

Public engagement in the development of the National Health Insurance (NHI): knowledge, awareness and participation of patients from the Internal Medicine Department at Charlotte Maxeke Johannesburg Academic Hospital in the NHI Policy Process

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Abstract

Background Public involvement of citizens in the legislative development process is a constitutional requirement in South Africa. Relevant stakeholders should be engaged in the process. Patient engagement refers to the active involvement of patients in the decision-making processes at multiple levels in the health system. In order for patients to be engaged, they need to be provided with relevant information and an opportunity to be involved in the policy-making process. **Methods** This was cross sectional and quantitative study with descriptive and comparative analyses. 244 patients from the follow-up clinics at the Internal Medicine Department at Charlotte Maxeke Johannesburg Academic Hospital in the Gauteng Province, South Africa. The patients were interviewed through a structured interview, using a questionnaire. Descriptive statistics and logistic regression univariate and multivariate analyses were performed. **Results** The majority (79.51%) of the participants were not aware of the proposed National Health Insurance (NHI) in South Africa even though the initiation of this process commenced in 2011. Of the participants who were aware of the NHI (20.49%), the range of the knowledge questions answered correctly was between 50% and 68%. Most (86%) of the participant who were aware of the NHI had not received an opportunity to be involved in the policy making process of the NHI. Even though most of the participants were not aware of the NHI, the majority of the participants were interested in being involved in NHI policy development process. There were associations observed between sex, race, employment status and education level variables and the odds of awareness on the NHI. **Conclusions** The majority of participants involved in this study were not aware and they were not equipped to be involved in the NHI policy process. Most of the participants were not provided with suitable opportunities for them to be involved in the NHI policy process, despite public involvement in such a process being constitutional requirement.

Background

The South African National Health Insurance (NHI) is health legislation that is under development. It aims to ensure health equity through universal health coverage, and to address the burden of diseases in South Africa¹. The NHI hopes to achieve this through transforming the structure and the financing model of the South African healthcare system. It is to be implemented in phases over 14 years¹⁻³. The NHI Bill was gazetted in 2018. This is the 4th official document towards the development of the NHI since the NHI Green Paper in 2011^{4,5}.

Public involvement in the law making process is a constitutional requirement in South Africa as per its stipulations in sections 59 (1)(a), 72 (1)(a) and 118 (1)(a)⁶. As such, being involved in developing legislation like the NHI is a constitutional imperative. Public involvement is in consonant with the representative and participatory elements that the South African democracy is founded on⁶. The World Health Organisation (WHO) has identified key stakeholders of the health policy making process and they include government and private sectors, community groups and patients⁷. Stakeholders should be engaged at the different stages of the policy process^{6,7}.

Patient engagement is “to promote and support active patient and public involvement in health and healthcare and to strengthen their influence on healthcare decisions, at both the individual and collective levels”⁸. Patient engagement occurs at three levels: micro-engagement which is involvement and decision-making at the individual and clinical level; meso-engagement which is decision-making at the organizational level and macro-engagement which is patient involvement in policy decision-making at the district, national and international levels⁸⁻¹⁰. Patient engagement in the NHI is a type of macro-engagement. Patients ought to be engaged at all levels since each level has a direct impact on their health and lives. Patient engagement enhances patient dignity and autonomy which is important for patient activation, i.e., the patient’s ability to have an active role in their health. This positively influences health outcomes and experiences of patients in the health system¹¹. The Ottawa Charter for Health Promotion recognizes that engagement empowers communities and patients to have a sense of ownership over their health lives¹².

Raboshakga (2015) proposed a two-step reasonableness approach to fulfil the constitutional requirement of public involvement¹³:

1. The public needs to be equipped with the relevant information on the policy or legislation and must be aware of their right to be involved in the policy making process. This enhances the awareness of the public on the legislative process and enables them to be involved.
2. An opportunity needs to be provided for interested members of the public to be involved in a meaningful and effective way¹³.

The elements of this approach include: receiving information, awareness of the right to be involved, galvanizing public interest and providing an opportunity for the public to be involved. These elements are essential to engagement in the legislative process¹³.

The NHI White Paper stated that there were 150 written submissions and more than 60 000 citizens were engaged through national and provincial roadshows during the development of the NHI Green and White Papers¹⁴. Citizens are invited to make submissions to the policy documents when they are released⁴, however other measures to provide opportunities for stakeholders such as engagement with patients and the lay public to our knowledge have not been undertaken since the NHI White Paper¹⁴. 60 000 citizens at a national engagement level is only a small percentage of the South African adult population of 40.7 million people¹⁵ and it is unclear who was engaged with during these campaigns and whether this engagement was effective¹⁴. With the elements of Raboshakga’s two-step approach¹³ as a background, this study set out to investigate whether patients at follow up clinics in the Internal Medicine Department of the Charlotte Maxeke Academic Hospital were aware of the NHI and whether they had been engaged in the NHI policy making process.

Methodology

This study was cross sectional and quantitative, utilizing structured interviews and comprised both descriptive and comparative analyses. The aim was to determine if patients from three follow-up clinics of the Internal Medicine Department at the Charlotte Maxeke Johannesburg Academic Hospital (CMJAH) have been involved in the policy making process of the NHI. This was investigated through exploring whether participants had the capability to be involved in the NHI policy making process by measuring the patients' awareness and knowledge on the NHI policy. This study also sought to establish whether these patients knew that they have a right to be involved in the NHI policy making process and whether they had been provided an opportunity to be involved in the policy development of the NHI.

Study setting

The study participants were patients from Rheumatology, Pulmonology and Nephrology follow-up clinics at the Internal Medicine Department at CMJAH. CMJAH is a Central Hospital in the city of Johannesburg and receives referrals from regional and tertiary hospitals in and around the city¹⁶. Johannesburg is a city in the Gauteng Province of South Africa.

Sampling procedure and selection of participants

Data was collected from 244 participants. The sample size was determined using an 80% response rate based on a previous public awareness study on NHI in South Africa¹⁷. A 5% margin of error, Confidence Interval of 95%, and an estimated population size of 20 000 patients per annum who use the CMJAH.

Patients were individually approached and recruited while waiting in the queue at follow-up clinics. They were enrolled into the study if they were from the Rheumatology, Pulmonology and Renal follow-up clinics of the Internal Medicine Department at the CMJAH after obtaining written informed consent. Participants of all races and both males and females were enrolled. All participants had to be 18 years and older in order to be involved in the study. Participants were excluded from the study if they were under the age of 18 years and could not communicate in English, isiZulu and/or isiXhosa as the researcher was fluent in these languages only.

Data collection and instruments

Prior to involvement in the study, prospective participants were provided with information about the study, and they were allowed to ask questions about the study. Once the participants were clear on what participating in this study entailed, consent was obtained from the participants and each participant signed an informed consent form prior to the interview.

Data was collected from 244 participants between July and October 2017. The participants were interviewed using a questionnaire and through a structured interview process. The questionnaire was comprised of a demographic component and questions about awareness and knowledge on the NHI and involvement in the NHI policy making process. The awareness and knowledge questions were drawn from a questionnaire that was developed by the National Department of Health of South Africa that was

used in a similar study to this one¹⁷. Prior to the collection of data a pilot study was conducted, where 10 participants were interviewed at the study site. This was done in order to test the instrument at the study site and to determine if the study would be feasible.

Demographic data collected included the following variables: age, sex, race, employment status and education level. The questionnaire included twelve questions, with three answer options for each question. The pilot study informed the categories of the demographic variables and the structure and process of the interview. Participants who were aware of the NHI were taken through all twelve questions of the questionnaire and participants who were not aware of the NHI were not asked the knowledge questions (figure 1). After the interview all participants received an information booklet on the NHI developed by the National Department of Health of South Africa as part of information sharing¹⁸.

Data management and analyses

In order to safeguard the confidentiality of information obtained from the participants the data was coded to ensure anonymity. The data was coded onto an excel spreadsheet prior to analyses. The researcher and supervisor were the only people who had access to the raw data.

Descriptive statistics and frequencies for the demographic variables and the questionnaire answers were used for analysis. Univariate and multivariate logistic regression tests were conducted, to compare statistical differences between the demographic variables and the awareness of the NHI. STATA software version 14 was used to run the statistical analyses.

Ethical considerations

Ethics approval to conduct this study was obtained from the Human Research Ethics Committee (Medical) (HREC) at the University of the Witwatersrand. The clearance number is: M1704105. In parallel with ethics approval from the HREC, permission to conduct the study was obtained from the CMJAH Clinical Director and the Head of the Internal Medicine Department.

Limitations

This research was part of a Masters research¹⁹ and due to the time limitations the participants were limited to the Internal Medicine Department at CMJAH. The follow-up clinics were chosen specifically because patients who continuously use the health facility's follow-up clinics should be aware of any developments in the health system over time. Language was a limitation because the researcher is only fluent in English, isiXhosa and isiZulu and this limited patients who do not speak these languages from participating in the study. The questionnaire were not officially translated into isiZulu and isiXhosa.

Figure 1: Figure depicting the structure and process of the interview.

Results

Demographics

The age range of the participants was between 18 and 82 years and the mean age was 41.49 years with the standard deviation being 15.2. A Shapiro-Wilk test for normality was run to test normality of age, which presented as a normal distribution. There were more female than male participants (table 1). The sex percentages of the participants in this research were marginally different to the percentages of the female (49.9%) and male (50.1%) population in Johannesburg²⁰. Most of the participants were Black followed by White, Coloured, Indian and Other race groups (table 1). Half of the participants were unemployed although of working age and 13.93% of the participants were retired. A total of 36.07% participants were categorised as employed, both formally and semi-employed. This included participants who were informally and part-time employed. The majority of participants had received secondary education and a third had received tertiary education. Participants who had no education or only received primary education were in the minority (table 1). A minority of the participants knew about the NHI, with 20.49% (n=50) of the participants responding that they had heard about the NHI. 19.67% participants replied that they had heard about the South African National Health Insurance (NHI) before a brief description of the NHI was provided, and 0.82% of the participants replied that they had heard about the NHI following the brief description. 79.51% (n = 194) of the participants had not heard about the NHI previously.

Table 1: Participants' Demographics.

Awareness on the NHI

Figure 2 depicts the results of the participants who replied yes to question 1: "Have you heard about the South African National Health Insurance (NHI)?" with and without the description on the NHI. They comprised 20.49% (n = 50) of the total number of participants. Of the 20.49%, 68% of the participants knew that the NHI would change the South African Healthcare sector. The fact that medical expenses would be covered by the NHI was known by 58%, and 62% of the participants knew that the expenses would be paid for from the national budget. 64% of the participants were aware that all citizens would have the same access to medical assistance under the NHI. However, 50% of these participants were not aware if both the employed and unemployed would receive the same access to medical services, with 36 % responding 'no' and 14% responding 'I do not know'. 76% of these participants were aware that the NHI has been under discussion for many years and 60% had been provided with information about the NHI.

Figure 2: Questionnaire depicting results from questions 2 – 9, which were applicable to those who had heard about the NHI. Total frequency (n) = 50. Key: Q is Question. Refer to questionnaire for the questions.

Involvement in the NHI policy development

Participants were asked if they had received an opportunity to be involved in the NHI policy making process. Of the participants that had heard about the NHI (n=50), 62% of the participants knew that they

could participate in NHI policy discussion, however 86% responded that they had not received an opportunity to participate in policy discussion about the NHI. All the participants (n= 244) were asked if they would be interested to participate in NHI policy discussions and 84.43% of the participants said that they would be interested in being involved in policy making process. The majority of participants (91.39%) knew that they had a right to be involved in policy making process.

Univariate and Multivariate analyses

In order to run the logistic regression univariate and multivariate analyses changes had to be made to the data. The semi-employed and employed categories were combined into one category: 'employed'. There was one participant who had no education and this data did not run in the logistic regression, therefore it had to be removed. Hence, employment status and education levels each had three categories for these analyses instead of the four as on the questionnaire.

The univariate analysis showed that demographic variables that were significant predictors of awareness on the NHI were sex, race and employment status (table 2). The odds of awareness on the NHI were 2.08 times greater among males compared to females. Compared to Black participants, the odds of awareness on the NHI were 2.36 times and 2.76 times greater in the White and Indian participants respectively. In addition, the odds of awareness on the NHI among the retired were 3.13 times greater compared to participants who were unemployed.

The multivariate analysis showed that age was the only significant predictor for awareness on the NHI (table 3). When adjusting for sex, race, employment status and education level, the odds of awareness on the NHI were less among participants who were between the ages of 20-29 years when compared to participants who were younger than 20 years old (18 – 19 years).

There are changes that are observed in the odds of awareness on the NHI of the sex, race, employment status and education variables in the multivariate analysis, when compared to the univariate analysis (table 3). Although the odds ratio changes are not statistically significant, they are important. When adjusting for age, race, employment status and education, the odds of awareness on the NHI among males decreased from 2.08 times greater in the univariate analysis to 1.62 times greater compared to female participants in the multivariate analysis. When adjusting for age, sex, employment status and education level, the odds of awareness on the NHI among White participants decreased from 2.36 times greater in the univariate analysis to 1.24 times greater than Black participants in the multivariate analysis. The odds of awareness for Indian participants decreased from 2.76 times greater in the univariate analysis to 1.40 times greater compared to Black participants. When adjusting for age, sex, race and education level the odds of awareness on the NHI for the retired participants decreased from 3.13 times greater in the univariate analysis to 1.14 times greater compared to participants who were unemployed. When adjusting for age, sex, race and employment status the odds of awareness on the NHI of participants with tertiary education increased from 2.5 times greater in the univariate analysis to 3.51 times greater when compared to participants with primary education (table 3).

Table 2: Univariate Analysis between demographic categories and the awareness of the NHI.

Table 3: Multivariate analysis between multiple demographic categories and the awareness on the NHI.

Discussion

The results show that the majority of the participants (79.51%) in the present study had not heard about the NHI. The interviews for this study were conducted after the release of the NHI Policy in June 2017, which is the policy document that preceded the NHI Bill^{1,4}. At this point the knowledge levels on the policy may have been limited generally, however patients should at least be aware of the NHI. Patients at follow up clinics are exposed to and use the health system regularly and should have heard about the NHI at some point during their interactions and time spent at the hospital.

A similar study that was conducted by Setswe, *et al.* in 2015 found that 80.3% of their participants were aware of the NHI¹⁷. This awareness percentage is virtually the inverse of what the present study found. The study by Setswe, *et al.* (2015) was conducted in 3 provinces in South Africa, with a combination of participants from rural, peri-urban and urban areas. The study employed a pre-test and post-test quasi-experiment methodology which may have introduced bias to the research. Some of the participants in this study were from a NHI pilot site (Edendale Hospital in Umgungundlovu district), although they were in the minority of the total sample, this may have introduced bias as well. Even though awareness on the NHI was high in this study, it was found that the majority of participants did not understand or have adequate knowledge on the important concepts of health insurance. This means that even though there was increased awareness, there was limited knowledge on the NHI¹⁷. In order to equip citizens to be involved in the policy making process of the NHI, awareness and knowledge are necessary. Unlike the study by Setswe, *et al.* this research was conducted in an urban area which is a non-pilot site and there was no intervention prior to the data collection¹⁷.

Of those participants who were aware of the NHI in the current study (20.49%), the majority were cognisant of the policy covering medical expenses and that funding would be through the national budget. However, there was uncertainty as to whether employment status would affect access to services that patients had. The majority of those who were aware of the NHI knew that the policy has been under discussion for many years, with 60% of these participants responding that they had been provided with information on the NHI. Information on the source of the NHI information was not investigated in this study, however it may be a consideration to make in future studies because access to information can be limited in certain groups and geographical areas. The results demonstrate that most of the participants who were aware of the NHI had knowledge on the basics tenets of the NHI. These participants do not represent all participants because they were only 20.49% of the total study population. Therefore, it cannot be claimed that patients at the follow-up clinics of the Internal Medicine Department at CMJAH are aware of and have adequate knowledge on NHI.

The majority of participants, both those who were aware of the NHI and those who were not, knew that they have a right to be involved in policy making of the NHI. A study conducted in a Tanzanian district found that the community did not participate in the policy discussions because they were not aware that they had a right to be involved in policy decision-making²¹. This is contrary to the findings of the present study, as 91.39% of the participants knew that they have a right to be involved in the policy making process of the NHI. In order for this right to be realised, there ought to be fair opportunity for patients to be involved in the policy making process, which the majority of the participants in this study were not provided with. Pateman (2012) found that even though citizens may not be au fait with the technicalities of health policies they are still interested in being involved²². This is especially since health policies affect their lives directly²². Pateman's findings are consistent with the findings of this study because, 84.43% of all participants were interested in being involved in the policy making process.

Even though most of the participants were interested in being involved, they had not been provided with an opportunity to be involved in the policy making process. The questionnaire did not have a follow-up question to establish what the involvement of those who had received an opportunity to be involved (2.87%) entailed. Further research needs to be done to investigate the procedures followed during engagement to establish if the activity is representative and whether these procedures result in meaningful and effective engagement.

The results from the univariate and multivariate analyses show that demographic variables have an association with the levels of awareness on the NHI. Sex was a significant predictor, with the odds of awareness being greater in males than females. Females are considered to be more active users of the health system than males, however in this study it was found that males were more likely to be aware of the NHI than females²³. Race was also a significant predictor of awareness of the NHI, with White and Indian participants odds of awareness on the NHI being greater than Black participants, even though the majority of the users of the public health system and population in South Africa are Black citizens¹⁴. Racial categorization is used in the socio-political-economic context of South Africa where the apartheid legacy continues impacting socioeconomic condition and access to health care. In this paper, racial categorization is used as an illustration of these still existing historical inequities and not as an acknowledgement of these social constructs^{24,25}. Considering the sex and race results, it means that while patients, such as females and Black patients, use the public health system more than other groups, this does not guarantee that they will be aware of changes in the health system. The odds of awareness on the NHI were greater in those above the age of 50 years than younger participants and those who were retired (above 60 years) had greater odds of awareness than the unemployed. The older participants may be more aware of the NHI because they possibly take particular interest in health system changes as a result of their age coupled with their need for health services which is more than that of the younger age groups.

Education is identified as a domain of public health action and promotes health equity²⁶. Education plays an important role in the levels of awareness of the NHI, with the odds of awareness of those who had

tertiary education being more than those who had primary education only. The odds of awareness of those with tertiary education compared to primary education were the highest in the univariate analysis, even though not statistically significant. There is a directly proportional relationship between education level and awareness. The higher the education level, the more likely citizens are to have access to information and therefore have the ability to be involved in policy discussions²⁶⁻²⁸. A similar study on the awareness, knowledge and perceptions on the NHI found that the levels of support of the NHI were associated with the level of education, with higher education levels being associated with increased levels of awareness and support for the NHI²⁹. This shows a causal relationship between the level of education and the level of awareness of the NHI, which is consistent with findings of the present study. Education is a confounding factor in the literature and the greater the level of education that citizens have, the more likely they are to be aware of their social policies.

The results show that the patients from the follow-up clinics at the Internal Medicine Department, CMJAH were not aware of the NHI, nor do they have adequate knowledge to be involved in the policy making process. This would result in any form of engagement being of poor quality. Moreover, these patients were not even provided with an opportunity to be involved the policy making process.

Conclusion

It is evident that most (79.51%) of the participants from the follow-up clinics at the Internal Medicine Department at CMJAH were not aware of the NHI. Those who were aware of the NHI, although in the minority (20.49%), had adequate knowledge on the NHI. The univariate and multivariate analyses have shown that demographic variables are associated with the patient's awareness on the NHI. The variables that presented a significant association are sex, race and employment status. Education level also showed a notable association, although it was not significant.

Based on these results, the participants of this study were not capable of being involved in the policy making process of the NHI as they were not equipped to do so, as a minority (12.29%) of all the participants had information on the NHI. The majority (91.39 %) knew that they had a right to be involved in the policy making of the NHI. Moreover, most participants were not provided with an opportunity to be involved in the NHI. Only a minority of the participants received an opportunity to participate in the NHI and it cannot be claimed the constitutional requirement to involve the public in the policy making process has been met⁶. The National and Provincial Departments of Health have a responsibility to raise more awareness on the NHI and engage key stakeholders such as patients. A specific focus on previously disadvantaged groups and communities is important in the policy making process of the NHI to ensure inclusivity of these vulnerable groups. Information on the NHI and the opportunity to be involved in the NHI process must be accessible and acceptable. Further studies need to be conducted to consider the procedures of health policy engagement in South Africa and at larger scale than this study in order to establish how meaningful, effective and representative these processes are.

List Of Abbreviations

Charlotte Maxeke Johannesburg Academic Hospital: CMJAH

Human Research Ethics Committee (Medical): HREC

National Health Insurance: NHI

Question: Q

World Health Organization: WHO

Declarations

Ethics approval and consent to participate

Ethics approval to conduct this research was obtained from the Human Research Ethics Committee (Medical) at the University of the Witwatersrand. The ethics application was approved on the 9th of June 2017. The clearance certificate number is M1704105. Written informed consent was obtained from all participant in this research prior to the interview.

Consent for Publication

Not applicable

Availability of data and materials

Dataset used or analysed is available from corresponding author.

Competing interests

None.

Funding

None.

Authors' contribution

LT contributed to the conception and planning of the research, collected and analysed the data and prepared the manuscript.

AD contributed significantly to the conception and the design of the research and commented on drafts of the manuscript. This paper is drawn from LT Masters research project and AD supervised the research.

The manuscript was approved by both authors.

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Disclaimer

Some of the results of this paper are different from those from the original Masters research project because the demographic variables were re-categorized for the logistic regression analyses (univariate and multivariate) when preparing for this paper.

References

1. National Health Insurance Policy. South Africa. 2017.
<http://www.health.gov.za/index.php/component/phocadownload/category/383>. Accessed 06 May 2019.
2. Braveman P, Gruskin S. Defining equity in health. *J Epidemiol Community Heal*. 2003;57.
3. Marmot M, Friel S, Bell R, Houweling TAJ. Closing the gap in a generation: health equity through action on the social determinants of health. *Lancet*. 2008;372.
4. National Health Insurance Bill. South Africa. 2018.
<http://www.health.gov.za/index.php/component/phocadownload/category/383>. Accessed 06 May 2019.
5. National Health Insurance Green Paper. South Africa. 2011. <http://www.hst.org.za/publications/green-paper-national-health-insurance-south-africa>. Accessed 06 May 2019.
6. Constitution of the Republic of South Africa. 1996.
<http://www.justice.gov.za/legislation/constitution/SACConstitution-web-eng.pdf>. Accessed 06 May 2019.
7. World Health Organization. Engaging Stakeholders.
<http://www.who.int/nationalpolicies/processes/stakeholders/en/>. Accessed 06 May 2019.
8. Carman K, Dardess P, Maurer M, Sofaer S, Adams A, Bechtel C, et al. Patient And family engagement: A framework for understanding the elements and developing interventions and policies. *Health Aff*. 2013; doi:10.1377/hlthaff.2012.1133.
9. Carman KL, Workman TA. Engaging patients and consumers in research evidence: Applying the conceptual model of patient and family engagement. *Patient Educ Couns*. 2017; doi: 10.1016/j.pec.2016.07.009.
10. Souliotis K, Agapidaki E, Peppou LE, Tzavara C, Varvaras D, Buonomo OC, et al. Assessing Patient Organization Participation in Health Policy: A Comparative Study in France and Italy. *Int J Heal Policy Manag*. 2017;7:1.
11. Hibbard JH, Mahoney E. Patient Education and Counseling Toward a theory of patient and consumer activation. *Patient Educ Couns*. 2010;78:3.

12. Ottawa Charter for Health Promotion. 1986.
http://www.euro.who.int/__data/assets/pdf_file/0004/129532/Ottawa_Charter.pdf. Accessed 06 May 2019.
13. Raboshakga N. Towards participatory democracy, or not: The reasonableness approach in public involvement cases. *S Afr J Hum Rights*. 2015;31:1.
14. National Health Insurance White Paper. South Africa: 2015. <https://www.health-e.org.za/wp-content/uploads/2015/12/National-Health-Insurance-for-South-Africa-White-Paper.pdf%0Ahttp://www.doh.gov.za/list.php?type=National> Health Insurance. Accessed 06 May 2019.
15. Statistics South Africa: <http://www.statssa.gov.za/?p=11341>. Accessed 06.May 2019.
16. Department of Health. National Health Act: Regulations: Categories of hospitals. 2012.
<http://www.health.gov.za/index.php/2014-03-17-09-09-38/legislation/joomla-split-menu/category/84-2012r?download=138:regulations-relating-to-categories-of-hospitals-r185-2012>. Accessed 06 May 2019.
17. Setswe G, Muyanga S, Witthuhn, Nyasulu P. Public awareness and knowledge of the National Health Insurance in South Africa. *Pan Afr Med J*. 2015;22:19.
18. Department of Health Understanding National Health Insurance.
<http://www.health.gov.za/index.php/nhi/category/274-nhi-booklets>. Accessed 06 May 2019.
19. Tandwa L. How much community engagement of patient stakeholders has there been on the National Health Insurance? A bioethic enquiry. 2018. <http://wiredspace.wits.ac.za/handle/10539/27205>). Accessed 06 June 2019.
20. Statistics South Africa: <http://cs2016.statssa.gov.za/wp-content/uploads/2016/06/CS-2016-Provinces-at-a-glance.pdf>. pg.15. Accessed 06 May 2019.
21. Maluka S, Kamuzora P, SanSebastián M, Byskov J, Ndawi B, Olsen Ø, et al. Implementing accountability for reasonableness framework at district level in Tanzania: A realist evaluation. *Implement Sci*. 2011;6:1.
22. Pateman C. Participatory democracy revisited. *Perspect Polit*. 2012;10:1.
23. Abaerei AA, Ncayiyana J, Levin J. Health-care utilization and associated factors in Gauteng province, South Africa. *Glob Health Action*. 2017;10:1.
24. Kon ZR, Lackan N. Ethnic disparities in access to care in post-apartheid South Africa. *Am J Public Health*. 2008;98:12.
25. Ataguba JE, Akazili J, McIntyre D. Socioeconomic-related health inequality in South Africa: Evidence from General Household Surveys. *Int J Equity Health*. 2011;10.

26. Hahn R, Truman B. Education improves public health and promotes health equity. *Int J Heal Serv.* 2015;45:4.
27. Ocloo J, Matthews R. From tokenism to empowerment: Progressing patient and public involvement in healthcare improvement. *BMJ Qual Saf.* 2016;25:8.
28. Marais D, Quayle M, Burns J. The role of Access to Information in Enabling Transparency and Public Participation in Governance A case study of Access to Policy Consultation Records in South Africa. *African J Public Aff.* 2017;9:6.
29. Evans M, Shisana O. Gender differences in public perceptions on National Health Insurance. *SAMJ.* 2012;102:12.

Tables

Table 1: Participants' Demographics.

Variables	Frequency (n)	Percentage (%)
Sex		
Male	97	39.75
Female	147	60.25
Race		
Black	166	68.03
White	36	14.75
Coloured	18	7.38
Indian	19	7.79
Other	5	2.05
Employment status		
Employed	76	31.15
Semi-employed	12	4.92
Unemployed	122	50.00
Retired	34	13.93
Education level		
No education	1	0.41
Primary	13	5.33
Secondary	137	56.15
Tertiary	93	38.11

Table 2: Univariate Analysis between demographic categories and the awareness of the NHI.

Variables	Odds Ratio	95% Confidence Interval (CI)	p-value
Age (years)			
<20 (base)	1	-	-
20 - 29	0.21	0.02 - 1.49	0.12
30 - 39	0.73	0.13 - 4.12	0.72
40 - 49	0.60	0.10 - 3.40	0.56
>50	2.13	0.41 - 11.0	0.37
Sex			
Male	2.08	1.11 - 3.9	0.02*
Female (base)	1	-	-
Race			
Black (base)	1	-	-
White	2.36	1.06 - 5.26	0.04*
Coloured	0.28	0.04 - 2.17	0.22
Indians	2.76	0.10 - 7.60	0.05*
Other	1.18	0.13 - 10.96	0.884
Employment status			
Unemployed (base)	1	-	-
Employed	1.07	0.52 - 2.19	0.86
Retired	3.13	1.35- 7.25	0.008*
Education level			
Primary (base)	1	-	-
Secondary	0.90	0.18 - 4.31	0.90
Tertiary	2.50	0.52 - 12.0	0.26

-

Base = 1

*: $p < 0.05$ therefore statistically significant

Table 3: Multivariate analysis between multiple demographic categories and the awareness on the NHI.

Variables	Odds Ratio	95% Confidence Interval (CI)	p-value
Age (years)			
<20 (base)	1	-	-
20 - 29	0.12	0.02 - 1.03	0.053*
30 - 39	0.60	0.09 - 4.0	0.57
40 - 49	0.50	0.07 - 3.54	0.49
>50	1.67	0.26 - 11.02	0.60
Sex			
Males	1.62	0.79 - 3.33	0.19
Females (base)	1	-	-
Race			
Black (base)	1	-	-
White	1.24	0.46 - 3.35	0.67
Coloured	0.19	0.02 - 1.61	0.13
Indians	1.40	0.42 - 4.63	0.60
Other	0.95	0.08 - 11.71	1.0
Employment status			
Unemployed (base)	1	-	-
Employed	0.88	0.38 - 2.04	0.77
Retired	1.14	0.37 - 3.46	0.82
Education level			
Primary (base)	1	-	-
Secondary	0.96	0.18 - 5.0	1.0
Tertiary	3.51	0.66 - 18.65	0.14

Base = 1

*: $p < 0.05$ therefore statistically significant

Figures

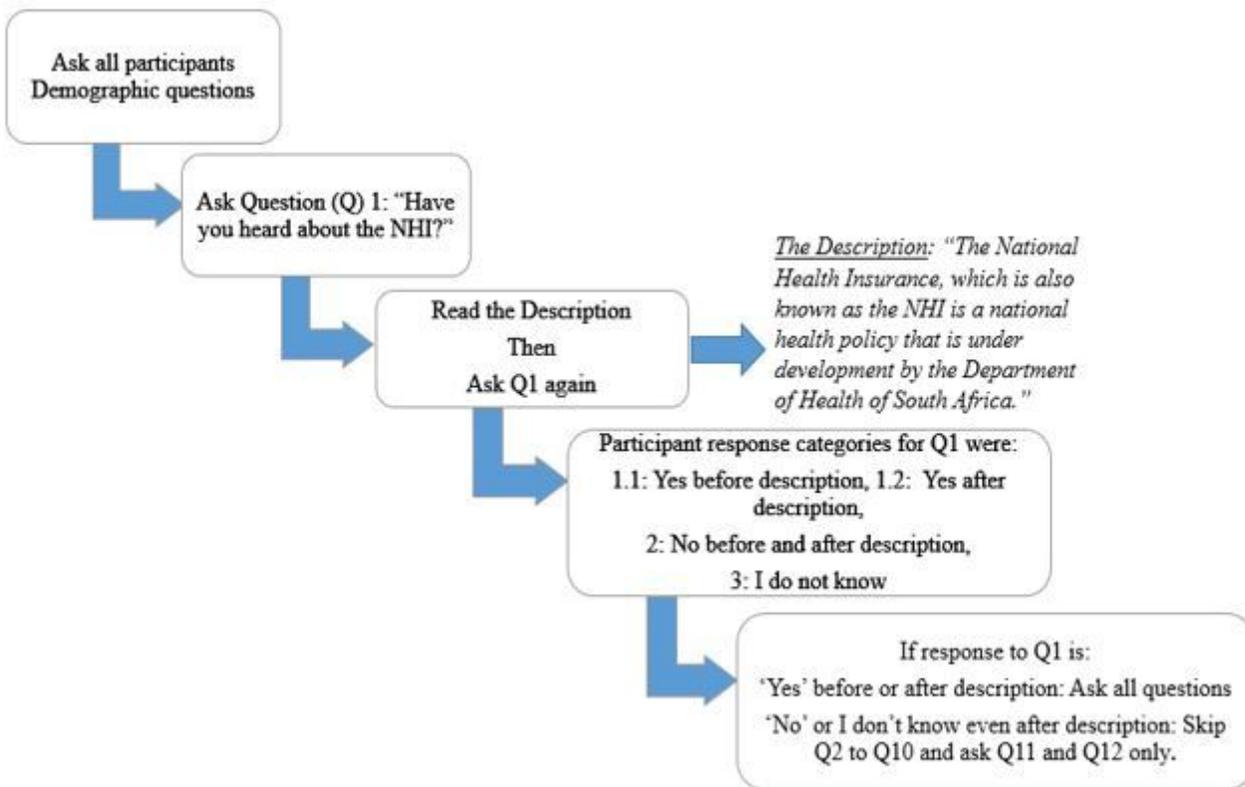


Figure 1

Figure depicting the structure and process of the interview.

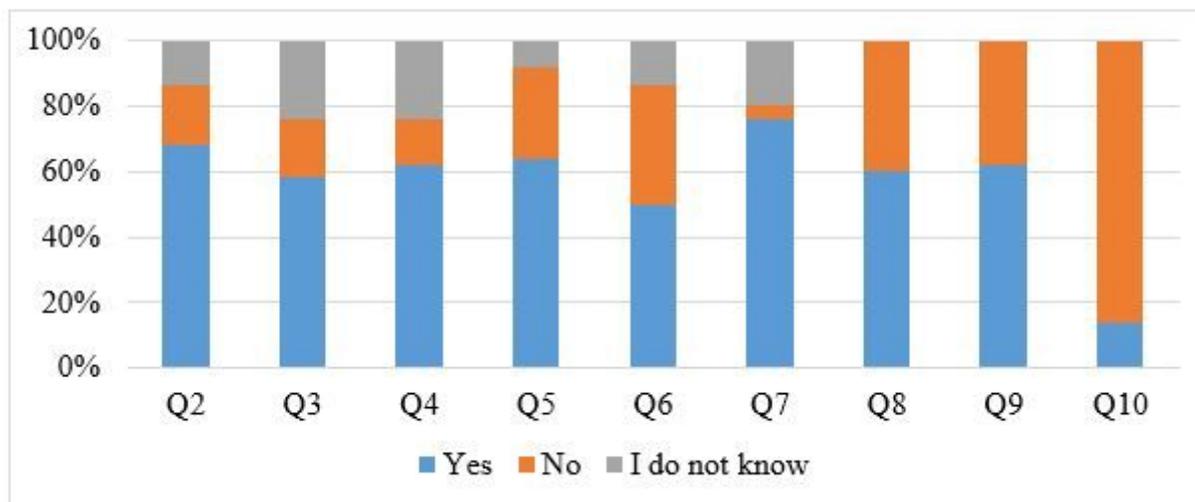


Figure 2

Questionnaire depicting results from questions 2 – 9, which were applicable to those who had heard about the NHI. Total frequency (n) = 50. Key: Q is Question. Refer to questionnaire for the questions.

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [supplement1.docx](#)