
Your health	○						
Your finances		○	○	○	○	○	○
Your family or social	○						

* 48. Over the last 2 weeks:

	Nearly every day		More than half the days	Several days	Not at all
How often have you been bothered by feeling down, depressed, or		0	0	0	
How often have you been bothered by little interest or pleasure in doing things?	0				
How often have you been bothered by feeling nervous, anxious, or on		0	0	0	
How often have you been bothered by not being able to stop or control worrying?	0				

* 49. In a typical week, how many days do you get at least 20 minutes of high intensity physical
activity? (High intensity activity lasts at least 10 minutes and increases your heart rate, makes

you sweat, and may make you feel out of breath; examples are running, fast cycling, and strenuous, continuous lifting of heavy objects.)

0 7

* 50. In a typical week, how many days do you get at least 30 minutes of moderate intensity
physical activity? (Moderate intensity activity lasts at least 10 minutes and requires more effort
than is needed for typical everyday tasks; examples are brisk walking, gardening, and continuous
lifting of light objects.)
Enter number of days (0-
7)

0 7

* 51. Do you use any of the following tobacco products?

	Daily	Some days	Not any more	Never
Cigarettes				
Cigars				
Pipes				
Smokeless tobacco				
Electronic cigarettes				

* 52. How many drinks of alcoholic beverages do you have in a typical week? (One drink = one
beer (330mls), glass of wine (125mls), shot of liquor/spirits (25mls))
Enter number of drinks

* 53. During the past year, how often have you had more than four drinks if you

are a male, or
more than three drinks if you are a female, on any single day? (One drink= one beer(330mls), glass of wine (125mls), shot of liquor (25mls)).

0 More than 3 days

Once(1day)

A few times (2 or 3 days)

Never

* 54. Think of the foods that are a part of your normal diet. How many servings of fruits and vegetables do you eat in a normal day?
(One serving is any of the following: 1 cup raw leafy greens [about the size of a small fist]; ½ cup of other vegetables [cooked or raw]; 1 medium piece of fruit [about the size of a cricket/base ball]; 1/2 cup chopped, cooked, or canned fruit; or¾ cup vegetable or fruit juice.)

0 5 or more servings
0 4 servings
0 3 servings
0 2 servings
0 1 serving
0 Less than 1 serving

* 55. How many hours of sleep do you usually get at night? If you are a shift worker, how many
hours of sleep do you get a day?

0 9 or more hours
0 8 hours
0 7 hours
0 6 hours
0 Less than 6 hours

* 56. In the past 7 days, how often have you felt sleepy while at work?

0 Always
0 Usually
0 Sometimes
0 Rarely
0 Never

* 57. Choose the most applicable option to the following sentences:

					Does not apply/do not have problem
Because of a physical, mental, or emotional condition, do you have serious difficulty concentrating, remembering, or making decisions?	0	0	0	0	0
Are you limited in the kind or amount of work you can do because of a physical, mental, or emotional problem?	**0**	**0**	**0**	**0**	**0**

	Extremely	Moderately	Slightly	Not at all

* 58. In the past month...

	Almost always (every hour)	Very often (a few times a day)	Often (once a day)	Sometimes (a few times a week)	Rarely (a few times or less)	(once a month)	Never
How often did you not concentrate enough on your work?							
How often did you find yourself not working as							

carefully as you should?	0	0	0	0	0	0	
How often did you not work at times when you were supposed to be working?	**0**	**0**	**0**	**0**	**0**	**0**	**0**
How often did you get less done than other workers?	0	0	0	0	0	0	
	0	**0**	**0**	**0**	**0**	**0**	**0**

* 59. During the past 12 months, did you experience any work-related injuries?

Yes

No

Quality of work life of South African Urology doctors!

* 60. If you experienced any work-related injuries in the past 12 months, did any of them require any first aid or medical treatment, change in job activities, or lost time from work?

0 Yes

Q No

Quality of work life of South African Urology doctors!

Experiences, feeling and activities outside of work

* 61. In general, how satisfied are you with your life?

0 Very satisfied

0 Somewhat satisfied

0 Somewhat dissatisfied

0 No at all satisfied

* 62. How worried are you right now about not being able to maintain the standard of living you
enjoy?

0 Very worried

0 Moderately worried

0 Not too worried

0 Not worried at all

* 63. How worried are you right now about not having enough income to pay your normal monthly bills?

0 Very worried
0 Not too worried
0 Moderately worried
0 Not worried at all

* 64. How often do you get the social and emotional support you need from friends, family, or others outside of work?

0 Always
0 Rarely
0 Sometimes
0 Never

* 65. In general, how often do you take part in any of the following activities outside of work?

	Always (Every day)	(A few times a week)	Often (A few times a week)	Sometimes (Once a a month)	Almost never (A few times or less)	Very often Rarely (Once a year or less)	(A month a Never
Voluntary or charitable activities	0	0	0	0	0	0	
Domestic caregiving activities (for example, children, elderly or disabled relatives/ friends, but not in a volunteer or charity setting)	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Home maintenance tasks (for example, cooking, cleaning, repairs)	0	0	0	0	0	0	
Socializing with friends, family, others	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Taking training or education course	
Relaxation or planned solitary activities	

APPENDIX 2. APPROVED PROTOCOL

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

FACULTY OF HEALTH SCIENCES

CANDIDATE'S SURNAME: MATARUKA	FIRST NAME/S: GERALD TATENDA		STUDENT NUMBER: 303894
CURRENT QUALIFICATIONS: MBCHB			
TEL: -	CELL: 0842697815	E-MAIL: drgmataruka@gmail.com	FAX: -
DEGREE FOR WHICH PROTOCOL IS BEING SUBMITTED: MMed Urology			
PART-TIME OR FULL-TIME: FULL-TIME			
FIRST REGISTERED FOR THIS DEGREE:	TERM: 1		YEAR: 2021
DEPARTMENT: UROLOGY			
TITLE OF PROPOSED RESEARCH: Assessing quality of work life of Urology doctors in South Africa, using a validated questionnaire.			
CANDIDATE'S SIGNATURE:			DATE: 02/08/2023
SUPERVISOR 1 (NAME & SURNAME): Professor Ahmed Adam			% Supervision: 60
SUPERVISOR'S QUALIFICATIONS: MBBCh, MMed, FCUrol, DipPEC, DipLapSurg			
SUPERVISOR'S DEPARTMENT: UROLOGY			
SUPERVISOR'S E-MAIL/ TEL: aadam81@gmail.com / 073 235 2955			
SUPERVISOR 2 (NAME & SURNAME): Dr Nazeema Ariefdien			% Supervision: 40
SUPERVISOR'S QUALIFICATIONS: MBBCh, FC Psych (SA)			
SUPERVISOR'S E-MAIL/ TEL: nazeema.ariefdien@wits.ac.za /			

SYNOPSIS OF RESEARCH:

Quality of work life encompasses an individual's ability to juggle work and their personal needs. Quality of work life examines many facets of one's career such as remuneration, work environment, safety in the workplace, health status of the employee, job satisfaction and growth opportunities among others. When workers are overworked, with poor work conditions and poor job satisfaction they become increasingly prone to burnout.

Burnout rates are on the rise in many professions particularly in medical field. Urologists have been shown to be one of the mostly affected disciplines. The impact of burnout and poor quality of work life is profound, and adequate measures are needed to help ameliorate this. There are very few publications assessing burnout and quality of work life in Urology doctors in Africa and particularly South Africa.

This research aims to assess the quality of work life of South African urology doctors by use of a validated questionnaire.

WITS ETHICS NOT REQUIRED: Yes No WITS ETHICS PENDING: Yes No WITS ETHICS APPROVED: Yes No ***Please note the final human ethics clearance certificate or animal ethics certificate must be available prior to starting research**		IF Y SUPPLY ETHICS CLEARANCE CERTIFICATE AS ATTACHMENT AND INCLUDE ETHICS NUMBER HERE:
As supervisor/s, I/we confirm that I have read the protocol which has been submitted for assessment.		
SIGNATURE OF SUPERVISOR/S:		
SIGNATURE PG OFFICE STAFF ……	REGISTERED YES….. NO…..	STAMP

Assessing the quality of work life of Urology doctors in South Africa, using a validated questionnaire.

Dr Gerald Mataruka

Student Number: 303894

Degree: MMed Urology

Supervisors: Prof Ahmed Adam

Dr Nazeema Ariefdien

Introduction

Quality of Life (QoL) as defined by Mitsogiannis et al. is an individuals' perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns[1]. Quality of work life (QWL) encompasses the ability of workers to juggle work and their individualized needs. QWL examines each facet of one's career including remuneration, job security and benefits, growth opportunities, work environment, interactions with colleagues, individual autonomy, and authority in the organization[2].

Worker well-being is a consolidative notion that appraises the positive work conditions and encounters of an individual which empowers them to flourish and maximize their capabilities[3].

Pruthi et al. define job satisfaction as an emotional state which is positive or pleasurable, derived from one work or work experiences. Many factors contribute to such pleasurable state. For physicians, helping their patients and performing vital life-saving procedures brings much gratification[4].

Doctors with good quality of life have been shown to have more work fulfilment, offer better standard of care which leads to pronounced patient contentment and institutional effectiveness[4].

Amongst professionals, 59% of medical doctors were happy with their work life which was way less than the 89% demonstrated in non-medical professions[5].

Doctors in the United States of America are increasingly unhappy with their work with only 54% willing to select a career in medicine again, down from 69% in a 5-year period[4]. Amongst Urology doctors, up-to 20% revealed being grossly discontented with their careers, with most of them reporting some degree strain and irritation when at work[4].

The welfare of doctors, when negative, bears detrimental effects to outcomes and care of patients, associated with practitioner mistakes and more doctors leaving the profession[6]. Such negative effects also extend to the health system and government[4].

Burnout syndrome is a state of physical, mental, and emotional depletion, which is the result of enormous never-ending demands, which leaves the individual inundated and demotivated when unable to meet demands[7]. With time one may be detached or even despise their work or responsibilities, and ultimately performance is substandard[5,7].

When Herbert Freudenberger originally described burnout, reference was being made to those in "helping" vocations[7]. Those working in medicine are more likely to experience burnout when compared to other professions[7]. Urology is amongst the severely affected medical specialities with high rate of occurrence.

Sebel et al. reported rising rates of burnout being seen amongst urologists to 63% in 2014, up from 41 % in 2011, with only one specialty being better off than urology when assessing burnout and work-life balance[8]. Over the past 5 years Urology has been shown to be one of the highest risk disciplines of developing burnout alongside Neurology, Internal medicine, Emergency medicine and Family medicine[5].

Clinicians suffering from burnout have been shown to be unhappy, render poor patient care and have affected personal and family relationship disruption[5,7]. Other burnout victims abuse substances, suffer from depression with some contemplating suicide[7].

Elements which may lead to burnout may comprise of unfriendly work conditions, excessive work tasks or administrative duties, unhealthy lifestyle, sleep routine, difficult life events, personal experience with suffering, coping mechanisms, marital status, and gender[7].

Marchalik et al. reported that working long hours (defined as more than 50 hours per week) resulted in more burnout, rather night/ weekend hours spent on call or sleep hours[9]. More important than verified hours of sleep, was whether the individual felt they were getting enough sleep or not[9]. Clinicians who experienced difficulties in maintaining participation in social events of friends or family, personal hobbies or necessary personal admin displayed much higher levels of burmout[9] .

Poor support coupled with long work hours and massive workload is what was found to drive clinicians to breaking point[5]. Only 20% of Low/middle income country urologists reported enough urologists to treat the population in their country[10].

Strategies to avert burnout syndrome revolve around work support initiatives, pleasant work environment, healthy lifestyle, and coping skills for physicians[9]. Workplace autonomy was thought to be protective against burnout, as this implied some control of work environment and work activities[9].

Reducing the tiredness of doctors is important with many stressing the need for break taking during work as this also promotes safety of patients and enhance well-being of clinicians[6]

Sebel et al. identified how workplace mentorships and working less than 3 weekends a month was found to be protective against burnout[8].

Work stress may result from internal or external pressures, with family conflict being identified as a significant work stressor[11]. A study done in Chinese urologists revealed research work and career advancement opportunities are big sources of work stress[12]. The professional environment in medicine is somewhat fierce, and a long career, with a tall food chain, usually with lengthy hours are significant source of work stress for many clinicians[13]

Clinicians with many roles outside of the workplace such as childcare or caring for elderly have increased work stress levels[5].

Increase in income was shown to correlate with higher job satisfaction, effect plateauing at a median of $350 000 per year[4]. Adequate Remuneration was important for up to 80% of doctors. Oldest and youngest urologists were shown to have higher job satisfaction, whilst those in mid-career were less happy with their work[4].

Less than 10% considered length of vacation as a measure of job happiness[2]. Career advancement is associated with positive job satisfaction, as was work support or mentorship[2].

Job monotomy is associated with decreased job satisfaction[4]. Urology is a discipline in which newer techniques replace older ones every few years and keeps some urologists invigorated and somewhat protected from burnout[14]. Urologists practicing in academic roles showed highest levels of job satisfaction when compared to employed or self-employed urologists[4].

Due to the increase in burnout syndrome and its damaging effects, many health organizations have launched wellness programs for employees to nurture their wellbeing and promote a good work environment[7].

Such initiatives offer support, courses, counselling to equip staff to deal with stress, live healthily and personalized help to those nearing or suffering from burnout[7]. Just over a quarter of physicians reported that stress reduction programs were offered by their hospitals, with another quarter not being aware if such initiatives existed. This finding was higher amongst millennial age group[5].

About half of all doctors, from different generations, would choose less remuneration in exchange for more free time[5]. This trend was observed more in female physicians and is attributed to their childcare and domestic responsibilities[5].

The National Institute of Occupational Safety and Health (NIOSH) developed a self-report questionnaire (NIOSH WellBQ) which broadly evaluates worker well-being across 5 domains: “work evaluation and experience, workplace culture and policies, physical environment and safety of workplace, health status, and experiences outside of work[3].

NIOSH WellBQ was created by NIOSH and researchers at the RAND corporation by using conceptual framework. Draft questionnaire was completed in 2018, upon which it was field tested on 975 respondents prior to being refined.

This questionnaire enables employers and academics to assess employee welfare, identify aspects requiring change and to gauge the effectiveness of solutions in remedying the ills in departments, organizations, regions, and sectors of industry[3]. This tool developed by NIOSH

is validated and has been shown to be reliable in many publications[3], with 9 citations to date, one being in medical field and is used in several worker wellbeing assessments.

In South Africa and in Africa, the literature is sparse when searching for quality of work life in doctors, let alone urologists which are at increased risks of burnout compared to other disciplines. South Africa is a low to middle income country whose health sector and workers are plagued by many challenges.

Many South African doctors are overworked, working in understaffed departments, with some hospitals being poorly run. Urology is one of the medical disciplines with fewest number of doctors, whose services are in demand and difficult to access for some.

We hypothesize that due to some of these reasons the quality of work life in Urology doctors in South Africa is somewhat poor. It is of utmost importance that the job satisfaction and quality of work life of these doctors is assessed, as if poor would lead to poor retention of staff and exacerbate skills shortages.

It if for these reasons, that will use this validated NIOSH questionnaire to assess the quality of work life among South African urology doctors.

Study aims and objectives.

Study aim

To assess, the quality of work life of Urological doctors in South Africa, using a validated questionnaire.

Objectives

1. Determine the quality of work life for South African urology doctors, and factors affecting it.
2. Evaluate work-related stress, job satisfaction and worker wellbeing facing Urology doctors.

Methodology

A validated questionnaire (NIOSH WellBQ) developed by the National Institute for occupational Safety and Health (NIOSH) will be used to help evaluate the quality of work life for South African doctors working in Urology. This questionnaire (appendix 2) from NIOSH in the United States of America assesses various aspects of work organization issues like workload, autonomy of the worker, job satisfaction and worker wellbeing.

The developers of the NIOSH WellBq tool permit for it to be "freely reproduced, reprinted or distributed", without need for permission to be requested. Fees may not be charged for using this tool. Written confirmation via email was given by one of the authors (attached)

(https://www.cdc.gov/niosh/twh/wellbq/default.html#:~:text=Are%20there%20restrictions%20on%20use,the%20purpose%20of%20this%20instrument.)

In addition to this questionnaire, a demographic section (appendix 1) will be added to this assessment. These questionnaires will be handed out in the form of an online survey. This survey will be an anonymous and self-administered.

This online survey will be distributed to doctors working in urology with assistance from the South African Urological Association (SAUA). SAUA is an association that promotes the conditions of service of practitioners, academic members, and registrars. SAUA maintains

and enhances standards for urologists in the country and educates its members through continuing medical education.

Members of SAUA are medical practitioners who are registered with the health professions council, and whose practice is confined to the speciality of urology. SAUA has a database of its members, whom they communicate with regularly. SAUA currently has 156 fully paid members (urologists in private and academic hospitals) and 100 affiliated members (registrars and medical officers).

Participation in the study will be voluntary with informed consent being given by participants. Participants will gain access to the study via an email link which will lead them to questionnaire. Anonymity will be maintained as participants will not be asked for identifying data, and their responses will not be linked to participants.

Survey to be kept open for a long enough period, to allow for collection of adequate responses. Reminders will be sent to potential participants via SAUA platforms (emails, webinars, conferences). Only primary researcher will have access to the responses of the survey. Link to questionnaire is found below.

https://docs.google.com/forms/d/e/1FAIpQLSeIEELXCwChrPODAO-L1i6CcF1lwX-RwTJMAJr21cWj-rMaRQ/viewform?usp=sf_link

Study design

The study will be a retrospective observational descriptive cross-sectional study.

Study population

HPCSA registered medical practitioners whose practice is confined to urology in South Africa.

Sample Size

154 is the estimated Sample size. Calculation was done by use of Slovin's formula using 95% confidence interval, 5% margin of error, 50% population proportion. The finite population as per SAUA records is 256.

Inclusion Criteria

- HPCSA registered medical practitioners.
- Practiced Urology (Worked in Urology department/unit or practice only treating urological conditions) within the past year, that is not retired or left urology practice for a period exceeding a year.
- At least 6 months experience of practicing urology (Worked in Urology department/unit or practice only treating urological conditions)

Exclusion Criteria

- Practitioners who have not practiced urology in the last 12 months.
- More than 25% of responses not completed from the survey.
- Surveys submitted beyond the deadline.

Data Collection

After ethics approval, and registration of the study with the National Health Research Database (NHRD), the online survey will be distributed via SAUA platforms. Survey to be open for sufficient time to allow adequate sample. Qualifying responses from the survey, based on inclusion and exclusion criteria, will be collated and data entered to Microsoft excel database.

Data Analysis

Microsoft Excel will be used to capture data and for basic statistic calculations. Further statistical analysis will be performed using statistical software. Standard deviation and mean will be used to describe numeric parametric data. Categorical data will be described by percentages.

Ethical considerations

Participation in the study is voluntary. Permission to conduct this study will be obtained from SAUA to access its members via their database. Ethical approval for the study will be sought from the University of Witwatersrand Human Research Ethics Committee (HREC) prior to commencing data collection.

Anonymity will be assured through the omission of identifying data when survey is being self-administered. Participants may omit answering questions they are not comfortable with. Data will be stored securely on a personal password protected computer, accessible to the primary researcher only.

Funding

Minimal costs will be incurred during performance of this study. This research project will be self-funded with cost estimates as follows:

- Stationery and printing R1000
- Phone calls R1000
- Travel (petrol) R1 000

Timing

	July 23	July 23	Aug 23	Sept 23	Oct 23	Nov 23	Dec 23	Jan 24	Feb 24	Mar 23	Apr 23	May 23
Lit Review												
Preparing Protocol												
Protocol Assessment												
Ethics Application												
Data Collection												
Data Analysis												
Writing up – Thesis												
Writing up – Paper												

Limitations

- Poor response rate to the survey, this may influence the adequacy of the data.
- Respondents who are not technologically savvy may shy away from competing online questionnaires and may prefer a paper version.
- If contact details of members of the SAUA is not up to date, this may affect the reach of the survey.
- Response bias may exist with those who find the topic interesting volunteering, whilst those who don't may not participate.
- Findings of the study will only be generalisable to this population.

References

1. Mitsogiannis IC, Mitsogianni M, Bakalis V, de Paz AT, Vlachostergios PJ, Tzortzis V. Health-Related Quality of Life Assessment in Daily Urologic Practice: A Survey of Greek Urologists. *Res Rep Urol*. 2022;14:71-78. doi:10.2147/RRU.S354925

2. Storman M, Storman D, Maciąg J. Quality of work-life among young medical doctors in Poland. *International Journal of Occupational Safety and Ergonomics*. 2022;28(3):1611-1617. doi:10.1080/10803548.2021.1917201

3. Chari R, Sauter SL, Petrun Sayers EL, Huang W, Fisher GG, Chang CC. Development of the National Institute for Occupational Safety and Health Worker Well-Being Questionnaire. *J Occup Environ Med*. 2022;64(8):707-717. doi:10.1097/JOM.0000000000002585

4. Pruthi NR, Deal A, Langston J, et al. Factors Related to Job Satisfaction in Urology. *Urol Pract*. 2016;3(3):169-174. doi:10.1016/j.urpr.2015.06.001

5. Medscape National Physician Burnout & Suicide Report 2020: The Generational Divide. Accessed July 17, 2023. https://www.medscape.com/slideshow/2020-lifestyle-burnout-6012460#1

6. O'neill A, Baldwin D, Cortese S, Sinclair J. Impact of intrawork rest breaks on doctors' performance and well-being: Systematic review. *BMJ Open*. 2022;12(12). doi:10.1136/bmjopen-2022-062469

7. Rodríguez-Socarrás M, Skjold Kingo P, Uvin P, et al. *Lifestyle among Urology Trainees and Young Urologist in the Context of Burn-out Syndrome*.

8. Sebel LE, Katz EG, MacLachlan LS. A SWOT Analysis of Urology Residency. *Curr Urol Rep*. 2021;22(12). doi:10.1007/s11934-021-01080-8

9. Marchalik R, Marchalik D, Wang H, Pasieka H. Drivers and sequelae of burnout in U.S. dermatology trainees. *Int J Womens Dermatol*. 2021;7(5):780-786. doi:10.1016/j.ijwd.2021.05.001

10. Metzler I, Bayne D, Chang H, Jalloh M, Sharlip I. Challenges facing the urologist in low- and middle-income countries. *World J Urol*. 2020;38(11):2987-2994. doi:10.1007/s00345-020-03101-6

11. Shin SY, Lee SG. Effects of hospital workers' friendship networks on job stress. *PLoS One*. 2016;11(2). doi:10.1371/journal.pone.0149428

12. Wei YB, Yin Z, Gao YL, Yan B, Wang Z, Yang JR. Quality of life of Chinese urologists: A crosssectional study using WHOQOL-BREF. *Hong Kong Medical Journal*. 2015;21(3):232-236. doi:10.12809/hkmj144297

13. Shrestha D, Rajbhandari P. Prevalence and associated risk factors of tooth wear. *Journal of the Nepal Medical Association*. 2018;56(212):719-723. doi:10.31729/jnma.3644

14. Roberts G, Whelan P, Kapoor A. Life before and after residents: Subjective reports on quality of life from urologists since inception of a new residency program. *Journal of the Canadian Urological Association*. 2011;5(2):103-106. doi:10.5489/cuaj.10091

APPENDIX 3. ETHICS CLEARANCE CERTIFICATE

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG	HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)

Office of the Deputy Vice-Chancellor (Research and Innovation)

TO: Dr G Mataruka
School of Clinical Medicine
Department of Surgery
Division of Urology
Medical School
University

E-mail: drgmataruka@gmail.com

CC: Supervisor: Professor A Adam and Dr A Ariefdien
aadam81@gmail.com
and <HREC-Medical Research Office@wits.ac.za>

FROM: Mr Iain Burns
Human Research Ethics Committee (Medical)
Tel: 011 717 1252

E-mail: Iain.Burns@wits.ac.za

DATE: 18 January 2024

REF: R14/49

PROTOCOL NO: **M231020** (This is your ethics application reference number. Please quote it in all enquiries, oral or written, relating to this study.)

PROJECT TITLE:
Assessing quality of work life of Urology doctors in South Africa, using a validated questionnaire

Please find attached the Clearance Certificate for the above project. I hope it goes well and that an article in a recognized publication comes out of it. This will reflect well on your professional standing and contribute to Government funding of the University.

MSWorks2000/Iain0007/Clearscan.wps

UNIVERSITY OF THE WITWATERSRAND JOHANNESBURG

R49 Dr G Mataruka

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)
CLEARANCE CERTIFICATE NO. M231020

NAME: Dr G Mataruka **DEGREE:** M Med
(Principal and Co-Investigators)

DEPARTMENT: School of Clinical Medicine
Department of Surgery
Division of Urology
Medical School
University

PROJECT TITLE:
Assessing quality of work life of Urology doctors in South Africa, using a validated questionnaire

DATE CONSIDERED: 27/10/2023

DECISION: Approved unconditionally

CONDITIONS:

NOTE: If contact information regarding student study participants is required, please contact the Registrar's office <Nicoleen.Potgieter@wits.ac.za>

SUPERVISOR: Professor A Adam and Dr A Ariefdien

APPROVED BY:
Professor P Ruff, Chairperson, HREC (Medical)

DATE OF APPROVAL: 18 January 2024 **EXPIRY DATE:** 17 January 2029

This Clearance Certificate is valid for 5 years from the date of approval. An extension may be applied for.

DECLARATION OF INVESTIGATORS

To be completed in duplicate and **ONE COPY** returned to the Research Office secretariat on the 3rd floor, Phillip Tobias Building, Parktown, University of the Witwatersrand, Johannesburg.

I/we fully understand the conditions under which I am/we are authorized to carry out the above-mentioned research and I/we undertake to ensure compliance with these conditions. Should any departure be contemplated from the research protocol as approved, I/we undertake to submit details to the Committee. **I agree to submit a yearly progress report** in the format available at https://wits.ac.za/research/researcher-support/research-ethics/ethics-committees/. This report is due annually, for the duration of the Clearance Certificate, beginning on the first anniversary of Date of Approval above. Unreported changes to the study may invalidate the clearance given by the HREC (Medical).

Signature of Principal Investigator Date