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Examining the extent, forms and factors influencing multiple job holding among medical doctors, professional nurses and rehabilitation therapists in two South African provinces: a cross-sectional study

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ABSTRACT

Objective Multiple job holding (MJH), or working in more than one paid job simultaneously, is a common characteristic of health labour markets. The study examined the extent (prevalence), forms and factors influencing MJH among public sector medical doctors, professional nurses and rehabilitation therapists in two South African provinces.

Design A cross-sectional, analytical study.

Setting 29 public sector hospitals in the Gauteng and Mpumalanga provinces of South Africa.

Participants Full-time public sector medical doctors, professional nurses and rehabilitation therapists.

Results We obtained an overall response rate of 84.3%, with 486 medical doctors, 571 professional nurses and 340 rehabilitation therapists completing the survey. The mean age was 39.9±9.7 years for medical doctors, 43.7±10.4 years for professional nurses and 32.3±8.7 years for rehabilitation therapists. In the preceding 12 months, the prevalence of MJH was 33.7% (95% CI 25.8% to 42.6%) among medical doctors, 8.6% (95% CI 6.3% to 11.7%) among professional nurses and 38.7% (95% CI 31.5% to 46.5%) among rehabilitation therapists. Medical doctors worked a median of 20 (10–40) hours per month in their additional jobs, professional nurses worked 24 (12–34) hours per month and rehabilitation therapists worked 16 (8–28) hours per month. Private practice was the most prevalent form of MJH among medical doctors and rehabilitation therapists, compared with nursing agencies for professional nurses. MJH was significantly more likely among medical specialists (OR 4.3, p<0.001), married professional nurses (OR 2.4, p=0.022) and male rehabilitation therapists (OR 2.4, p=0.005).

Conclusion The high prevalence of MJH could adversely affect the care of public sector patients. The study findings should inform the review and revision of existing MJH policies.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ The study used a rigorous multistage sampling strategy with a large sample size to ensure that the results are representative of doctors, nurses and therapists from the study provinces.
⇒ It conducted a comparative analysis of three health professional groups.
⇒ The focus on two South African provinces may not be representative of the entire country.
⇒ The focus on six core disciplines may overestimate multiple job holding prevalence.

INTRODUCTION

Multiple job holding (MJH), a common feature of labour markets,[1] refers to individuals holding more than one paid job simultaneously.[2] MJH is well documented in various health systems among medical doctors and nurses,[3] with the dominant focus on additional jobs in the private sector.[4–6]

MJH enables health professionals to generate extra income and increase their job fulfilment.[7–9] MJH could assist in recruiting and retaining health professionals, with scarce skills in the public health sector.[4 10] However, health professionals engaging in MJH spend less time in their primary jobs, which influences the availability of quality health services in the public health sector and the achievement of universal health coverage.[11–13] Therefore, there is increased scholarly and policy focus on the occurrence,[14–18] determinants[2 9] and consequences of MJH.[1 19 20]

Notwithstanding several theoretical models on MJH, existing evidence points to diversity in its prevalence, and in the profiles and motives of individuals who engage in MJH.[1 2] Most MJH studies have focused on doctors and nurses, with MJH prevalence ranging from 25% to 69% for doctors[4 6 7 21 22] and 5% to 80% for nurses.[23–29] The decision to

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engage in MJH among different health professionals is influenced by various factors, including legislation, the health labour market, and the availability and types of secondary jobs.[11 30] Although financial factors are often the primary reason for MJH,[2 5 17 22] non-pecuniary incentives such as status and recognition, control over work and professional opportunities are also contributing factors.[31]

South Africa (SA) spends 8.5% of its gross domestic product (GDP) on health.[32] However, the health system is characterised by a resource-constrained public health sector that accounts for 4.1% of GDP spending and provides care to around 84% of the population.[32] A well-established private health sector[33] accounts for 4.4% of GDP spending and covers the remaining 16% of the population.[32] There are also inequities in the distribution and skills mix of health professionals between the public and private health sectors.[34] In 2019, nurses accounted for 56% of the total public sector workforce, doctors accounted for 8.6% and therapists for 1%, with variations by province and health professional category.[35] In many low-income and middle-income countries (LMICs), unreasonably low public sector salaries are linked to MJH among health professionals.[5 7] However, comparatively the SA public health sector has good fiscal space, public sector health professionals' salaries are higher than in most other African countries,[35] and they get paid regularly. The Public Service Amendment Act (Section 30) of SA makes provision for MJH referred to as remunerative work outside of the public service .[36] Hence MJH is legal, provided that prior approval has been obtained from the relevant authority.

Although there is some evidence in SA on MJH and its negative consequences for health workforce outcomes among doctors and nurses,[10 23 37 38] there are no data on MJH among rehabilitation therapists. Furthermore, studies on MJH among doctors and nurses are dated.[10 23 37 39] This paper aims to address these knowledge gaps by examining the extent, forms and factors influencing MJH among public sector medical doctors, professional nurses and rehabilitation therapists in two South African provinces, and the time spent in their secondary jobs.

METHODS

Study setting

The study was conducted in the Gauteng province (GP) and Mpumalanga province (MP) of SA. GP is an urban province and the economic hub of SA, while MP is predominately a rural province. Geographical proximity, financial and logistical considerations also influenced the provincial selection.

Study design and population

A cross-sectional survey was undertaken between July 2022 and October 2022 in 14 hospitals in GP and 15 hospitals in MP, as part of a larger mixed-methods doctoral study. The study population consisted of full-time public sector medical doctors (generalists and specialists), professional nurses (4 years of training) and rehabilitation therapists (occupational therapists, physiotherapists, speech therapists, audiologists and dual speech therapists/audiologists). Health professionals in their internship and community service were excluded because they are not independent practitioners. Medical doctors, professional nurses and rehabilitation therapists in executive management positions and registrars (medical specialists in training) were also excluded. The audiologists, speech therapists and dual speech therapists/audiologists were combined into one subgroup.

Sample size estimation

The sample size was calculated based on the required precision of MJH prevalence using the formula for a single proportion with a 95% CI, a precision of 0.1, and a power of 80%. We used the MJH prevalence estimate of 35% for doctors,[40] 28% for nurses[23] and 30% for therapists assuming a prevalence close to that of doctors and nurses. A finite population correction (FCP) was applied to the calculation for therapists because of their small total population size. The calculated sample sizes were further adjusted for clustering using a design effect of 1.5,[41 42] resulting in 552 doctors and 502 nurses split equally between the two provinces, as well as 237 and 152 for therapists in Gauteng and Mpumalanga, respectively.

Sampling strategy

The sampling frame consisted of public sector doctors, nurses and therapists from the 28 hospitals in GP and 28 hospitals in MP. A multistage sampling strategy was employed. First, a stratified cluster sample of 11 hospitals from each province was selected. Four categories of hospitals were considered: district, regional, tertiary and central. The hospitals were chosen at random from each stratum within each province using a sampling proportional to size strategy.[43] In GP, five district, two regional, two tertiary and two central hospitals were selected. As MP does not have central hospitals, six district, three regional and two tertiary hospitals were selected. The required number of doctors, nurses and therapists was calculated for the categories of hospitals in Gauteng and Mpumalanga (see online supplemental file 1).

At each sampled hospital, the six clinical disciplines of focus were anaesthesia, orthopaedics, paediatrics, obstetrics and gynaecology, internal medicine, and surgery. Hospital wards were chosen randomly from each discipline and all doctors and nurses in the selected wards were invited to participate in the study until the required sample size from each hospital was achieved. All therapists who met the inclusion criteria were eligible to participate at the 22 hospitals, because of small population sizes. Four additional hospitals in MP and three additional hospitals in GP were selected to meet the required sample size for therapists.

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Data collection

At each of the selected hospitals, the research team explained the purpose, the voluntary and confidential nature of the study to eligible participants. Consenting study participants completed an anonymous survey, which contained an electronic consent form on a tablet using REDCap (Research Electronic Data Capture).[44] The self-administered questionnaire collected information about demographics, occupation, hospital overtime duties and engagement in MJH during the preceding 12 months, the type and location of the additional job, time spent in and the reasons for engaging in additional jobs. For this, participants were asked to rank their top three reasons in order of importance from a list of 19 reasons for MJH and 9 financial reasons for MJH. The questionnaire was piloted with 72 health professionals from 2 non-sampled hospitals, 1 in each province and then further refined. The list of MJH reasons was amended and ambiguous sections were revised. The questionnaire took between 10 and 20 minutes to complete. Health professionals who consented but were too busy were sent a unique, electronic survey link for completion.

Data analysis

Survey data were analysed using Stata V.17. We used the Stata svy commands to adjust for the complex cluster sampling design. The National Department of Health provided data on the total number of public sector health professionals by province and hospital category. The population distribution between the three groups was 22.7% doctors, 73.4% nurses and 4.0% therapists, whereas the distribution in the sample was 34.8% doctors, 40.9% nurses and 24.3% therapists to allow comparison. All analyses were done separately for each health professional group and weighted to reflect the population distribution between the two study provinces and between different hospital types within the group. The analysis also adjusted for the stratification, clustering within hospitals and using an FPC for therapists.

The prevalence and total time spent in the additional job were calculated and compared by health professional category. The different forms of MJH were classified based on whether a person was self-employed (eg, independent private practice) or worked for others (eg, nursing agency). A weighted analysis of the ranking data was done by scoring the three ranks in reverse order and calculating the mean score, so that a higher mean rank indicates higher importance. Bivariate logistic regression was used to identify variables independently associated with MJH. Characteristics with a p value below 0.2 in the bivariate analysis or those of theoretical value were included in the final multiple logistic regression model. Except for the bivariate analysis, all statistical tests employed a 5% significance level.

Patient and public involvement

Patients and the public did not participate in the planning, design, execution or reporting of this study.

RESULTS

Sociodemographic characteristics

A total of 1658 health professionals were approached to participate; 48 refused and 213 health professionals did not complete the survey sent via email, yielding an 84.3% response rate. Overall, 1397 health professionals completed the survey and were included in the analysis. Table 1 summarises the weighted sociodemographic characteristics of the study participants. The mean age of doctors was 39.9±9.7 years, of nurses 43.7±10.4 years and rehabilitation therapists 32.3±8.7 years. The mean years in their respective professions was 14.7±9.0 for doctors, 10.6±9.1 for nurses and 9.1±7.9 years for therapists. A specialisation was held by approximately 44.4% of doctors and 32% of nurses. In the preceding 12 months, 92.2% of doctors, 56.6% of nurses and 31.2% of therapists worked overtime.

Extent of MJH

In the preceding 12 months, the prevalence of MJH was the highest among the therapists (n=132) at 38.7% (95% CI 31.5% to 46.5%), followed by doctors (n=164) at 33.7% (95% CI 25.8% to 42.6%) and nurses (n=49) at 8.6% (95% CI 6.3% to 11.7%). The prevalence of MJH or overtime was highest among the medical doctors at 92.9%, followed by nurses at 59.4% and therapists at 54.8%.

Overall, doctors spent a median (IQR) time of 20 (10–40) hours per month in their additional jobs, nurses spent 24 (12–34) hours per month and therapists spent 16 (8–28) hours per month. There were significant differences in the prevalence of MJH (χ^2, p<0.001) and the time spent on the additional jobs (Kruskal-Wallis, p=0.015) between the three professional groups.

In table 2, there was a significant difference (p<0.001) in the prevalence of MJH between medical practitioners (18.9% (95% CI 11.1% to 30.2%) and medical specialists (52.2% (95% CI 42.7% to 61.6%). The prevalence of MJH was 8.7% (95% CI 6.2% to 12.1%) among general nurses and 8.5% (95% CI 5.1% to 13.8%) among specialist nurses, with no statistically significant differences between the two groups (p=0.922). There were significant MJH prevalence variations between medical specialties, p=0.002, but no significant differences between nurse specialties, p=0.160. There were significant differences in the prevalence of MJH among the different categories of therapists, p=0.010. Orthopaedic surgeons had the highest MJH participation at 77.4%, compared with 63.5% for surgeons, and 59.0% among anaesthesiologists. The three nursing specialties with the highest MJH were occupational health at 25.3%, child nursing at 20.3% and critical care nursing at 11.2%. The prevalence of MJH was highest among physiotherapists at 53.0%, followed by speech therapists and audiologists at 32.0% and occupational therapists at 29.5%.

Nature and forms of MJH

MJH was divided into two categories: clinical work 289 (83.8%) and non-clinical work 56 (16.2%). Clinical work

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Table 1 The sociodemographic characteristics of the study participants

Characteristics	Medical doctors n (%)/mean (±SD)	Professional nurses n (%)/mean (±SD)	Rehabilitation therapists n (%)/mean (±SD)
Total sample n=1397	486 (34.8%)	571 (40.9%)	340 (24.3%)
Age	39.9±9.7	43.7±10.4	32.3±8.7
Gender			
Male	265 (54.5%)	47 (8.2%)	57 (16.8%)
Female	217 (44.7%)	522 (91.3%)	277 (81.5%)
Other	4 (0.8%)	3 (0.5%)	6 (1.8%)
Marital status			
Single	154 (31.7%)	262 (45.9%)	202 (59.4%)
Married/living with a long-term partner	302 (62.1%)	231 (40.4%)	129 (37.9%)
Divorced/separated	22 (4.5%)	41 (7.2%)	5 (1.5%)
Widowed	8 (1.7%)	37 (6.5%)	4 (1.2%)
Children			
No	146 (30.0%)	51 (8.9%)	188 (55.3%)
Yes	340 (70.0%)	520 (91.1%)	152 (44.7%)
No of children	2.2±1.2	2.3±0.9	2.0±2.3
No of dependents	4.2±3.8	5.2±3.5	2.4±2.7
Born in SA			
No	104 (21.4%)	2 (0.4%)	10 (3.0%)
Yes	382 (78.6%)	569 (99.6%)	330 (97.0%)
Province			
Gauteng	396 (81.5%)	445 (77.9%)	242 (71.2%)
Mpumalanga	90 (18.5%)	126 (22.1%)	98 (28.8%)
Years of practice	14.7±9.0	10.6±9.1	9.1±7.9
Specialty			
No	270 (55.6%)	388 (68.0%)	–
Yes	216 (44.4%)	183 (32.0%)	–
Clinical head of the department			
No	426 (87.7%)	505 (88.4%)	278 (81.8%)
Yes	60 (12.3%)	66 (11.6%)	62 (18.2%)
Worked overtime			
No	37 (7.8%)	253 (44.3%)	234 (68.8%)
Yes	448 (92.2%)	318 (55.6%)	106 (31.2%)
Hospital category			
District	102 (21.0%)	147 (25.7%)	103 (30.3%)
Regional	140 (28.8%)	155 (27.1%)	79 (23.2%)
Tertiary	79 (16.3%)	82 (14.4%)	46 (13.5%)
Central	165 (33.9%)	187 (32.8%)	112 (33.0%)

SA, South Africa.

refers to direct patient care and/or treatment, whereas non-clinical work does not involve patient contact, such as teaching or owning a business. Doctors and therapists worked mostly in their own private practices and as locums in the practices of others (Figure 1). Nurses worked mainly through nursing agencies. Non-clinical MJH among doctors included business ownership (5.5%), consulting (2.4%) and working in academia (1.8%). Non-clinical MJH among therapists included owning a business (12.1%), working in academia (3.0%) and consulting (0.8%). Non-clinical forms of MJH for nurses include business ownership (30.5%) and consultancy (8.3%).

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Table 2 Proportion of MJH by specialty and category of therapists

	Total no	% with multiple jobs	Statistical tests
Doctors			
Medical practitioners	270	18.9	χ^2, p<0.001
Medical specialist	216	52.2	
Total	486		
Medical specialists			
Orthopaedic surgery	30	77.4	χ^2, p=0.002
Surgery	60	63.5	
Anaesthesia	51	59.0	
Paediatrics	21	41.8	
Physician	32	27.5	
Obstetricians and gynaecology	19	22.1	
Other	5	17.3	
Total	216		
Nurses			
General nurses	388	8.7	χ^2, p=0.922
Specialist nurses	183	8.5	
Total	571		
Nurse specialists			
Occupational health nursing	14	25.3	χ^2, p=0.160
Child nursing	20	20.3	
Critical care nursing	25	11.2	
Orthopaedic nursing	26	10.5	
Other	98	2.3	
Total	183		
Category of rehabilitation therapist			
Physiotherapists	124	53.0	χ^2, p=0.010
Speech therapists and audiologists	88	32.0	
Occupational therapists	129	29.5	
Total	340		

MJH, multiple job holding.

Reported reasons for MJH

Table 3 shows each professional category's top 10 reasons for MJH in descending order. The main reason for MJH for all three professional groups was to supplement their salaries. The second and third reason for doctors and therapists was career pathing and earning money from a passion project (turning a hobby into a business). Nurses' second and third reasons were earning money from a passion project and getting exposure in a different sector. Non-financial reasons for involvement in MJH included exposure to a different sector for all the categories of health professionals. The top two financial reasons for doctors and therapists for MJH were insufficient government salaries and financial freedom. Nurses' top two financial reasons were financial freedom and paying off debts (table 3).

Sociodemographic factors associated with MJH

The multiple regression results are shown in table 4. Overall model fit was low, indicating that sociodemographic factors are not the main determinants of MJH in our context. Doctors with a specialty had 4.3 (95% CI 2.5 to 7.5) higher odds of MJH participation than those without. Doctors in urban GP had a 1.9 (95% CI 1.1 to 3.3) greater chance of participating in MJH than doctors in rural MP. Doctors with dependents had 3.1 (95% CI 1.2 to 7.9) higher odds of participating in MJH than those without. Nurses who were married had 2.4 (95% CI 1.1 to 5.1) times the odds of MJH engagement as those who were single. Nurses who were clinical HODs had a lower likelihood (0.1 (95% CI 0.0 to 0.8) of MJH participation than those who were not. Male therapists had (2.4 (95% CI 1.3 to 4.4) times the likelihood of MJH participation than females.

DISCUSSION

This is one of the first comparative studies that examined the extent, forms and factors influencing MJH among medical doctors, professional nurses and rehabilitation therapists. In this study, therapists (38.7%) and doctors (33.7%) had a significantly higher prevalence of MJH than nurses (8.6%), with medical specialists (52.2%) and physiotherapists (53%) having exceptionally high MJH prevalence. Doctors and therapists worked mostly in their private practices, with nurses working through nursing agencies. All three professional groups worked overtime in their primary jobs. The health professionals identified mostly financial reasons for MJH participation, but non-financial reasons were also recognised as important. For medical doctors, MJH was explained by specialty, province and having dependents. For nurses, MJH was only explained by marital status and managerial position. For therapists, MJH was only explained by gender.

We found an MJH prevalence of 33.7% among doctors, with one in two (52.2%) medical specialists reporting MJH compared with 18.9% of the medical practitioners. The specialties with the highest MJH engagement were orthopaedic surgeons, surgeons and anaesthesiologists. The high earnings in SA's private sector are significant drivers of MJH, particularly for surgeons and anaesthetists, who are well compensated and in high demand.[10] Notwithstanding differences in methodology, context and health labour markets, the reported high MJH prevalence among specialists in our study is similar to that found in diverse country settings, ranging from 37% in Denmark to 100% of specialists in Austria.[4 5 8 45–48] However, a 2019 South African national study estimated an MJH prevalence of 35% among medical specialists.[40] Although the differences could be due to study setting and methodology,

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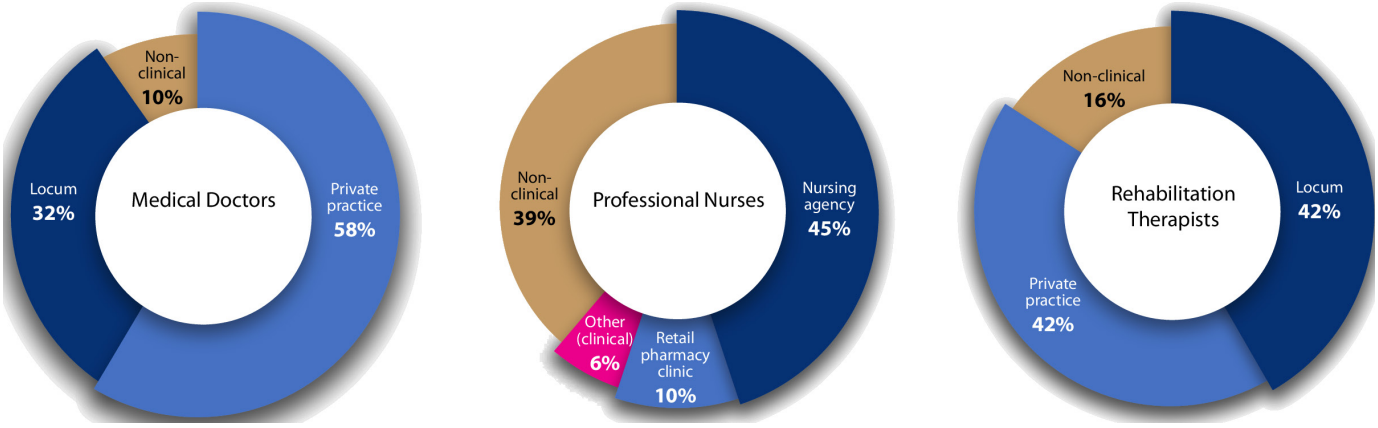


Figure 1 Forms of MJH among the three professional groups.

the high reported prevalence of MJH, combined with the various forms of MJH among doctors raises concerns about the availability of and access to specialist services in the public health sector. Medical doctors work in different facilities in different locations,[49] MJH reduces their presence, quantity and quality of services in the public health sector, which in turn places more strain on nurses and other health professionals.[7 45] Furthermore, given the present staff shortages and intense workload in the public sector,[50] the 92.2% of doctors working overtime implies that doctors are already overworked in their primary jobs, raising questions about the standard of care given to public sector patients. Future research should focus on the patient care consequences of MJH.

The MJH prevalence among nurses at 9% was lower than the 28% MJH prevalence found in a 2010 survey conducted in SA among nurses.[23] However, Rispel *et al*[23] also reported that 56.0% (95% CI 51.4% to 60.4%) of nurses did overtime similar to the 55.6% found in our study. Nurses working overtime at their primary jobs is a form of MJH in SA, as reported in other studies.[25 51] As nurses can choose to work overtime when opportunities arise, the MJH prevalence among nurses in this study could be considered as 59.4%. The high proportion of nurses doing overtime could affect public sector service delivery as working long hours leads to exhaustion, which influences patient care negatively.[52] The situation is different for doctors and therapists. Most doctors are required to work overtime as part of their employment contract to provide after-hours medical cover. Notwithstanding provincial variation for rehabilitation therapists, generally overtime is not part of their employment contracts.

Our survey found that 39% of therapists engaged in MJH and 31.2% worked overtime. We could not find comparable studies on MJH among therapists in other countries. Considering that therapists account for only 1% of the health workforce the high proportion of therapists working in MJH raises concerns about access to already scarce rehabilitation services for public sector patients.[53] Furthermore, in SA MJH is one of the factors thought to contribute to insufficient financial resource allocation to meet the operational needs of the public health system.[50] It was reported that allowing medical doctors and allied professionals (therapists fall into this category) to engage in MJH after working hours in the private sector results in staff shortages and the payment of salaries for services not performed when MJH became exploited due to ineffective and unmanageable monitoring by public sector hospital management.[50]

Financial motives were a significant motivator for MJH participation, similar findings were reported in a systematic review on MJH, which reported financial reasons to be the main driver with career development being the second most important and psychological fulfilment regarded as the third most important.[2] In our study, career pathing (growth) was the second most important reason for engagement in MJH among doctors and therapists. In our study, health professionals owned private practices and businesses, supporting their financial motives for MJH and their desire for career development. Evidence suggests that MJH acts as a tool for career growth by providing opportunities for skills development, testing self-employment and experiencing meaning through autonomy and task diversity.[2] In SA, MJH permitted medical specialists to establish private practice relationships while still earning a full-time government salary, making the transition to the private sector less expensive when they decide to move completely.[10]

The highly ranked financial motives are linked to having dependents, being married and male. The study findings suggest that medical doctors with dependents engage in MJH to supplement their income and support their families. Married nurses could engage in MJH due to joint financial obligations, while traditional gender roles and the responsibility to provide for their families could explain the motivation of male therapists to engage in MJH. Medical specialists were more likely to participate in MJH, as reported in other studies.[14 54] Similar to other studies,[15 17 55] MJH was more likely to occur among doctors in urban GP.[56] Nurses in management positions had a lower chance of engaging in MJH, as was also found in a study among nurses in China,[57] and because they are

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Table 3 Top 10 reasons for MJH and all financial reasons for MJH

Reasons for MJH								
	Medical doctors N=486			Professional nurses N=571			Rehabilitation therapists N=340	
	Mean rank score	Ranking		Mean rank score	Ranking		Mean rank score	Ranking
Supplement my salary	0.60	1	Supplement my salary	0.12	1	Supplement my salary	0.77	1
Opportunity for growth/ career pathing	0.24	2	Earn money from a passion project	0.06	2	Opportunity for growth/career pathing	0.35	2
Earn money from a passion project	0.15	3	Get exposure to a different sector.	0.05	3	Earn money from a passion project	0.19	3
Get exposure to a different sector	0.14	4	Job variety offered by the additional job	0.04	4	Get exposure to a different sector.	0.17	4
Maintain my skills	0.13	5	Opportunity for growth/career pathing	0.03	5	Test out private sector work	0.11	5
Job fulfilment	0.10	6	Be my own boss	0.03	6	There is a demand for my skills	0.10	6
There is a demand for my skills	0.09	7	Build clientele	0.03	7	Maintain my skills	0.10	7
Being able to provide quality services to clients	0.08	8	Learn new skills	0.03	8	Job fulfilment	0.10	8
Coping strategy	0.08	9	Job fulfilment	0.02	9	Learn new skills	0.08	9
Test out private sector work	0.08	10	Test out private sector work	0.02	10	Being able to provide quality services to clients	0.06	10
Financial reasons for MJH								
	Medical doctors N=486			Professional nurses N=571			Rehabilitation therapists N=340	
	Mean rank score	Ranking		Mean rank score	Ranking		Mean rank score	Ranking
Insufficient government salary	0.33	1	Financial freedom	0.10	1	Insufficient government salary	0.63	1
Financial Freedom	0.31	2	Pay off debts	0.10	2	Financial freedom	0.37	2
Generate wealth	0.28	3	Support my extended family	0.08	3	Improve my standard of living/lifestyle	0.32	3
Pay off debts	0.27	4	Insufficient government salary	0.08	4	Pay off debts	0.25	4
Support my extended family	0.21	5	Generate wealth	0.05	5	Generate wealth	0.24	5
Improve my standard of living/lifestyle	0.20	6	Improve my standard of living/lifestyle	0.04	6	Support my extended family	0.15	6
Educate my children/ others	0.17	7	Educate my children/ others	0.03	7	Support my immediate family	0.14	7
Support my immediate family	0.17	8	Support my immediate family	0.02	8	Fund my studies/ courses	0.11	8
Fund my studies/ courses	0.03	9	Fund my studies/ courses	0.01	9	Educate my children/ others	0.04	9

MJH, multiple job holding.

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Table 4 Multiple logistic regression analysis of MJH among health professionals

		Medical doctors				Professional nurses				Rehabilitation therapists			
	Variable	**OR**	**95% CI**	**P<0.05**		**OR**	**95% CI**	**P<0.05**		**OR**	**95% CI**	**P<0.05**	
Gender	Female	–				–				–			
	Male	1.7	(1.0 to 2.8)	0.068		1.7	(0.5 to 5.4)	0.390		2.4	(1.3 to 4.4)	0.005	*
Marital status	Single	–				–				–			
	Married	1.3	(0.7 to 2.3)	0.434		2.4	(1.1 to 5.1)	0.022	†	1.4	(0.8 to 2.4)	0.218	
Dependents	≤0	–				–				–			
	≥1	3.1	(1.2 to 7.9)	0.021	†	0.4	(0.1 to 2.2)	0.279		0.9	(0.5 to 1.5)	0.579	
Specialty	No	–				–							
	Yes	4.3	(2.5 to 7.5)	p<0.001	‡	1.2	(0.5 to 2.6)	0.73					
Clinical HOD	No	–				–				–			
	Yes	0.9	(0.4 to 1.9)	0.808		0.1	(0.0 to 0.8)	0.027	†	0.5	(0.3 to 1.0)	0.052	
Province	Mpumalanga	–				–				–			
	Gauteng	1.9	(1.1 to 3.3)	0.022	†	1.4	(0.7 to 2.7)	0.357		1.0	(0.6 to 1.8)	0.877	
Hospital category	District/regional	–				–				–			
	Tertiary/central	0.9	(0.5 to 1.5)	0.640		1.3	(0.6 to 2.8)	0.445		0.9	(0.5 to 1.4)	0.556	
N		486				571				340			
R^2		0.1379				0.0584				0.0306			

Variables single, divorced/separated and widowed combined to form 'single'.
*p<0.01.
†p<0.05.
‡p<0.001.
–, base category ; MJH, multiple job holding.

assuming additional, complex roles[58] that may limit the time for MJH.

The limitations of our study include being conducted in two South African provinces that may not be representative of the entire country, focusing only on six disciplines which may have overestimated MJH prevalence, and using a cross-sectional study design that measured MJH at a point in time. The fieldwork was conducted soon after the COVID-19 pandemic, which might have affected the opportunities for MJH among the three health professional categories. However, our findings can serve as a valuable recent estimate of MJH and a baseline for future studies. To ensure that the results are representative of doctors, nurses, and therapists from the two study provinces, our study used a rigorous multistage sampling strategy with a large sample size. Additionally, we obtained a high response rate (84.3%), which limits bias.

Since MJH is widespread, policy-makers and managers should seek strategies to reduce the potential negative repercussions to the public health sector. These strategies encompass the review and revision of MJH regulations, staff supervision to ensure patient access to health professionals and addressing the non-financial reasons for MJH (table 3), including continuing professional development[10] and career pathing.

CONCLUSION

The study contributes to and advances the discourse on MJH in SA, as well as in other LMICs. It provides empirical evidence of and a comparison of MJH among doctors, nurses and therapists in SA. In SA we show a prevalence of MJH, the variations by health professional group and hours spent in additional jobs. Considering the high MJH prevalence and the poor monitoring of MJH described in SA, MJH could adversely affect the care of public sector patients. The study findings should inform the review and revision of existing MJH policies.

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Ethics approval This study involves human participants and was approved by Human Research Ethics Committee (Medical) of the University of the Witwatersrand in Johannesburg (M210262), Gauteng Provincial Health Research and Ethics Committee (GP_202104_019) and Mpumalanga Provincial Health Research and Ethics Committee (MP_202104_001). Participants gave informed consent to participate in the study before taking part.

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