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Climate and competing priorities in South Africa: an analysis of the population's attitudes and perceptions toward environmental issues

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ABSTRACT

The known and expected consequences of climate change are dire and will hamper social and development. However, competing priorities, such as poverty, HIV and violence tend to be more visible on government agendas. In South Africa, growing inequalities result in the population being more concerned with socioeconomic problems. However, issues of poverty and unemployment, among others, are also the result of environmental degradation. This study examines the attitudes of South Africans toward environmental issues in relation to competing challenges. This cross-sectional study uses the nationally representative 2017 South African Social Attitudes Survey (SASAS) of approximately 3 173 (n) adults. Results show that environmental issues rank 17th among the most important challenges. Further, 20.08% of the population who cite economic, 28.66% with social and 15.96% who report health competing interests also cite environmental concerns. Those who cited social competing interests were also more likely to report environmental concerns (OR=1.56; CI: 1.55152–1.55866). In conclusion, environmental issues are not highly ranked among the priorities of the population. However, commonalities between climate and economic, social and health challenges is an ideal place to start with information dissemination.

KEYWORDS

Environmental issues; attitudes and perceptions; logistic regression; rank; South African Attitudes Survey (SASAS)

1. Introduction

Climate change is resulting in disasters of draughts, flooding, hurricanes and other temperature-related phenomena which affect the global economy, services, infrastructure and food security (Serdeczny et al. 2017; van Vuuren et al. 2017). Starting in the 1990s, research has increasingly focused on the increasing number of natural disasters globally and has remained a focal point ever since (Mitchell & Ericksen 1992; Van Aalst 2006, Drabo & Mbaye 2011; Yumul et al. 2011). The causes of climate change are both natural, which include volcanic eruptions and ocean currents, among others, and anthropogenic causes, which are mainly environmental pollutants resulting from human activity (Stern and Kaufmann 2014). The consequences are felt both in the short and

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long-term. Immediate consequences are decreasing water supplies, reduced agricultural stocks, and health impacts in cities due to heat, and flooding (Mackay 2008), while over the long-term there is growing fear of the increase in heat waves and heavy precipitation, and decreased water resources in semi-arid regions, resulting in water shortages that could result in the extinction of wildlife and threaten agricultural growth (Fitzgerald et al. 2016).

However, there remain many climate change denialists who argue that change is not attributable to human activity (Leiserowitz et al. 2011; Leviston et al. 2011). This perspective hampers global and regional efforts, including those by the 2009 United Nations Climate Change Conference, where the goal was to engage heads of government on the ongoing climate crisis, but the meeting was marred by weak political support for change (Carter et al. 2011). And despite the perceived failure of the conference, recognition of the dire consequences of climate change is spreading, but misinformation, denialism and purposeful political agendas are skewing public perception and the need for urgent action (Haley 2019; Wilson 2019).

However, climate change is not the only threat to livelihoods and development in many countries. Competing interests of poverty, social inequality, war and violence, and health concerns are overriding climate change as current challenges for urgent attention (Oni et al. 2016). In Africa, these issues among others, have resulted in unemployment, gender-based violence and widespread diseases including malaria, Tuberculosis and HIV/AIDS (Bhorat et al. 2016; Brunori et al. 2019), all of which threaten social and economic development on the continent. These challenges also hinder efforts to counter the effects of climate change. A study of farmers in South Africa and Ethiopia found that while farmers are aware and experiencing the consequences of climate change on their yields, many are unable to adapt their methods of farming because there is limited access to resources and support, including financial aide, to do so (Bryan et al. 2009).

In South Africa, current as well as historical inequalities in access to education, employment, services and infrastructure form the basis of the country's priorities and these are reflected in the country's National Development Plan (National Planning Commission 2012). With one in every four women aged 18–49 years old having experienced violence from an intimate partner, HIV prevalence rates at 13.5% and current unemployment being the highest in many years at 30.1% (Karim & Baxter 2016; Statistics SA 2020b, 2020a), it is understandable that the country places these as urgent issues warranting immediate attention. However, research from other countries has shown a relationship between gender-based violence (Kinnvall & Rydstrom 2019; Rezwana & Pain 2020), HIV modelling (Baker 2020), unemployment (Berger & Bendjebbour 2019) and climate change. This shows a link between climate and other development concerns, which South Africa should be aware of. However, to do so, public opinion and positive attitudes toward the need for investment is required. And with the competing challenges described above, it is unclear what are the public perceptions of climate change. The objective of this study therefore is to examine the attitudes of South Africans toward environmental issues in relation to competing challenges.

With sustainable development as the overarching goal of all countries, the impact of climate change poses a threat to current and future endeavours to protect livelihoods,

grow economies, prevent disease and loss of life. Addressing the issue of climate change is also represented in the United Nations Sustainable Development Goals (SDGs), under goal 13 which aims to take urgent action against climate and its impacts on development (Ki-moon 2016). There are other environment related goals including clean water and sanitation (Goal 6), responsible consumption and production (Goal 12) and affordable and clean energy (Goal 7) (Ki-moon 2016). These goals will assist in the achievement of social and health related SDGs: no poverty (Goal 1), zero hunger (Goal 2) and good health and wellbeing (Goal 3) to name but a few (Ki-moon 2016). It is therefore in South Africa's best interest to prioritise environmental concerns in the fight against poverty, inequality, and disease.

2. Methods

2.1 Data

This cross-sectional study uses the 2017 South African Social Attitudes Survey (SASAS) which is a nationally representative dataset of approximately 3 173 (n) adults. The sample has been drawn from the HSRC's Master Sample – a sampling frame that consists of 1 000 Population Census enumeration areas (EAs) (Pillay et al. 2006). The SASAS questionnaire contains a standard 'core' set of demographic, behavioural and attitudinal variables, which is repeated each round, with the aim of monitoring change and continuity in a variety of social, economic and political values over time (Pillay et al. 2006).

2.2 Study population and sample

The study population are adults, aged 16 years and older, who participated in the 2017 round of the SASAS. Both sexes, all races, geographical locations, and nationalities of participants are included in the study. Of the 3 173 ($N = 39\,797\,122$) adult participants, 2 463 or 77.62% ($N = 31\,529\,914$) were identified as having negative attitudes toward the environment and 710 or 22.37% ($N = 8\,267\,208$) participants had positive attitudes.

2.3 Outcome variables

The outcomes of interest are derived from three questions on the survey: (1) ranking of the three most important challenges in South Africa at the moment, of which 'the environment' is a listed item ($n = 3$ for most important challenge; $n = 33$ for second most important challenge and $n = 101$ for third most important challenge); (2) the percentage of the population who believe that 'people's taxes' are being used for the environment in South Africa ($n = 276$) and (3) the percentage of the population who believe that more taxes should be spent on the environment ($n = 444$). These variables are shown as separate outcomes but also combined into an additive variable, 'environmental perceptions', which is grouped into positive, a 'yes' response to at least one of the above variables ($n = 710$) and negative which is a 'no' response to all of the above ($n = 2\,463$).

2.4 Explanatory variables

The main independent variables of this study are the competing interests within the population. Using the same variable which identified the most important challenges in the country, three outcomes of competing interest were generated: economic, social and health. Economic competing interests include unemployment, economic and financial issues, and affordable housing as important challenges. Social competing interests include crime and safety, racism and service provision or delivery challenges. Finally, health competing interests are those who cited HIV/AIDS as a challenge.

The control variables for this study include demographic (age in 10-year intervals, sex, race, and religiosity), socioeconomic status (highest level of education, employment status and place of residence) and social indicator characteristics of the population. Three social indicators are used. First, life satisfaction has been converted from a 10-point scale, to a 3-point scale categorised as (1) dissatisfied with original scores of between 0-4, (2) average satisfaction with original scores of 5 and 6, and (3) satisfied with original scores of 7-10. Second, a question on hope or faith in the government was posed to respondents and this variable has been adopted since environmental challenges are closely linked to national government priorities. Finally, a measure of social cohesion has been adopted from a question in the survey on whether participants feel attached to the people who live in their neighbourhood which is a four-point scale from, 'not at all attached' to 'very attached'. For the social cohesion variable, responses of 'not at all attached' and 'not very attached' are coded as detached, and 'slightly attached' and 'very attached' are attached.

2.5 Statistical analyses

Analyses were done using STATA version 14. Cross-tabulations are used to describe the study population and the characteristics of the population who have positive and negative attitudes toward the environment. A logistic regression model is used to show the likelihood of positive attitudes using the 'environmental perceptions' variable.

3. Results

Figure 1 shows that environmental issues do not appear in the top 10 most important challenges as identified by South African adults. Only 3 ($N = 28\,071$) respondents reported environmental issues as the most important priority in the country and is ranked 17th. A further 33 ($N = 466\,334$) reported it as the second most important challenge (rank 15) and 101 ($N = 1\,367\,035$) respondents found environmental issues as the third most important challenge (rank 10).

Figure 2 shows the percentage distribution of the population who responded to environmental challenges as one of the top three most important challenges in the country, believing that tax money is being used for environmental concerns and those who believe more tax should be spent on environmental concerns by sex. All the respondents who cited environmental concerns as the most important challenge were male (100%), while 69% of those who believe it is the second most important challenge were female. By third most important challenge 54.54% were male and 45.46% were

Rank	Most NB! Challenge	Freq.	Percent	Rank	2nd most NB! Challenge	Freq.	Percent	Rank	3rd most NB! Challenge	Freq.	Percent
1	Unemployment	2,067	65.14	1	Crime and safety	1,038	32.71	1	Poverty	890	28.05
2	HIV/AIDS	469	14.78	2	Service provision/delivery	374	11.79	2	Corruption	816	25.72
3	Crime and safety	357	11.25	3	Corruption	315	9.93	3	Education	198	6.24
4	Racism	81	2.55	4	Unemployment	307	9.68	4	Other (specify)	189	5.96
5	Service provision/delivery	46	1.45	5	Education	220	6.93	5	Crime and safety	154	4.85
6	Xenophobia	25	0.79	6	Affordable housing	184	5.8	6	Political issues	136	4.29
7	Political issues	21	0.66	7	Economic and financial issues	142	4.48	7	Service provision/delivery	135	4.25
8	Economic and financial issues	20	0.63	8	Racism	115	3.62	8	Economic and financial issues	119	3.75
9	Affordable housing	19	0.6	9	Political issues	109	3.44	9	Affordable housing	104	3.28
10	Education	18	0.57	10	Human rights	67	2.11	10	Environmental issues	101	3.18
11	(Do not know)	13	0.41	11	Xenophobia	63	1.99	11	(No answer)	73	2.3
12	Human rights	10	0.32	12	Land reform issues	58	1.83	12	Family and youth issues	61	1.92
13	Land reform issues	7	0.22	13	Work-related issues	43	1.36	13	Work-related issues	51	1.61
14	Corruption	5	0.16	14	Poverty	38	1.2	14	Racism	37	1.17
15	Work-related issues	4	0.13	15	Environmental issues	33	1.04	15	Human rights	34	1.07
16	Religion and culture issues	4	0.13	16	Family and youth issues	28	0.88	16	Land reform issues	32	1.01
17	Environmental issues	3	0.09	17	(No answer)	26	0.82	17	Xenophobia	22	0.69
18	Family and youth issues	2	0.06	18	Religion and culture issues	8	0.25	18	Religion and culture issues	17	0.54
19	Poverty	1	0.03	19	Other (specify)	4	0.13	19	(Do not know)	2	0.06
20	(No answer)	1	0.03	20	HIV/AIDS	1	0.03	20	HIV/AIDS	1	0.03
	Total	3,173	100		Total	3,173	100		Total	3,173	100

Figure 1. Ranking of topmost important challenges in South Africa by respondents. Note: NB! denotes 'important'.

female. Among the respondents who cited that tax money is being spent on the environment 43.22% are female and 56.78% are male. Finally, among respondents who believe that more tax money should be spent on the environment, 62.28% are male and 37.72% are female.

Using environment perception as positive and negative outcomes, Table 1 shows the weighted frequencies and percentage distribution of the respondents' characteristics by this outcome variable. More 16-19-year olds have positive (52.15%) than negative (47.85%) attitudes. For all other age-groups there are more negative attitudes than positive attitudes toward environmental concerns. By sex, 78.12% of males and 80.82% of

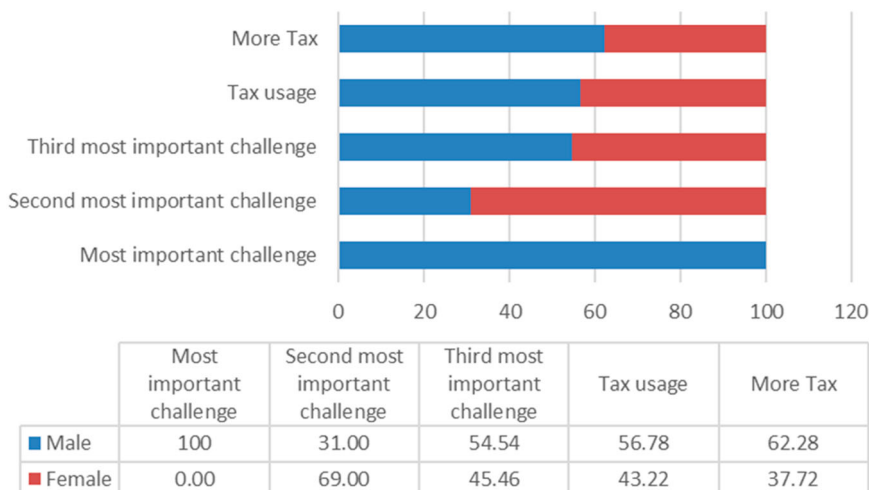


Figure 2. Percentage distribution of environmental challenges priorities by sex of the respondents.

Table 1. Percentage distribution of sample characteristics by environment perception.

Respondents characteristics Age groups*	Negative		Positive		Total
	N	%	N	%	
<i>Total</i>	31 409 429	79.20	8 250 914	20.80	9 660 343
16–19	46 396	47.85	50 575	52.15	96 971
20–24	531 548	84.23	99 534	15.77	631 082
25–29	1 475 398	84.57	269 212	15.43	1 744 611
30–34	2 154 967	78.51	590 005	21.49	2 744 972
35–39	2 812 101	79.67	717 634	20.33	3 529 734
40–44	3 305 433	77.52	958 497	22.48	4 263 930
45–49	3 900 320	83.16	790 098	16.84	4 690 417
50–54	3 878 344	75.24	1 276 584	24.76	5 154 928
55–59	3 187 557	82.60	671 339	17.40	3 858 896
60–64	3 246 972	76.82	979 846	23.18	4 226 818
65+	6 870 394	78.81	1 847 591	21.19	8 717 985
Sex*					
<i>Total</i>	31 323 782	79.35	8 150 130	20.65	39 473 912
Male	16 798 271	78.12	4 703 890	21.88	21 502 161
Female	14 525 512	80.82	3 446 240	19.18	17 971 752
Population Group*					
<i>Total</i>	31 224 909	79.47	8 065 344	20.53	39 290 252
Black African	24 796 750	80.56	5 983 978	19.44	30 780 729
Coloured	2 635 426	72.99	975 475	27.01	3 610 902
Indian/Asian	854 427	75.76	273 410	24.24	1 127 837
White	2 920 669	77.82	832 480	22.18	3 753 149
Other	17 636	100.00	–	–	17 636
Religiosity*					
<i>Total</i>	31 529 914	79.23	8 267 208	20.77	39 797 122
Yes	26 311 048	78.64	7 146 978	21.36	33 458 026
No	4 944 658	83.80	956 049	16.20	5 900 707
No answer	274 208	62.55	164 182	37.45	438 390
Highest level of Education*					
<i>Total</i>	31 529 914	79.23	8 267 208	20.77	39 797 122
None	1 193 349	88.19	159 825	11.81	1 353 173
Primary	3 844 406	81.82	853 965	18.18	4 698 371
Incomplete Secondary	11 719 289	79.54	3 013 923	20.46	14 733 212
Secondary	11 783 061	79.23	3 088 717	20.77	14 871 778
Tertiary	2 372 272	69.76	1 028 244	30.24	3 400 516
No response	617 537	83.44	122 535	16.56	740 072
Employment Status*					
<i>Total</i>	31 529 914	79.23	8 267 208	20.77	39 797 122
Employed	8 981 588	77.25	2 645 348	22.75	11 626 936
Unemployed, looking for work	10 565 625	79.88	2 661 728	20.12	13 227 354
Unable to work	3 794 259	77.71	1 088 540	22.29	4 882 799
Unemployed, not looking for work	2 925 933	83.24	589 287	16.76	3 515 219
Student	3 877 725	78.96	1 033 023	21.04	4 910 749
Other/no response	1 384 784	84.74	249 281	15.26	1 634 065
Place of Residence*					
<i>Total</i>	31 529 914	79.23	8 267 208	20.77	39 797 122
Urban	21 013 872	77.71	6 028 638	22.29	27 042 509
Rural	10 516 042	82.45	2 238 571	17.55	12 754 613
Life Satisfaction*					
<i>Total</i>	31 529 914	79.23	8 267 208	20.77	39 797 122
Dissatisfied	6 989 901	80.68	1 673 807	19.32	8 663 708
Average	10 206 428	80.65	2 448 336	19.35	12 654 763
Satisfied	14 333 585	77.57	4 145 066	22.43	18 478 651
Trust in Government*					
<i>Total</i>	31 529 914	79.23	8 267 208	20.77	39 797 122
Trust	8 885 102	80.27	2 183 578	19.73	11 068 680
Neither	3 758 540	79.70	957 480	20.30	4 716 020
Distrust	18 509 668	78.44	5 088 764	21.56	23 598 432
No response	376 603	90.97	37 387	9.03	413 990

(Continued)

Table 1. Continued.

Respondents characteristics Age groups*	Negative		Positive		Total
	N	%	N	%	
Social Cohesion*					
Total	31 529 914	79.23	8 267 208	20.77	39 797 122
Attached	26 690 857	79.67	6 809 561	20.33	33 500 417
Detached	4 599 660	76.82	1 387 582	23.18	5 987 242
No response	239 397	77.36	70 066	22.64	309 463

**p*-value <0.05.

females have negative attitudes. Similarly, by race, most Black Africans (80.56%), Coloureds (72.99%), Indian/ Asians (75.76%) and Whites (77.82%) have negative attitudes. By those who are religious, 78.64% have negative attitudes and 21.36% have positive attitudes. As level of education increases, so does the number of people with positive attitudes and 79.88% of the unemployed who are looking for work have negative attitudes. By place of residence, 77.71% of the urban population and 82.45% of the rural population have negative attitudes. Over 80% of those who are dissatisfied or have average life satisfaction and 78.44% of those with distrust in the government have negative attitudes toward the environment. Finally, only 20.33% of those who feel attached to their communities (social cohesion) have a positive attitude toward the environment.

Figure 3 shows the percentage distribution of economic, social and health competing interests and negative/positive attitudes toward the environment. The graph shows that 77.74% of those who did not list economic challenges, also did not list environment concerns as a priority, compared to 20.08% of those who found economic and environmental concerns as equally important. By social concerns, 80.37% of those who did not cite social challenges also did not find environmental concerns as a key challenge in the country, but 28.66% found both social and environmental challenges as important. Finally, 78.33% of respondents found neither health nor environmental concerns as a challenge compared

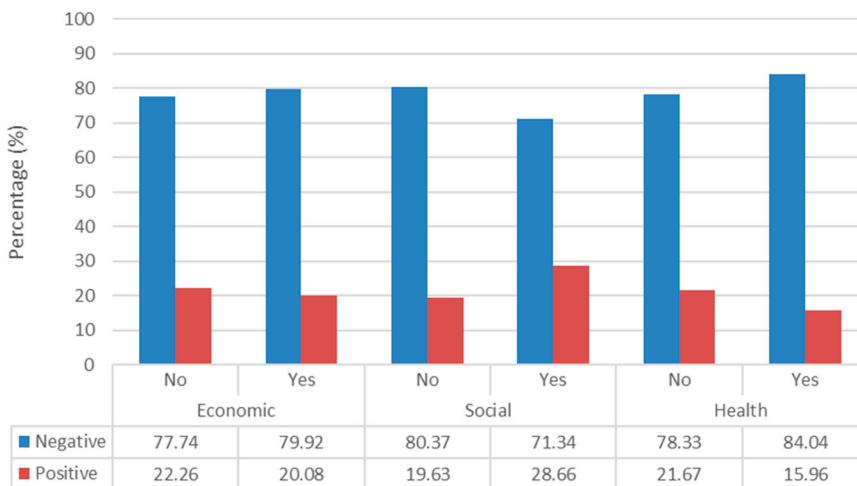
**Figure 3.** Percentage distribution of competing interests by environmental concern.

Table 2. Regression models of likelihood of negative perception toward the environment by sample characteristics

Respondent's characteristics	Odds ratio	P-value	[95% Conf. Interval]	
Age groups				
16–19	RC			
20–24	0.15	0.000	0.14903	0.15349
25–29	0.14	0.000	0.14248	0.14645
30–34	0.20	0.000	0.19659	0.20195
35–39	0.18	0.000	0.18070	0.18560
40–44	0.20	0.000	0.19286	0.19806
45–49	0.16	0.000	0.16033	0.16465
50–54	0.23	0.000	0.23128	0.23749
55–59	0.16	0.000	0.15327	0.15743
60–64	0.23	0.000	0.22554	0.23162
65+	0.19	0.000	0.19176	0.19690
Sex				
Male	RC			
Female	0.93	0.000	0.92586	0.92899
Population Group				
Black African	RC			
Coloured	1.35	0.000	1.34327	1.35069
Indian/Asian	1.00	0.932	0.99513	1.00449
White	0.94	0.000	0.94082	0.94667
Other	1.00			
Religiosity				
Yes	RC			
No	0.82	0.000	0.81300	0.81704
No answer	10.13	0.000	10.02502	10.24266
Highest level of Education				
None	RC			
Primary	1.45	0.000	1.44331	1.46030
Incomplete Secondary	1.57	0.000	1.55636	1.57381
Secondary	1.83	0.000	1.81656	1.83703
Tertiary	2.50	0.000	2.48578	2.51606
No response	0.48	0.000	0.47913	0.49043
Employment Status				
Employed	RC			
Unemployed, looking for work	0.94	0.000	0.94058	0.94468
Unable to work	1.02	0.000	1.01775	1.02409
Unemployed, not looking for work	0.79	0.000	0.78435	0.78959
Student	0.89	0.000	0.88643	0.89169
Other/no response	0.53	0.000	0.53168	0.53809
Place of Residence				
Urban	RC			
Rural	0.76	0.000	0.76154	0.76459
Life satisfaction				
Dissatisfied	RC			
Average	0.87	0.000	0.87097	0.87511
Satisfied	0.96	0.000	0.95479	0.95918
Trust in Government				
Trust	RC			
Neither	0.94	0.000	0.93871	0.94417
Distrust	0.97	0.000	0.96760	0.97136
No response	0.43	0.000	0.42230	0.43160
Social cohesion				
Attached	RC			
Detached	1.10	0.000	1.09558	1.10049
No response	0.83	0.000	0.81664	0.83658
Competing priorities				
Economic challenges	RC			
Social Challenges	1.56	0.000	1.55152	1.55866
Health Challenges	0.78	0.000	0.78131	0.78511

RC denotes reference category.

to 15.96% of those who found both health and the environment as important concerns (Table 2).

All ages over 20 years old are less likely to have positive attitudes toward the environment compared to 16–9 years who have even odds (OR = 1.00). Females are less likely (OR = 0.93; CI: 0.92586–0.92899) to have positive attitudes than males. By population groups Coloureds (OR = 1.35; CI: 1.34327–1.35069) are more likely to have positive attitudes, while Whites (OR = 0.94; CI: 0.94082–0.94667) have almost even odds. Respondents with no religiosity are less likely to have positive attitudes, with odds of 0.82 (CI: 0.81300–0.81704). By level of education, the odds of positive attitudes increase with level of education, compared to respondents with no education (none). Respondents who are unable to work, have almost even odds of positive attitudes (OR = 1.02; CI: 1.01775–1.02409), compared to all other categories which have lesser likelihood of positive attitudes toward the environment. By place of residence, rural residents (OR = 0.76; CI: 0.76154–0.76459) have lower odds of positive attitudes. Further, those with average life satisfaction (OR = 0.87; CI: 0.87097–0.87511), neither trust nor distrust the government (OR = 0.94; CI: 0.93871–0.94417), and did not respond to trust in the government questions (OR = 0.43; CI: 0.42230–0.43160) are less likely to have positive attitudes toward the environment. However, those who feel detached (social cohesion) from their communities are more likely to have positive attitudes (OR = 1.10; CI: 1.09558–1.10049). Finally, respondents who found social challenges (OR = 1.56; CI: 1.55152–1.55866) to be a key priority have higher odds of positive attitudes compared to those who cited health challenges (OR = 0.78; CI: 0.78131–0.78511). Some of the key findings of this model have been represented in graph form in Figure 4 below.

4. Discussion

Climate change is presenting many challenges that worsen the sustainable development prospects of many countries, including South Africa. However, the public's perception of the seriousness of environmental issues is not well-known. This study has identified the

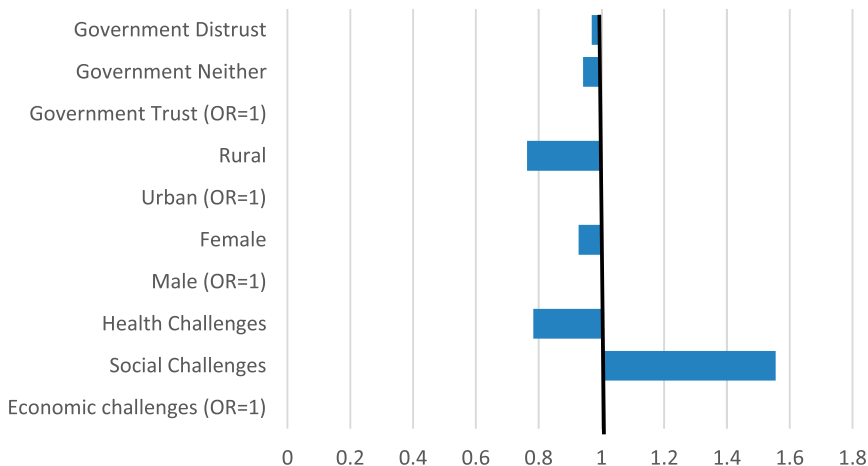


Figure 4. Selected odds ratio results from Table 2.

characteristics of the population who find environmental issues as an important matter and evaluates the likelihood of the population to have positive attitudes toward climate change action while controlling for competing interests.

This study has found that participants who ranked social challenges as a main priority are also more likely to have positive attitudes toward environmental challenges. The social challenges used in this study include crime and safety, racism and service provision or delivery challenges. The social challenges of racism, gender inequality, service provision and crime are long-standing issues in South Africa (Buiten & Naidoo 2016; Bhorat et al. 2017; Maylam 2017; Mbandlwa 2020). Crime rates in the country are high with an average of 444 victims of assault daily, 142 common robberies per day, and about 114 rapes reported per day (AfricaCheck 2019), in 2019, 218 service delivery protests were reported (Municipal IQ 2020) and instances of racism are commonly reported on in the media. These are also important challenges which have immediate negative consequences and hinder national development goals. For this reason, it is understandable why these are more urgent priorities in the population. This is an important result as it suggests that there is a common group within the population that could be targeted for environmental and social change movements.

More males than females recognised environmental challenges as a priority area. Approximately 38% of households in South Africa are headed by females and consist of children and elderly parents (Nwosu & Ndinda 2018). In addition, in many male-headed households, females remain the primary caregivers of children and the elderly, and as such their priorities might be related to more immediate daily challenges than macro-level challenges such as environmental issues. Adult females in South Africa therefore find issues of food security, safety and health as more prominent challenges (Modirwa & Oladele 2012; Karim & Baxter 2016; Panday & Sebitloane 2019). However, knowing that females do not prioritise environmental challenges as much as males, does present a unique opportunity for females to be informed of the immediate benefits climate change strategies could present to the care and daily functioning of their households.

This study also found that more residents of urban areas have positive attitudes toward environmental issues than those in rural areas. The reasons for this are twofold. First, residents of urban areas are more exposed to information and awareness campaigns and second are also experiencing certain causes of climate change, such as pollution, first-hand and therefore consider it more seriously (Chu & Schenk 2017; Okaka & Odhiambo 2018). But some research has found that rural residents, who rely on agricultural gains for livelihoods and survival, are more aware of the challenges presented by climate change than their urban counterparts (Abegunde 2017; Austin et al. 2020). Regardless, this result shows an uneven geographical distribution of knowledge that requires attention.

In addition, more people who distrust the government and those who feel more attached to their communities (social cohesion) also have more positive attitudes toward environmental concerns. The lack of distrust in the government could be attributed to low national response to climate change issues (Godsmark et al. 2019). Also, adults who are more attached to their communities could be privier to the diffusion of information within communities regarding climate change. Nonetheless, both are

important characteristics to address in ensuring that environmental concerns are raised in lieu of national development.

This study is subject to a few limitations. First, the design is cross-sectional and therefore a causal relationship between attitudes toward environmental concerns and competing priorities could not be determined. Second, the survey did not have a direct measure of climate change perceptions. Instead, environment concern has been derived through measures of national priority questions and based on the responses of the respondents instead of a direct question. Finally, the data cannot be used to understand why public perceptions and rankings of environmental challenges are low.

A strength of the study, however, is the large sample size which allows for reliable and valid inferential statistical testing. Second, the study is the first to evaluate the South African population's attitudes toward environmental concerns and competing challenges on a national scale. Finally, the study provides needed demographic and socioeconomic characteristics of the population for the purpose of targeted interventions and awareness campaigns around climate change issues.

In conclusion, economic, social and health competing interests currently overshadow environmental interests in South Africa. While this is justifiable in the context of high unemployment, crime rates and persistent struggles against HIV and AIDS and other diseases, many of these issues will be exacerbated by climate change in the future, adding another challenge to the development prospects in the country. Second, efforts to reduce the competing challenges could eliminate these, and create an opportunity for more awareness around environmental change and development concerns. Future research should attempt to understand the causal relationship between climate change and competing priorities. Also, a comprehensive study on how much is known by the population about climate change should be done. This will be useful in campaigns to create awareness around multiple development issues.

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References

- Abegunde, AA, 2017. Local communities' belief in climate change in a rural region of Sub-Saharan Africa. *Environment, Development and Sustainability* 19(4), 1489–522.
- AfricaCheck, 2019. FACTSHEET: South Africa's crime statistics for 2018/19. <https://africacheck.org/factsheets/factsheet-south-africas-crime-statistics-for-2018-19/>.
- Austin, EK, Rich, JL, Kiem, AS, Handley, T, Perkins, D & Kelly, BJ, 2020. Concerns about climate change among rural residents in Australia. *Journal of Rural Studies*, 98–109.
- Baker, RE, 2020. Climate change drives increase in modeled HIV prevalence. *Climatic Change* 163 (1), 1–16.
- Berger, H & Bendjebbour, Y, 2019. How to reduce youth unemployment by fighting climate change. A study in Greece and Southern Spain.

- Bhorat, H, Naidoo, K & Pillay, K, **2016**. Growth, poverty and inequality interactions in Africa: An overview of key issues.
- Bhorat, H, Thornton, A & Van der Zee, K, **2017**. Socio-economic determinants of crime in South Africa: an empirical assessment.
- Brunori, P, Palmisano, F & Peragine, V, **2019**. Inequality of opportunity in sub-Saharan Africa. *Applied Economics* 51(60), 6428–6458.
- Bryan, E, Deressa, TT, Gbetibouo, GA & Ringler, C, **2009**. Adaptation to climate change in Ethiopia and South Africa: options and constraints. *Environmental Science & Policy* 12(4), 413–26.
- Buiten, D & Naidoo, K, **2016**. Framing the problem of rape in South Africa: gender, race, class and state histories. *Current Sociology* 64(4), 535–50.
- Carter, C, Clegg, S & Wählin, N, **2011**. When science meets strategic realpolitik: The case of the Copenhagen UN climate change summit. *Critical Perspectives on Accounting* 22(7), 682–97.
- Chu, E & Schenk, T, **2017**. Communicating about climate change with urban populations and decision-makers. In *Oxford research encyclopedia of climate science*.
- Drabo, A & Mbaye, L, **2011**. Climate change, natural disasters and migration: An empirical analysis in developing countries.
- Fitzgerald, GJ, Tausz, M, O’Leary, G, Mollah, MR, Tausz-Posch, S, Seneweera, S, Mock, I, Löw, M, Partington, DL & McNeil, D, **2016**. Elevated atmospheric [CO₂] can dramatically increase wheat yields in semi-arid environments and buffer against heat waves. *Global Change Biology* 22(6), 2269–84.
- Godsmark, CN, Irlam, J, van der Merwe, F, New, M & Rother, H-A, **2019**. Priority focus areas for a sub-national response to climate change and health: a South African provincial case study. *Environment International* 122, 31–51.
- Haley, RW, **2019**. The scientific evidence on climate change and the ethics of skepticism vs denialism.
- Karim, QA & Baxter, C, **2016**. The dual burden of gender-based violence and HIV in adolescent girls and young women in South Africa. *SAMJ: South African Medical Journal* 106(12), 1151–3.
- Ki-moon, B, **2016**. *The sustainable development goals report 2016 (Prefácio)*. United Nations, New York-USA.
- Kinnvall, C & Rydstrom, H, **2019**. Climate hazards, disasters, and gender ramifications. Routledge.
- Leiserowitz, A, Maibach, E, Roser-Renouf, C & Smith, N, **2011**. Global warming’s six Americas, May 2011. Yale University and George Mason University.
- Leviston, Z, Leitch, A, Greenhill, M, Leonard, R & Walker, I, **2011**. Australians’ views of climate change. CSIRO, Canberra.
- Mackay, A, **2008**. Climate change 2007: impacts, adaptation and vulnerability. Contribution of Working Group II to the fourth assessment report of the Intergovernmental Panel on Climate Change. *Journal of Environmental Quality* 37(6), 2407.
- Maylam, P, **2017**. South Africa’s racial past: The history and historiography of racism, segregation, and apartheid. Routledge.
- Mbandlwa, Z, **2020**. The impact of the South African apartheid government history to democratic South Africa: The case of eThekweni Metropolitan Municipality. *Transylvanian Review*.
- Mitchell, JK & Ericksen, NJ, **1992**. Effects of climate change on weather-related disasters. *Confronting climate change: Risks, implications and responses*: 141–151.
- Modirwa, S & Oladele, OI, **2012**. Food security among male and female-headed households in Eden District Municipality of the Western Cape, South Africa. *Journal of Human Ecology* 37(1), 29–35.
- Municipal IQ, **2020**. Service delivery in South Africa 2019.
- National Planning Commission, **2012**. National Development Plan 2030: Our future-make it work.
- Nwosu, CO & Ndinda, C, **2018**. Female household headship and poverty in South Africa: an employment-based analysis.
- Okaka, FO & Odhiambo, BD, **2018**. Urban residents’ awareness of climate change and their autonomous adaptive behaviour and mitigation measures in the coastal city of Mombasa, Kenya. *South African Geographical Journal* 100(3), 378–93.

- Oni, T, Smit, W, Matzopoulos, R, Adams, JH, Pentecost, M, Rother, H-A, Albertyn, Z, Behrooz, F, Alaba, O & Kaba, M, [2016](#). Urban health research in Africa: themes and priority research questions. *Journal of Urban Health* 93(4), 722–30.
- Panday, M & Sebitloane, HM, [2019](#). HIV and contraception-two inextricable public health priorities that have called South Africa to action. Paper read at Obstetrics and Gynaecology Forum.
- Pillay, U, Roberts, B & Rule, SP, [2006](#). South African social attitudes: changing times, diverse voices. HSRC Press.
- Rezwana, N & Pain, R, [2020](#). Gender-based violence before, during and after cyclones: slow violence and layered disasters. *Disasters*.
- Serdeczny, O, Adams, S, Baarsch, F, Coumou, D, Robinson, A, Hare, W, Schaeffer, M, Perrette, M & Reinhardt, J, [2017](#). Climate change impacts in Sub-Saharan Africa: from physical changes to their social repercussions. *Regional Environmental Change* 17(6), 1585–600.
- Statistics, SA, [2020a](#). In Mbalo Brief. In *June 2020*, edited by Statistics South Africa. Statistics South Africa, Pretoria.
- Statistics, SA, [2020b](#). Mid-year population estimates. 2019. Statistics SA, Pretoria.
- Stern, DI & Kaufmann, RK, [2014](#). Anthropogenic and natural causes of climate change. *Climatic Change* 122(1-2), 257–69.
- Van Aalst, MK, [2006](#). The impacts of climate change on the risk of natural disasters. *Disasters* 30(1), 5–18.
- van Vuuren, DP, Riahi, K, Calvin, K, Dellink, R, Emmerling, J, Fujimori, S, Kc, S, Kriegler, E & O'Neill, B, [2017](#). The Shared Socio-economic Pathways: Trajectories for human development and global environmental change.
- Wilson, S, [2019](#). Bullshit bingo: designing a response to climate change denialism in critical studio practice. *International Journal of Practice Based Humanities* 3, 1–14.
- Yumul GP Jr, Cruz, NA, Servando, NT & Dimalanta, CB, [2011](#). Extreme weather events and related disasters in the Philippines, 2004–08: a sign of what climate change will mean? *Disasters* 35(2), 362–82.