

Factors that Affect the Quality of Health Care Services in the North-West Province

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ABSTRACT

The study was conducted to assess and evaluate the quality of health service delivery in the North-West Province of South Africa. Data was gathered by administering a questionnaire to 488 health professionals (public health administrators, medical doctors, pharmacists and professional nurses) working in various public health care facilities in the North-West Province. Results obtained from structural equations modelling (SEM) showed that the quality of health care services in designated health facilities in the North-West Province was influenced by 3 factors. These were the availability of enough number of suitably qualified health professionals at all designated health facilities, the ability to provide primary health care services to all people who need the services at all designated health facilities, and the availability of essential medicines and drugs at all times at all designated health facilities.

Keywords: *North-West province, Quality of health services, Structural equations modelling.*

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Highlights of this paper

- The study assesses determinants of health care service delivery in the North-West Province of South Africa by measuring the perception held by health professionals working in the province.

1. INTRODUCTION

The purpose of research was to explore factors that undermine the capability of [North-West Provincial Department of Health \(2020\)](#) to meet the health service requirements and needs effectively by gathering firsthand data from health professionals working in the province. The mandate carried out by the province emanates from the Constitution of South Africa in which it is documented that the provision of quality health services is the principal duty and responsibility of all health professionals working in the province. The total number of people living in the province is 7.3 million ([Statistics South Africa, 2020](#)). The province consists of 23 municipalities (4 district municipalities + 19 local municipalities). The 4 District Municipalities are Bojanala Platinum District, R. S. Mompoti, N. M. Molema and Dr. Kenneth Kaunda.

Since 2011, designated public health facilities such as public hospitals and public clinics in the province have encountered lack of medicines and drugs, lack of adequately qualified health professionals such as medical doctors, professional nurses, laboratory technicians, radiographers and lack of money. This problem has led to the closure of designated health care facilities ([Mail & Guardian Newspaper, 2011](#)). [Amin \(2015\)](#) has highlighted the need to protect vulnerable segments of society such as teenage girls, women and the elderly when it comes to health service delivery. The author has argued that the plight of teenage girls and unemployed youth needs aggressive health awareness campaigns and economic assistance at provincial and national levels. The province has a 17.7% prevalence rate of HIV and AIDS ([Statistics South Africa, 2020](#)).

The study is being conducted against the background of the acute need to provide affordable health care to the population of the province. Although this plan is noble, the province lacks the financial and human resources that are required for achieving such a goal. There is a shortage of scientific studies that could show the degree of access residents of the North-West Province have to basic health care services. The shortage of such studies constitutes a gap in the literature, and needs to be addressed by way of collecting empirical data from health professionals who render health services. The study will also assess the degree to which the Principal Agent Structural Model ([Vera-Hernandez, 2003](#)) is suitable for setting health care priorities for the population in the province. It follows that the survey is relevant and valuable to all stakeholders in the provision of health service delivery to the people of the province.

There is a shortage of studies in which the health care priorities of people living in the North-West Province have been studied. A report published by [World Health Organization \(2019\)](#) indicates that the assessment of performance on the delivery of primary health care services in developing nations must be carried out by measuring standardised performance indicators. These indicators are commonly used in all parts of the world for measuring success. [Kruk et al. \(2017\)](#) have used a matrix of performance indicators that are suitable for finding out how effectively health professionals utilise financial and human resources according to health service delivery plans. Any deviation from approved plans of action results in the loss of human and financial resources.

2. LITERATURE REVIEW

HIV and AIDS, tuberculosis and respiratory infectious diseases are common among the population of the North-West province. Mining is a major occupation in the province. As a result, people looking for jobs and livelihood are employed in various mines. Occupational hazards are not adequately mitigated and alleviated. The mines in the provinces are quite deep and risky. Gonorrhoea, syphilis and other infectious diseases that are transmissible through

unprotected sexual intercourse, HIV, injuries and accidents are common among people in the province. The victims are mostly the poor and unemployed. Drugs, tobacco and alcohol are consumed on a regular basis by mineworkers and menial labourers who travel to the province from far-away locations in search of jobs (Ranganathan et al., 2022).

Modjadji, Molokwane, and Ukegbu (2020) have shown that malnutrition is commonly experienced by children in the province. highlighted suitable methods for alleviating the burden of diseases in the province by using community based approaches. The research work carried out by the authors has shown that children who are affected by malnutrition come from households in which the head of household does not have steady monthly income. Unprotected sex leads to diseases and unwanted pregnancy. Tuberculosis and respiratory diseases are common among mineworkers. The other commonly experienced problems are alcohol and smoking. n of alcohol and tobacco, teenage pregnancy, lung diseases and occupational diseases and mining accidents and injuries pose a major health threat to the population. The authors have shown that it has become essential to use community-based approaches for reaching out individual households and dwelling units.

Abdullah, Jafta, and Chapanduka (2020) have shown that adequately qualified health professionals are essential for providing reliable and efficient health care services visiting health care facilities. The authors have shown that it is essential for health care facilities to have enough number of adequately qualified health workers who can accurately perform laboratory tests and conduct diagnostic and physical examinations on visiting patients.

Ndinda, Ndhlovu, Juma, Asiki, and Kyobutungi (2018) have shown that health planners must be prepared to tackle both communicable and non-communicable diseases on the line of duty. This is because opportunistic infections attack people with weak immune system. A case in point is that of people living with HIV. The authors have shown the need for educating and counselling adolescents and young adults about responsible relationships and their obligations to members of the community. One key area of concern is the use of sex in exchange for money and drugs. The authors have shown that it is highly valuable for parents and community leaders to provide active mentorship and counselling in their respective households and communities. This problem is most severe in poor communities in which the youth have no jobs and training opportunities.

Arantes, Shimizu, and Merchán-Hamann (2016) have confirmed the need for launching regular health promotion and awareness campaigns in Brazil. According to the authors, regular awareness campaigns will remind people to keep looking after their health condition, keep personal hygiene, environmental sanitation and proper waste disposal. Regular campaigns are also useful for maintaining good relationship with communities. The authors have found that the use of primary health care is highly successful when the proper strategy is used by allowing individual community members and families to take part in awareness campaigns and health and environmental health education. The authors have shown that the correct application of primary health care has 3 aspects. These are the correct institutional policies, suitable organisational implementation and the fulfillment of all technical requirements. The authors have shown that all logistical, financial and human resources that are needed for mobilising members of the community and the youth and their parents and guardians must be fully met in order for community based primary health care programmes to be successful.

Tang, Von Ah, and Fulton (2018) have shown the burden of providing health care to cancer patients on health care facilities. The authors have shown that developing nations often lack the financial and human resources to provide satisfactory care to cancer patients in public health facilities. In light of the fact that there is no cure for cancer, health care facilities will only be able to treat symptoms and ease pain. The study shows that it is worthwhile to provide home based and palliative care to cancer patients.

Scull, Malik, and Kupersmidt (2014) have shown that teenage children in the age group 13 to 15 rely on television and social media information about sexual behaviour and they are easily misinformed and misled in the process. The

study shows that proper parenting guideline and health education about sex is highly valuable for providing accurate information to teenagers. Allowing teenagers to obtain information from television programmes constitutes irresponsible parenting. Children must be able to get accurate information about sexual health and the consequences of irresponsible sexual behaviour from their parents and guardians.

3. OBJECTIVE OF STUDY

The main aim of this research work is to explore influential determinants of satisfactory health services at designated health facilities in the North-West Province by measuring the perception held by health professionals working in the health facilities.

The research work entailed the following 4 specific aims. Each research aim was pursued in the North-West Province by using appropriate scientific survey methods and materials.

- To determine the perceived level of satisfaction of health professionals (medical doctors, pharmacists, professional nurses and public health administrators) with the quality of health services.
- To measure the effect of factors that influence the perceived level of satisfaction of health professionals (medical doctors, pharmacists, professional nurses and public health administrators).
- To measure the effect of the shortage of suitably qualified health professionals on the quality of health services.
- To measure the effect of the shortage of essential medicines and drugs on the quality of health services.

4. METHODS AND MATERIALS OF STUDY

A robust sample size (n=488 participants) was employed in this research. The total number of health professionals working in the Provincial Health Department was 496. That is, in the year 2020, there were 496 medical doctors, nurses and pharmacists working on a full-time basis in the North-West Province. These were 136 medical doctors, 300 nurses and 60 pharmacists. It was planned to conduct a census (a complete enumeration of the 496 medical doctors, nurses and pharmacists) as part of the study (Levy & Lemeshow, 2013). It was only possible to receive completed questionnaires from 488 of the 496 eligible participants of study. Thus, the response rate of the study was equal to 98.39%.

The survey was carried out by using quantitative data gathered from 488 eligible participants of study. These were health professionals who worked on a full-time basis at designated health facilities in the various parts of the North-West Province. These were public health administrators, medical doctors, pharmacists and professional nurses working in public health care facilities in the North-West Province. The objective of research was to quantify the perception held by health professionals. Perception was measured by using 5-point ordinal scales of measurement. Each category was based on norms and standards that are commonly used for grading compliance or adherence to stipulated guidelines.

The perception held by the 488 participants of survey about their level of satisfaction with the quality and efficiency of health care services provided to people at designated health care facilities by using a composite index defined by Leonard, Friedman, and Savage (2018) for assessing and evaluating the quality of health care services that are provided routinely to people living in all parts of the world. The tool was quite similar to a tool used by the World Bank (2019) and the World Health Organization (2019) for a similar purpose in developing nations.

Measurement of health care services was carried out based on 2 conceptual frameworks that are used commonly for assessing quality in health service delivery in developing nations. These 2 frameworks are fairly similar in terms of content and approach. The first framework is proposed by Omachonu and Einspruch (2010). The second framework

is proposed by Vera-Hernandez (2003), and uses the Principal Agent Structural Model (PASM) for measuring efficiency in health service delivery in developing nations. Both frameworks are appropriate for the measurement of service delivery assessment indicators in the literature.

5. RESULTS OF STUDY

The health care services model developed by Leonard et al. (2018) was used for assessing and evaluating the quality of health care services that are provided by employees working for the North-West Province. Table 1 shows that 309 of the 488 employees who participated in the survey (63.32%) were satisfied with the quality of health care services that were provided to the population living in the North-West Province by the standards of Leonard et al. (2018). The remaining 179 of the 488 employees who participated in the survey (36.68%) were not satisfied with the quality of health care services that were provided to the population living in the North-West Province by the standards of Leonard et al. (2018).

Table 1. Perception about the quality of health care services (n=488).

Variable of study	Number (Percentage)
Degree of satisfaction with the quality of health care services that were provided to the population living in the North-West Province by the standards of Leonard et al. (2018)	Adequate: 309 (63.32%) Inadequate: 179 (36.68%)

Table 2 shows the percentages of respondents who expressed their level of agreement with the availability of adequate financial resources for the provision of essential health care services to the population living in the North-West province. The table shows that more than half of respondents did not have enough information about the availability of financial resources for essential health care services.

Table 2. Assessment of 8 key indicators of adequate financing (n=488).

No.	Statement	SD	D	NS	A	SA
F1	Health care services are announced to the general population	7.32%	6.89%	57.56%	24.67%	3.56%
F2	Vaccination and immunisation services are provided according to schedule	4.57%	7.56%	56.67%	18.12%	13.08%
F3	Health education services are provided about HIV/AIDS on a regular basis to the various communities	5.31%	7.56%	56.01%	13.56%	17.56%
F4	Health education services are provided about tuberculosis on a regular basis to the various communities	7.11%	10.89%	52.03%	16.41%	13.56%
F5	Health education services are provided about sexually transmitted infectious diseases on a regular basis to the various communities	4.44%	16.67%	54.22%	11.78%	12.89%
F6	Health professionals are available to provide regular services to patients at designated health facilities	9.33%	16.44%	54.67%	12.67%	6.89%
F7	Health staff working at designated health facilities are neat enough	9.11%	20.44%	52.89%	14.89%	2.67%
F8	The physical environment of designated health care facilities is safely guarded	8.66%	17.78%	52.22%	19.78%	1.56%

Table 3 shows percentages for 8 key indicators of adequate medical aid or health insurance cover needed for providing efficient public health care services in the North-West Province. The table shows that the majority of respondents believe that there is adequate health insurance cover for providing efficient public health care services to

people depending on public health facilities in the North-West Province by the standards of [Watson, Yazbeck, and Hartel \(2021\)](#).

Table 3. Assessment of 8 key indicators of adequate health insurance cover (n=488).

No.	Statement	SD	D	NS	A	SA
Ins1	Health care services are provided based on a regular schedule	9.35%	7.97%	56.48%	23.19%	3.01%
Ins2	The schedule of health care services announced to the population is suitable enough for children under the age of five years	9.15%	11.89%	54.04%	16.17%	8.75%
Ins3	The schedule of health care services announced to the population is suitable enough for parents of children	9.75%	11.07%	53.79%	11.34%	14.05%
Ins4	Primary health care services are provided to all people who need the services	11.16%	14.22%	49.85%	14.54%	10.23%
Ins5	Enough vaccines are available at designated health facilities	8.97%	19.53%	51.74%	9.73%	10.03%
Ins6	Vaccines are stored according to WHO guidelines at designated health facilities	10.41%	19.40%	51.90%	10.43%	7.86%
Ins7	There are enough medical equipment for providing satisfactory services to people who need health services	11.76%	22.77%	50.24%	12.56%	2.67%
Ins8	All medical equipment needed for providing health services are in good order	10.15%	17.78%	50.73%	19.78%	1.56%

Table 4 shows percentages for 9 key indicators of adequate health service delivery for providing efficient public health care services in the North-West Province. The table shows that the majority of respondents believe that there is adequate health service delivery for providing efficient public health care services to people depending on public health facilities in the North-West Province by the standards of [Graham-Clarke, Rushton, Noblet, and Marriott \(2019\)](#).

Table 4. Assessment of 9 key indicators of adequate service delivery (n=488).

No.	Statement	SD	D	NS	A	SA
D1	Primary health care services are provided based on a regular schedule	7.25%	8.44%	56.48%	23.19%	4.64%
D2	There are enough seats in the waiting rooms of designated health facilities	9.44%	9.01%	53.79%	16.13%	11.63%
D3	The schedule of health care services announced to the population is suitable enough for women in the childbearing age of 15 to 49 years	9.50%	8.64%	53.57%	11.81%	16.48%
D4	The schedule of health care services announced to the population is suitable enough for people with chronic conditions	11.23%	11.96%	49.66%	14.66%	12.49%
D5	The quality of maternal and child health services at designated health facilities is good enough	8.39%	17.69%	51.93%	10.12%	11.87%
D6	The quality of counselling services that are provided to people who need the services is good enough	13.25%	17.45%	52.41%	11.01%	5.88%
D7	Health staff are punctual at designated health facilities	13.29%	21.48%	50.55%	13.05%	1.63%
D8	Laboratory equipment and facilities at designated health facilities are in good order	10.76%	17.78%	49.67%	18.23%	3.56%
D9	Health staff working at designated health facilities are friendly enough to visitors	11.43%	20.03%	52.12%	11.12%	5.30%

Table 5 shows percentages for 5 key indicators of capacity for paying for health service delivery. The table shows that the majority of respondents believe that there is adequate capacity for paying for health service delivery in the North-West Province by the standards of Ataguba (2021).

Table 5. Assessment of 5 key indicators of payment of health service delivery (n=488).

No.	Statement	SD	D	NS	A	SA
P1	The schedule of health care services announced to the population is implemented as planned	11.54%	7.97%	55.07%	22.94%	2.48%
P2	The schedule of health care services announced to the population is suitable enough for guardians of children	8.64%	8.58%	54.48%	16.24%	12.06%
P3	The schedule of health care services announced to the population is suitable enough for elderly people	9.30%	8.59%	53.79%	11.79%	16.53%
P4	The schedule of health care services announced to the population is suitable enough for disabled people	11.11%	12.01%	50.02%	14.42%	12.44%
P5	Essential medicines and drugs are available at the various health facilities at all times	10.11%	9.67%	62.88%	8.90%	8.44%

Table 6 shows estimates obtained from Structural Equations Modelling (SEM). The table shows that the quality of health care services in the North-West Province is significantly influenced by 3 factors. These 3 factors are the availability of enough health professionals, the provision of reliable and efficient primary health care services at all designated health care facilities, and the availability of essential medicines and drugs at all designated health care facilities. Standard goodness-of-fit tests were used for ensuring the adequacy of the fitted structural equations model.

Table 6. Predictors estimated from structural equations modelling (n=488).

Predictor of satisfactory health care services	Coefficient	Z-Statistic	P-value	OIM Std. Error
Enough health professionals	3.33	6.46	0.0000	0.0108
Efficient primary health care services	2.91	5.94	0.0000	0.0114
Essential medicines and drugs	2.62	4.93	0.0000	0.0259
Constant	2.53	4.61	0.0027	1.1884

6. DISCUSSION OF RESULTS

The study found that 309 of the 488 health professionals (63.32%) who participated in the survey believed that the quality of health care services provided to the population living in the North-West Province was good enough by World Health Organization (2019) standards, whereas the remaining 179 of the 488 participants in the survey (36.68%) believed that the quality of health care services provided to the population living in the North-West Province were not good enough by the same standards. Results obtained from structural equations modelling (SEM) showed that the quality of health care services in designated health facilities in the North-West Province was influenced by 3 factors. These were the availability of enough number of suitably qualified health professionals at all designated health facilities, the ability to provide primary health care services to all people who need the services at all designated health facilities, and the availability of essential medicines and drugs at all times at all designated health facilities.

In the North-West Province, the risk of communicable diseases such as tuberculosis, HIV/AIDS and sexually transmitted infectious diseases (STIs) varies significantly by gender, language group, race and occupation (Abbey, Wegner, Woerner, Pegram, & Pierce, 2014). The degree of access to maternal and child health services varies

significantly by occupation, language group and race (Lepoutre, Justo, Terjesen, & Bosma, 2013). About 13% of the population living in the North-West Province does not have access to medical aid (Yunus, Moingeon, & Lehmann-Ortega, 2018). This study aims to fill the gap in the literature by assessing the views and perceptions held by employees of the North-West Provincial Department of Health about health care priority settings planned for the population living in the North-West Province.

The North-West province is characterised by lack of resources that are needed for providing satisfactory health services to the general population. The National Health Insurance Plan (NHI) has been endorsed by the South African Government (South African National Department of Health, 2018). Phase 1 of NHI will be rolled out in the North-West Province under resource-constrained circumstances as part of a 5-year plan of action (2017 to 2022). Phase 2 of the plan will be rolled out over the 4-year period 2022 to 2026. Phase 3 of the plan will be rolled out over the 4-year period 2022 to 2026. Phases 1, 2 and 3 will require mid-term evaluations in order to assess the quality of health care outcomes at district health level. As such, health care priority settings play a critical role in the successful implementation of specific NHI targets and service delivery objectives in each one of the three phases of implementation.

Dudley et al. (2013) have shown that the people-to-doctor ratio in the North-West Province is 5, 500 to 1. The people-to-nurse ratio in the North-West Province is 855 to 1. The total number of health care facilities in the North West Province is 326. This figure includes 273 public clinics + 22 public hospitals + 17 private clinics + 14 private hospitals. The total number of hospital beds in the North-West Province is 6, 817. This figure includes 5, 132 public hospital beds and 1, 685 private hospital beds. Historically, the majority of black South Africans could not afford to pay for costly health care services before April, 1994 mostly due to the legacies of apartheid and economic inequality (Gilson & McIntyre, 2007).

According to Worku (2011), one of the key reasons responsible for high under-five mortality and morbidity among black South African children under the age of five years is attributed to the lack of basic and primary health care services among black South Africans. Following the introduction of the draft paper on the South African National Health Insurance (NHI) plan by the South African Government, there have been several criticisms made on the draft plan by medical aid schemes currently operating in South Africa (Dudley et al., 2013). According to Business Live (2019) about 84% of South Africans have no medical aid cover. Reports released by the South African National Department of Health (2018) and the United Nations Children's Fund (2019) indicate that mortality and morbidity rates are bound to increase among the majority of South Africans unless the Government provides medical aid cover to all South Africans by making the necessary resources available. A study conducted by the World Health Organisation, the United Nations AIDS Bureau, and the United Nations Children's Fund (2019: 2-4) has found that the South African population is quite vulnerable to the spread of HIV and AIDS as well as tuberculosis, and that unless universal medical aid cover is provided to all South Africans, the nation will not be able to meet its millennium development goals by the year 2022.

7. CONCLUSION

The research has shown that about 63% of participants are happy with the quality of health care services that are provided to the population living in North-West Province by the standards of the World Health Organization (2019). About 37% of participants are not happy with the quality of health care services that are provided to the population living in the North-West Province by the same standards.

The research has also shown that the quality of health care services in designated health facilities in the North-West Province was influenced by 3 factors. These were the availability of enough number of suitably qualified health

professionals at all designated health facilities, the ability to provide primary health care services to all people who need the services at all designated health facilities, and the availability of essential medicines and drugs at all times at all designated health facilities.

8. RECOMMENDATIONS

Based on results obtained from the survey, the following recommendations are made to the North-West Provincial Department of Health.

- It is essential to alleviate the acute shortage of suitably qualified health professionals by recruiting additional people so that they can start working in designated health care facilities with no further delay.
- It is essential to alleviate the acute shortage of essential medicines and drugs that are needed at the various designated health care facilities with no further delay.
- It is highly beneficial to provide rewards and incentives to hardworking health workers and professionals in order to show appreciation.
- It is highly beneficial to take appropriate action against employees and managers and administrators who abuse resources.
- Awareness education must be provided to all employees and managers on the importance of accountability to the people, good ethical conduct and good leadership.
- Strategic partnerships and collaborations should be forged with private sector institutions with a view to improve the current health coverage rate in the North-West Province.

REFERENCES

- Abbey, A., Wegner, R., Woerner, J., Pegram, S. E., & Pierce, J. (2014). Review of survey and experimental research that examines the relationship between alcohol consumption and men's sexual aggression perpetration. *Trauma, Violence, & Abuse*, *15*(4), 265-282. Available at: <https://doi.org/10.1177/1524838014521031>.
- Abdullah, I., Jafta, A. D., & Chapanduka, Z. C. (2020). The impact of physician education regarding the importance of providing complete clinical information on the request forms of thrombophilia-screen tests at Tygerberg hospital in South Africa. *PloS One*, *15*(8), e0235826. Available at: <https://doi.org/10.1371/journal.pone.0235826>.
- Amin, A. (2015). Addressing gender inequalities to improve the sexual and reproductive health and wellbeing of women living with HIV. *Journal of the International AIDS Society*, *18*(1), 1-13. Available at: <https://doi.org/10.7448/ias.18.6.20302>.
- Arantes, L. J., Shimizu, H. E., & Merchán-Hamann, E. (2016). The benefits and challenges of the Family Health Strategy in Brazilian Primary Health care: A literature review. *Science and Public Health*, *21*, 1499-1510.
- Ataguba, J. E. (2021). The impact of financing health services on income inequality in an unequal society: The case of South Africa. *Applied Health Economics and Health Policy*, *19*(5), 721-733.
- Business Live. (2019). Medical aid cover in South Africa. Retrieved from: <http://www.bhfglobal.com/>. [Accessed 31 Dec 2021].
- Dudley, L., Selebano, T. E., Nathan, R., Kirsten, R., Ciapparelli, P., Mutshekwan, M. N. Z., & Basu, D. (2013). Re-launch of the South African Society of Medical Managers (previously known as the medical administrators group). *SAMJ: South African Medical Journal*, *103*(1), 23-23.
- Gilson, L., & McIntyre, D. (2007). Post-apartheid challenges: Household access and use of health care in South Africa. *International Journal of Health Services*, *37*(4), 673-691. Available at: <https://doi.org/10.2190/hs.37.4.f>.
- Graham-Clarke, E., Rushton, A., Noblet, T., & Marriott, J. (2019). Non-medical prescribing in the United Kingdom National Health Service: A systematic policy review. *PloS One*, *14*(7), e0214630. Available at: <https://doi.org/10.1371/journal.pone.0214630>.

- Kruk, M. E., Kelley, E., Syed, S. B., Tarp, F., Addison, T., & Akachi, Y. (2017). Measuring quality of health-care services: What is known and where are the gaps? *Bulletin of the World Health Organization*, 95(6), 389. Available at: <https://doi.org/10.2471/blt.17.195099>.
- Leonard, H., Friedman, G. T., & Savage, J. G. (2018). Annual review of health care management: Strategy and policy perspectives on reforming health systems. *Advances in Health Care Management*, 13(1), 37-43.
- Lepoutre, J., Justo, R., Terjesen, S., & Bosma, N. (2013). Designing a global standardized methodology for measuring social entrepreneurship activity: The Global Entrepreneurship Monitor social entrepreneurship study. *Small Business Economics*, 40(3), 693-714.
- Levy, P. S., & Lemeshow, S. (2013). *Sampling of populations: Methods and applications*. New York: John Wiley & Sons.
- Mail, & Guardian Newspaper. (2011). South African hospitals losing ambulances to theft (Publication of 20 March 2011). Retrieved from: <https://mg.co.za/article/2011-03-29-sa-hospitals-losing-ambulances-to-theft>.
- Modjadji, P., Molokwane, D., & Ukegbu, P. O. (2020). Dietary diversity and nutritional status of preschool children in North West Province, South Africa: A cross sectional study. *Children*, 7(10), 174. Available at: <https://doi.org/10.3390/children7100174>.
- Ndinda, C., Ndhlovu, T. P., Juma, P., Asiki, G., & Kyobutungi, C. (2018). The evolution of non-communicable diseases policies in post-apartheid South Africa. *BMC Public Health*, 18(1), 1-12.
- North-West Provincial Department of Health. (2020). Annual report for the financial year 2018/2019. Retrieved from: <https://provincialgovernment.co.za/units/financial/101/north-west/health>. [Accessed 31 Dec 2021].
- Omachonu, V. K., & Einspruch, N. G. (2010). Innovation in healthcare delivery systems: A conceptual framework. *The Innovation Journal: The Public Sector Innovation Journal*, 15(1), 1-20.
- Ranganathan, M., Stern, E., Knight, L., Muvhango, L., Molebatsi, M., Polzer-Ngwato, T., & Stöckl, H. (2022). Women's economic status, male authority patterns and intimate partner violence: A qualitative study in rural North West Province, South Africa. *Culture, Health & Sexuality*, 24(5), 717-734. Available at: <https://doi.org/10.1080/13691058.2021.1880639>.
- Scull, T. M., Malik, C. V., & Kupersmidt, J. B. (2014). A media literacy education approach to teaching adolescents comprehensive sexual health education. *The Journal of Media Literacy Education*, 6(1), 1. Available at: <https://doi.org/10.23860/jmle-6-1-1>.
- South African National Department of Health. (2018). Annual report for 2016/2017. Retrieved from: <https://www.gov.za/documents/department-health-annual-report-20162017-7-sep-2017-0000>. [Accessed 31 Dec 2021].
- Statistics South Africa. (2020). Mid-year estimates for 2020 (Statistical release P0302). Retrieved from: <http://www.statssa.gov.za/publications/P0302/P03022020.pdf>. [Accessed 31 Dec 2021].
- Tang, C. C., Von Ah, D., & Fulton, J. S. (2018). The symptom experience of patients with advanced pancreatic cancer: An integrative review. *Cancer Nursing*, 41(1), 33-44.
- United Nations Children's Fund. (2019). The state of the world's children Special Edition: Celebrating 20 Years of the Convention on the Rights of the Child. Retrieved from: <https://resourcecentre.savethechildren.net/document/state-worlds-children-special-edition-celebrating-20-years-convention-rights-child/>. [Accessed 31 Dec 2021].
- Vera-Hernandez, M. (2003). Structural estimation of a principal-agent model: Moral hazard in medical insurance. *RAND Journal of Economics*, 34(4), 670-693. Available at: <https://doi.org/10.2307/1593783>.
- Watson, J., Yazbeck, A. S., & Hartel, L. (2021). Making health insurance pro-poor: Lessons from 20 developing countries. *Health Systems & Reform*, 7(2), e1917092. Available at: <https://doi.org/10.1080/23288604.2021.1917092>.
- Worku, Z. (2011). A survival analysis of South African children under the age of five years. *Health SA Gesondheid*, 16(1), 90-101. Available at: <https://doi.org/10.4102/hsag.v16i1.472>.

- World Bank. (2019). Report by the independent evaluations group of the world bank on development indicators. Retrieved from: <http://www.worldbank.org/ieg/>. [Accessed 31 Dec 2021].
- World Health Organization. (2019). Annual report for 2019. Retrieved from: <https://www.afro.who.int/>. [Accessed 31 Dec 2021].
- Yunus, M., Moingeon, B., & Lehmann-Ortega, L. (2018). Building social business models: Lessons from the Grameen Bank Experience. *Long Range Planning*, 43(1), 308-325.

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