National Food and Nutrition Security Survey

EASTERN CAPE PROVINCE REPORT

FOOD AND NUTRITION SECURITY

agriculture, land reform & rural development
Department: Agriculture, Land Reform and Rural Development
REPUBLIC OF SOUTH AFRICA

science & innovation
Department: Science and Innovation
REPUBLIC OF SOUTH AFRICA

HSRC Human Sciences Research Council

rural development & agrarian reform
Department: Rural Development & Agrarian Reform
PROVINCE OF THE EASTERN CAPE

National Food and Nutrition Security Survey Eastern Cape Province Report

Published in 2023 by the
Human Sciences Research Council
Private Bag X41
Pretoria 0001
South Africa

ISBN: 978-0-6397-6315-6

Document Report: National Food and Nutrition Security Survey (NFNSS)
Document Type: National Survey Report

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Printer: CapitalPress

Citation: Mutanga, S., Simelane T., Hongoro, C., Parker, W., Mjimba, V., Zuma, K., Kajombo, R., Ngidi, M., Masamha, B., Mokhele, T., Ngungu, M., Sinyolo, S., Managa, R., Tshililo, F., Ubisi, N,. Skhosana, F., Muthige, M., . Dukhi, N., Sewpaul, R., Mkhongi, A., Ndinda, C., Sithole, M., Lunga, W., Tshitangano, F., Marinda, E. 2023. National Food and Nutrition Security Survey: Provincial Report: Eastern Cape. HSRC: Pretoria.

Table of Contents

List of Tables **6-8**
List of Figures **9-12**
List of Abbreviations **13-14**
Acknowledgements **15**
Executive Summary **16**
1. Introduction **17**
2. Background **20**
3. Methodological Matrix **21**
3.1 Food Security Continuum 21
3.2 Indicators of Food and Nutrition Security Measurement 21
3.3 Household Economy Approach (HEA) 22
4. Survey Design and Sampling **23**
4.1 Study design and sampling for the household survey 23
4.2 Determination of the geographical area (strata) for household sample design 23
4.3 Eligibility 24
4.3.1 Participant inclusion criteria 24
4.3.2 Participant exclusion criteria 24
4.4 Sample Size Estimation 24
4.4.1 Determining sample size for the food security survey 25
4.4.2 Determining sample size for nutritional indicators survey 26
4.4.3 Sampling procedure: selecting clusters 26
4.4.3.1 Household Response Rate 27
4.4.3.2 Delimitation of the Household Economic Approach (HEA) 27
4.5 Field Data Collection 27
4.5.1 COVID-19 safety procedures and protocols 28
4.5.2 Survey data collection 28
4.5.3 Structured household questionnaire administration 28
4.5.4 HEA Data collection 28
4.6 HEA Sampled Livelihood Zones 28
4.6.1 Midlands and Coastal Open Access Mixed Livestock and Crops (ZAMIO) of Alfred Nzo, OR Tambo, Chris Hani, Joe Gqabi, and Amathole 28
4.6.2 Cold Highlands Open Access Livestock (ZACHO) 30
4.6.3 Baviaans Karoo Mountains Livestock (ZAKUK) of Buffalo City and Nelson Mandela Bay districts 31
4.6.4 Kou-KammaLangkloof valley crops and livestock (ZALAN) of OR Tambo District 31
4.6.5 Upper Senqu and Harrismith cereal and cattle (ZAHWC) of Joe Gqabi District 31
4.7 Data Management, Weighting, and Analysis 32
4.7.1 Data management 32
4.7.2 Data weighting 32
4.7.3 Data analysis 33

5. Demographics 34
5.1 Demographics of the respondents 34
5.1.1 Characteristics of the household heads and members 34
5.1.2 Education attainment of household heads 36
5.1.3 Education attainment of household members 37
5.1.4 Employment Status 38
5.1.5 Household Income 40
5.1.6 Sources of Income 42
5.2 Dwellings and services 49
5.2.1 Housing types 49
5.3 Access to water service 50
5.3.1 Households main source of drinking water 50
5.3.2 Payment for water services 54
5.4 Sanitation and Hygiene 55
5.4.1 Refuse removal 59
5.5 Energy 61
5.5.1 Access to electricity 61
5.5.2 Energy sources for cooking, lighting, water heating, and space heating 63
5.6 Indigent households 57
6. Agriculture 68
6.1 Agriculture and Production Systems 68
6.1.1 Household access to land 69
6.1.2 Land tenure system among households in Eastern Cape Province 71
6.1.3 Use of land for food production or other agricultural products 72
6.1.4 Crop and livestock production 73
6.1.5 Major crops grown 76
6.2 Wealth Breakdown, Food, and Income Sources 76
6.2.1 Cold highlands open access livestock (ZACHO) of Alfred Nzo District 77
6.2.2 Upper Senqu and Harrismith cereal and cattle (ZAHWC) of Joe Nqabi District 78
6.2.3 Midlands and coastal open access mixed livestock and crops (ZAMIO) of Alfred Nzo, OR Tambo, Chris Hani, Joe Gqabi and Amathole districts 79
6.2.4 Kou-KammaLangkloof valley crops and livestock (ZALAN) of OR Tambo District 80
6.2.5 Baviaans Karoo Mountains livestock (ZAKUK) of Buffalo City and Nelson Mandela Bay districts 81
6.2.6 Sources of food (ZALAN) of O.R. Tambo District 82
6.2.6.1 Gender analysis of who produces food in ZALAN of OR Tambo district 83
6.2.6.2 Sources of cash income in ZALAN of OR Tambo District 84
6.2.6.3 Sources of food and income in ZACHO of Alfred Ndzo District 85
6.2.6.4 Gender breakdown of who produces food 86
6.2.6.5 Sources of cash in ZACHO of Alfred Ndzo District 87
6.2.6.6 Sources of food and income in ZAHWC of Joe Nqabi District 88
6.2.6.7 Sources of cash in ZAHWC of Joe Nqabi District 90
6.2.6.8 Sources of food and income in ZAKUK of Buffalo City and Nelson Mandela Bay districts 91
6.2.15 Sources of cash in ZAKUK of Buffalo City and Nelson Mandela Bay districts 92

6.2.16 Sources of food and income in ZAMIO of Alfred Nzo, OR Tambo, Chris Hani, Joe Gqabi and Amathole 93
6.2.17 Sources of cash in ZAMIO of Alfred Nzo, OR Tambo, Chris Hani, Joe Gqabi and Amathole 94
6.2.18 Hazards, vulnerabilities, and response strategies 95
6.3 Access to agriculture extension services, road infrastructure and markets 96
6.3.1 Access to road infrastructure 96
6.3.2 Access to markets by households 96
6.3.3 Access to extension services by households 97
7. Household Food and Nutrition Security Indicators 100
7.1 Household Food and Nutrition Security Indicators 100
7.2 Household Hunger Scale 104
7.3 Household Dietary Diversity Score (HDDS) 107
7.4 Food consumption score 110
7.5 Food expenditure 113
7.6 Relationship between household food security situation and socio-economic factors 114
7.7 Discussion 117
8. Nutrition 118
8.1 Child nutrition and well-being 118
8.1.1 Infant Feeding practices 118
8.1.1.1 Time lapsed until the introduction of breastfeeding 119
8.1.1.2 Age at which breastfeeding was stopped 120
8.1.1.3 First drink other than breast milk 121
8.1.1.4 Age at which the first drink other than breast milk was introduced 123
8.1.1.5 Milk Feeds 124
8.1.1.6 Solid foods 125
8.1.2 Anthropometry (0-59 months) 127
8.1.2.1 Stunting 128
8.1.2.2 Wasting 130
8.1.2.3 Underweight 132
8.1.2.4 Overweight 134
8.2 Anthropometry (18 years and older) 137
8.2.1 Body Mass Index (BMI) 137
8.2.2 Waist Hip ratio 141
8.3 Individual Dietary Diversity 143
8.4 Relationship of Household Food Insecurity and Malnutrition 146
8.5 Discussion 147
9. Wellbeing and Associated Shocks 150
9.1 Household health status, chronic illnesses, and diseases 150
9.2 Shocks, Covid-19 coping strategies and their associated effect on food availability and access 154
9.2.1 Drought and water shortage 154
9.2.2 Increase in inputs and food Prices 157
9.2.3 COVID-19 shocks and associated coping strategies 158
10. Key Findings and Policy Recommentation 163
11. Recommendations 167
Bibliography 169

List of Tables

Table A:	Eastern Cape Food and Nutrition Security situation based on selected indicators	18
Table 1:	Tools that were used for both quantitative and qualitative methods	22
Table 2:	Food Security Indicators	25
Table 3:	Parameters for nutritional indicators	26
Table 4:	Household response rate by district	27
Table 5:	District weighted and unweighted N's for household heads	33
Table 6:	Gender weighted and unweighted N's for household heads	33
Table 7:	Age groups weighted and unweighted N's for household heads	33
Table 8:	Characteristics of the sample for household heads and members in Eastern Cape Province	34
Table 9:	Characteristics of the sample for household heads and members disaggregated by local municipality in Eastern Cape Province	35
Table 10:	Educational attainment of household heads by sex, age, and district in Eastern Cape Province	37
Table 11:	Educational attainment of household members aged 7 and older disaggregated by sex, age, and district	38
Table 12:	Employment status of household heads and members disaggregated by sex, age, and district in Eastern Cape Province	39
Table 13:	Household income disaggregated by sex, age, and district in Eastern Cape Province	41
Table 14:	Sources of income of household heads and members in Eastern Cape Province	42
Table 15:	Social welfare grants as source of income of household heads and members disaggregated by sex, age, and district	43
Table 16:	Household heads and members reported receiving any social grant(s) during 12 months prior to survey disaggregated by sex, age, and district in Eastern Cape Province	45
Table 17:	Social grant type received by household heads and members during 12 months prior to survey in Eastern Cape Province	46
Table 18:	Household heads and members reported receiving social relief during 12 months prior to survey disaggregated by sex, age and district in Eastern Cape Province	46
Table 19:	Social relief type received disaggregated by household heads and members during 12 months prior to survey in Eastern Cape Province	48
Table 20:	Household members reported receiving Covid-19 grant during 12 months prior to survey disaggregated by sex, age, and district in Eastern Cape Province	48
Table 21:	Types of dwellings occupied by households in Eastern Cape Province	49
Table 22:	Main source of drinking water in Eastern Cape Province	50
Table 23:	Household's main source of water disaggregated by sex of household head and districts in Eastern Cape Province	51
Table 24:	Improved and unimproved water sources disaggregated by sex of the household head and district in Eastern Cape Province	53
Table 25:	Payment of water services disaggregated by district and household head sex in Eastern Cape Province	54

Table 26:	Type of toilet facility used by households in Eastern Cape Province	55
Table 27:	Type of toilet facility used by the households disaggregated by sex of the household head and district in Eastern Cape Province	56
Table 28:	Proportion of households using Improved and Unimproved toilet types disaggregated by the sex of the household head and district in Eastern Cape Province	57
Table 29:	Households receiving free sanitation disaggregated by sex of the household head and district	58
Table 30:	Households rubbish disposal in Eastern Cape Province	59
Table 31:	Households rubbish disposal methods disaggregated by sex of the household head and district in Eastern Cape Province	60
Table 32:	Access to electricity by household head sex and district	62
Table 33:	Households receiving free electricity disaggregated by sex of the household head and district in Eastern Cape Province	63
Table 34:	Household's main source of energy for cooking, lighting, water heating and space heating in Eastern Cape Province	63
Table 35:	Source of energy for cooking disaggregated by sex of the household head and district in Eastern Cape Province	64
Table 36:	Source of energy for water heating disaggregated by sex of the household head and district in Eastern Cape Province	65
Table 37:	Main source of energy for space heating disaggregated by sex of the household head and district in Eastern Cape Province	66
Table 38:	Households registered as indigent disaggregated by sex of the household head and district in Eastern Cape Province	67
Table 39:	Access to road infrastructure by households in Eastern Cape province	96
Table 40:	Access to market by households in Eastern Cape Province	97
Table 41:	Household access to agricultural extension services in Eastern Cape Province	98
Table 42:	District level and gendered food security situation as determined by HFIAS	101
Table 43:	Food security situation, using HHS in Eastern Cape Province	104
Table 44:	Household Dietary Diversity Scores in Eastern Cape Province	108
Table 45:	Food Consumption Score by sex, age of household head, and district	111
Table 46:	Food expenditure per capita per month by sex and age group	113
Table 47:	Relationship of food security and socio-economic factors in Eastern Cape Province	114
Table 48:	Breastfeeding status among infants aged 0-24 months in Eastern Cape Province	118
Table 49:	Time lapsed until the introduction of breastfeeding among infants aged 0-24 months in Eastern Cape	119
Table 50:	The first drink other than breast milk among children aged 0-24 months by district in Eastern Cape Province	122
Table 51:	Age at which the first drink other than breast milk was introduced among infants aged 0-24 months in Eastern Cape	123
Table 52:	Mean age at introduction of milk feeds among infants 0-24 months old in Eastern Cape Province	124
Table 53:	The type of milk other than breast milk that the infant receives (among infants aged 0-24 months who are receiving milk feeds) in Eastern Cape Province	124
Table 54:	Age of introduction of first semi-solid or solid food and the types of foods among infants 0-24 months in Eastern Cape	125

Table 55:	Types of first semi-solid or solid food among infants 0-24 months in Eastern Cape	126
Table 56:	Distribution of age and sex of the sample in Eastern Cape Province	128
Table 57:	The prevalence of Stunting in children under 5 years by age, sex, and district in Eastern Cape	129
Table 58:	The prevalence of Wasting in children under 5 years disaggregated by age, sex and district in Eastern Cape Province	131
Table 59:	The prevalence of Underweight in children under 5 years by age, sex, and district in Eastern Cape	133
Table 60:	The prevalence of overweight in children under 5 years by age, sex, and district in Eastern Cape	135
Table 61:	Waist hip ratio (WHR) of adults aged 18 years and older in Eastern Cape disaggregated by gender, age, and district	141
Table 63:	Dietary diversity scores for children aged 0-5 years in Eastern Cape Province	143
Table 64:	Mean dietary diversity scores for adults in Eastern Cape Province	145
Table 65.	Relationship between Household Food Insecurity and Malnutrition indicators in Eastern Cape Province	147
Table 66:	Disease experienced by household heads and members a year prior to the survey in Eastern Cape Province	150
Table 67:	Household heads' perceived health status disaggregated by sex, age, and district in Eastern Cape Province	151
Table 68:	Household members reported perceived health status by sex, age, and district	152
Table 69:	Households that worried their food would run out before we got money to buy more in Eastern Cape Province	158
Table 70:	Households whose food did not last, and they did not have money to get more in Eastern Cape Province	158
Table 71:	Households who could not afford sufficient and nutritious food because the price of food increased in Eastern Cape Province	159
Table 72:	Households which were unable to eat healthy and nutritious food in Eastern Cape Province	159
Table 73:	Households which could not access the cheap and affordable food market, because they were shut down due national lockdown restrictions in Eastern Cape Province	160
Table 74:	Household heads who were hungry but did not eat in Eastern Cape Province	160
Table 75:	Household head who had to skip a meal in Eastern Cape Province	161
Table 76:	Households who ran out of food in Eastern Cape Province	161
Table 77:	Household heads who went without eating for a whole day in Eastern Cape Province	162

List of Figures

Figure 1:	Food Security Continuum	21
Figure 2:	Schematic representation of the overlay of administrative boundaries and LHZ	23
Figure 3:	Map of some selected livelihood zones in Eastern Cape	29
Figure 4:	Map of the livelihood zone	30
Figure 5:	Employment status of household members disaggregated by local municipality in Eastern Cape Province	40
Figure 6:	Social welfare grants as source of income of household members disaggregated by local municipality in Eastern Cape Province	44
Figure 7:	Household members who received any social relief during 12 months prior to survey disaggregated by local municipality in Eastern Cape Province	47
Figure 8:	Proportion of households using improved and unimproved water sources in Eastern Cape Province	52
Figure 9:	Water supplier (n=5,382) in Eastern Cape Province	53
Figure 10:	Payment of water services (n=5,380) in Eastern Cape Province	54
Figure 11:	Proportion of households paying for public sewerage (n=4,214) in Eastern Cape Province	57
Figure 12:	Proportion of households receiving free sanitation services (n=2,637) in Eastern Cape Province	58
Figure 13:	Proportion of households receiving free refuse removal services (n=2,532) in Eastern Cape province	61
Figure 14:	Proportion of households with access to electricity (n=6,087) in Eastern Cape Province	61
Figure 15:	Proportion of households receiving free electricity (n=5,723) in Eastern Cape Province	62
Figure 16:	Proportion of the household registered as indigent (n=6,086)	67
Figure 17:	Seasonal calendar (Source: HEA, Qualitative Output)	68
Figure18:	Household access to land in Eastern Cape Province	69
Figure 19:	Land access disaggregated according to household head sex in Eastern Cape Province	70
Figure 20:	Access to land disaggregated according to age in Eastern Cape Province	70
Figure 21:	Land access disaggregated by districts in Eastern Cape Province	71
Figure 22:	Land tenure system among households in Eastern Cape Province	72
Figure 23:	The approximated agricultural land size accessed by households in Eastern Cape Province	72
Figure 24:	Land use for food and other agricultural production in Eastern Cape Province	73
Figure 25:	Livestock production disaggregated by district in Eastern Cape Province.	73
Figure 26:	Poultry production disaggregated by district in Eastern Cape Province.	74
Figure 27:	Household involvement in crop production in Eastern Cape Province	74
Figure 28:	Pulses Production disaggregated by district in Eastern Cape Province	75
Figure 29:	Household fruit production disaggregated by district in Eastern Cape Province	75

Figure 30: Household vegetable production in Eastern Cape Province 76
Figure 31: Wealth breakdown in the ZAHWC Livelihood Zone 77
Figure 32: Wealth breakdown in the ZAHWC Livelihood Zone 78
Figure 33: Wealth breakdown in the ZAMIO Livelihood Zone 79
Figure 34: Wealth breakdown in the ZAMIO Livelihood Zone 80
Figure 35: Wealth breakdown in the ZAKUK Livelihood Zone 81
Figure 36: Sources of food in ZALAN (expressed as percentage of minimum average food energy needs) for each wealth group 82
Figure 37: Sources of food in ZALAN (expressed as percentage of overall total food energy needs) for each wealth group 83
Figure 38: Gender breakdown of who produces food in the zone for each wealth group
Figure 39: Sources of annual cash income by wealth group in ZALAN 84
Figure 40: Sources of annual cash income as a percentage of total, by wealth group in ZALAN 85
Figure 41: Sources of food in ZACHO (expressed as percentage of minimum average food energy needs) for each wealth group 85
Figure 42: Food source as a contribution to the total in ZACHO Livelihood Zone 86
Figure 43: Gender breakdown of who produces food in the zone for each wealth group in ZACHO 87
Figure 44: Sources of annual cash income by wealth group in ZACHO 87
Figure 45: Sources of annual cash income as a percentage of total, by wealth group in ZA 88
Figure 46: Sources of food in ZAHWC (expressed as percentage of minimum average food energy needs) for each wealth group 89
Figure 47: Sources of food as overall to the total by Wealth Breakdown in ZAHWC 89
Figure 48: Sources of annual cash income by wealth group in ZAHWC 90
Figure 49: Sources of annual cash income as a percentage of total, by wealth group in ZAHWC 90
Figure 50: Sources of food in ZAKUK (expressed as percentage of minimum average food energy needs) for each wealth group 91
Figure 51: Sources of food as overall to the total by Wealth Breakdown in ZAKUK 92
Figure 52: Sources of annual cash income by wealth group in ZAKUK 92
Figure 53: Sources of annual cash income as a percentage of total, by wealth group in ZAKUK 93
Figure 54: Sources of food in ZAMIO (expressed as percentage of minimum average food energy needs) for each wealth group 93
Figure 55: Sources of food as overall to the total by Wealth Breakdown in ZAMIO 94
Figure 56: Sources of annual cash income by wealth group in ZAMIO 94
Figure 57: Sources of annual cash income as a percentage of total, by wealth group in ZAMIO 95
Figure 58: Type of extension services accessed by households in Eastern Cape Province 97
Figure 59: The categorized food security situation, using HFIAS 101
Figure 60: Food security status disaggregated by sex of household head 102
Figure 61: Food security status by age group of household head 103
Figure 62: Food security status by district 103
Figure 63: Hunger experiences of households in Eastern Cape Province 104
Figure 64: Household hunger status disaggregated by sex of household head in Eastern Cape Province 105

Figure 65: Household hunger status disaggregated by age group of household head in Eastern Cape Province 106
Figure 66: Household hunger status by district 106
Figure 67: Household Dietary Diversity Scores 107
Figure 68: Dietary Diversity Score category by sex of household 108
Figure 69: Dietary diversity category by age of household head 109
Figure 70: Dietary diversity category by district 109
Figure 71: Frequency of food group consumption 110
Figure 72: Food consumption score 110
Figure 73: Food consumption category by sex of household head 111
Figure 74: Food consumption category by age of household head 112
Figure 75: Food consumption category by district 112
Figure 76: Food poverty levels in the EC 113
Figure 77: Age at which breastfeeding was stopped among infants aged 0-24 months in Eastern Cape 120
Figure 78: First drink other than breast milk among children aged 0-24 months in Eastern Cape 121
Figure 80: The prevalence of Stunting in children under 5 years by age group in Eastern Cape 129
Figure 81: The prevalence of Stunting in children under 5 years by gender in Eastern Cape 130
Figure 82: The prevalence of Stunting in children under 5 years by district in Eastern Cape 130
Figure 83: The prevalence of Wasting in children under 5 years by age group in Eastern Cape 131
Figure 84: The prevalence of Wasting in children under 5 years by gender in Eastern Cape 132
Figure 85: The prevalence of Wasting in children under 5 years by district in Eastern Cape 132
Figure 86: The prevalence of Underweight in children under 5 years by age group in Eastern Cape 133
Figure 87: The prevalence of Underweight in children under 5 years by gender in Eastern Cape 134
Figure 88: The prevalence of Underweight in children under 5 years by district in Eastern Cape 134
Figure 89: The prevalence of Overweight in children under 5 years by age group in Eastern Cape 136
Figure 90: The prevalence of Overweight in children under 5 years by gender in Eastern Cape 136
Figure 91: The prevalence of Overweight in children under 5 years by district in Eastern Cape 136
Figure 92: Distribution of BMI in adults aged 18 years and older by districts in Eastern Cape 137
Figure 93: Distribution of BMI in adults aged 18 years and older by gender in Eastern Cape 138
Figure 94: Distribution of BMI in adults aged 18 years and older by age categories in Eastern Cape 139
Figure 95: Comparison of the distribution of BMI in adults aged 18 years and older by age and gender in Eastern Cape 139
Figure 96: Comparison of the distribution of BMI in adults aged 18 years and older by districts in Eastern Cape 140
Figure 97: Comparison of the distribution of BMI in adults aged 18 years and older by districts and gender in Eastern Cape 140
Figure 98: Comparison of the distribution of WHR in adults aged 18 years and older by age and gender in Eastern Cape Province 142
Figure 99: Comparison of the distribution of WHR in adults aged 18 years and older by districts and gender in Eastern Cape 142
Figure 100: Comparison of the distribution of DDS in children aged 0-5 years by districts in Eastern Cape 144

Figure 101: Comparison of the distribution of DDS in children aged 0-5 years by districts in Eastern Cape 146
Figure 102: Household heads and members reported to having been continuously ill, for at least 3 months in the last 12 months prior to the survey 151
Figure 103: Household members reported perceived health status by local municipality in Eastern Cape Province 153
Figure 104: Household that experience floods in the last 12 months in Eastern Cape Province 154
Figure 105: Household that experience drought shock by district in the last 12 months in Eastern Cape Province 155
Figure 106: Household that experience severe water shortage shock by district 155
Figure 107: Household that experience crop failure shock by district 156
Figure 108: Household that experience drought and water shortage shock by district 156
Figure 109: Household that experience high food prices shock by district 157
Figure 110: Household that experience high input prices shock by district 157

List of Abbreviations

BMI	Body Mass Index
CAPI	Computer Assisted Personal Interviewing
CI	Confidence Interval
CSI	Coping Strategy Index
GBV	Gender-Based Violence
GDP	Gross Domestic Product
DAFF	Department of Agriculture, Forestry and Fisheries
DALRRD	Department of Land Reform and Rural Development
DDS	Dietary Diversity Score
DOH	Department of Health
DSD	Department of Social Development
FCS	Food Consumption Score
FGDs	Focus Group Discussions
FNS	Food and Nutrition Security
GAM	Global Acute Malnutrition
GHS	General Household Survey
HDDS	Household Dietary Diversity Score
HEA	Household Economy Approach
HFIAP	Household Food Insecurity Access Prevalence
HFIAS	Household Food Insecurity Access Scale
HHS	Household Hunger Scale
HSRC	Human Sciences Research Council
IFSNP	Integrated Food Security and Nutrition Programme
JMP	Joint Monitoring Programme
Kg/Ha	Kilogram Per Hectare
LHZ	Livelihood Zones
MAHFP	Months of Adequate Household Food Provisioning
NFERP	National Food Emergency Relief Programme
NFNSS	National Food and Nutrition Security Survey
NIDS	National Income Dynamic Survey
NISIS	Nation Integrated Social Information System
RDP	Reconstruction and Development Programme

RVAA	Regional Vulnerability Assessment and Analysis
SADC	Southern African Development Community
SAL	Small Area Layers
SAS	Statistical Analyses Systems
SALDRU	Southern Africa Labour Development Research Unit
SANHANES	South African National Health and Nutrition Examination Survey
SAVAC	South Africa Vulnerability Assessment Committee
SOP	Standard Operation Procedure
Stats SA	Statistics South Africa
TLU	Tropical Livestock Units
UNICEF	United Nations International Children's Emergency Fund
VIP	Ventilated Improved Pit
WASH	Water, Sanitation and Hygiene
WFP	World Food Programme
WHO	World Health Organization
WHR	Waist-to-Hip Ratio
ZAOCG	Highveld Border Open Mixed Income Livelihood Zone
ZANWC	Western Open Access Cattle and Game Farming Livelihood Zone
ZAHMI	Highveld Open Access Mixed Income (ZAHMI) Livelihood Zone

Acknowledgements

This report is a product of many contributors whose input is acknowledged. The research team wishes to extend words of gratitude to:

- The Department of Agriculture Land Reform and Rural Development for the opportunity it granted the research team to conduct this survey
- Eastern Cape Provincial Department of Agriculture and Rural Development for its support and contribution in particular the Provincial Coordinator
- The community leaders for the permission they granted to allow their communities to participate in the survey
- Officials from the district and municipal offices for their support and contributions
- The data collectors who worked earnestly to ensure that data is collected
- HSRC staff who endeavoured to ensure that the study is a success
- Experts for sharing their knowledge with the research team and data collectors.

Disclaimer

This report is based on the empirical evidence collected from selected Small Area Layers (SALs) within the five districts of Eastern Cape Province. SAL is the smallest geographical unit usually allocated to a single enumerator during census enumeration. In other words, it constitutes a small piece of land for an enumerator to cover to administer a questionnaire during a census or study (Statistics South Africa). Each of the SALs in this survey had 35 visiting points (households). The results provide a baseline assessment of the status quo of food and nutrition security in the province. The data was collected within the The data was collected more than 8 months after the COVID-19 lockdown measures, a period characterized by much more relaxed restrictive COVID-19 measures . This greatly influenced and changed the picture from what would ordinarily obtain under a normal situation. Whilst this research project has benefited from the valuable insights and input of a Technical Advisory Group (TAG) that provided comments and reviewed the final research report, the ultimate responsibility for the contents therein (including but not limited to unintentional errors, inaccuracies, or omissions) rests with the authors and researchers involved. Users of this research should exercise their judgment and discretion when interpreting the findings and recommendations presented herein.

Executive Summary

Food and nutrition security is one of the fundamental strategic imperatives of the government of South Africa. The right to access sufficient food is firmly entrenched in the Constitution of the Republic of South Africa (Sections 27, 28, and 35). Many policies, programmes, and intervention measures such as social grant systems (which include child support, school feeding schemes, farmer support programmes) have been developed and implemented to help improve the food and nutrition security situation at household level in the country. These programmes are reflected in the National Policy on Food and Nutrition Security in 2014 and, subsequently, the National Food and Nutrition Security Policy Implementation Plan (2018-2023). Despite these efforts, food insecurity is still a reality and a major concern for several millions of people in South Africa. Strong evidence exists that there are households in South Africa that go to bed on empty stomachs, and others that only eat once or twice a day. In addition, South Africa is reported to be going through a nutrition transition characterised by the double burden of malnutrition (manifesting through stunting and wasting) and overweight due to the consumption of a nutrient poor diet. This is in sharp contrast to the fact that South Africa is food secure at a national level. The concentration and distribution of these households across the various districts within the province need to be established as this has been a cause for concern for the Department of Agriculture, Land Reform, and Rural Development (DALRRD) as well as the membership of the South African Vulnerability Assessment Committee (SAVAC) which is comprised of various sectors.

To develop intervention measures that are well targeted and address the root causes of household food and nutrition insecurity, current data at lower geographic levels and contextually relevant scientific evidence are crucial. Accordingly, the DALRRD commissioned a National Food and Nutrition Security Survey (NFNSS) aimed at providing baseline data on the state of food and nutrition security across districts and livelihood zones in South Africa. Further, the survey sought to investigate the link between food security and nutrition as well as assessing the impacts of COVID-19 on household FNS. National surveys on food and nutrition security are needed as they inform the government and policymakers about the actual status of food and nutrition insecurity in a country.

This provincial report provides the first ever full-scale baseline assessment of the Food and Nutrition Security Survey (NFNSS) conducted in all three districts of the Eastern Cape Province. The survey adopted the SAVAC-endorsed methodological framework for measuring food insecurity and assessing vulnerability. The framework combines qualitative and quantitative research dimensions to enhance methodological and data triangulation. Broadly, the framework adopts the food and nutrition security continuum, and the Household Economy Approach (HEA).

Out of the targeted 6823 visiting points (VPs), 97.8% were valid. Out of these valid VPs, 89.5% were realized. A total of 6 104 people were interviewed in this province, when weighted this total represents 4 098 350 South Africans 18 years and older living in Eastern Cape Province.

Several internationally accepted food security indicators, such as the Household Food Insecurity Access Score (HFIAS), Household Hunger Score (HHS), Food Consumption Score (FCS), and Household Dietary Diversity Score (DDS), were used to capture the different dimensions of food and nutrition security. The results indicated that many households were food insecure in the Eastern Cape Province. The HFIAS revealed that about 26.6 % of households were food secure, with the remaining 73.4% of the households being food insecure. Furthermore, of those who are food insecure, 20.2% experienced severe levels of food insecurity. The HHS showed that over 78% of households experienced little to no hunger, while 16.5% and 5.3% of households experienced moderate hunger and severe hunger, respectively. The FCS and HDDS showed that over 61.6% and 78.0%, respectively, consumed an acceptable number of food groups across all the districts. The FCS indicated that 14.8% of households consumed poor diets, while 23.6% consumed borderline diets. However, the households mostly

consumed nutrient-poor food groups such as cereals, condiments, sugars, and oils/fats; there was limited consumption of nutrient-rich food groups such as fruits, pulses, nuts, eggs, fish, and seafood.

The levels of food insecurity varied across districts. Severe food insecurity was more prevalent in Amathole and Sarah Baartman districts, where 24.0% of the households in both districts were severely food insecure as determined by HFIAS. This was followed closely by Alfred Nzo (23.0%) and Nelson Mandela Bay (20.0%). According to the HHS Sarah Baartman, Nelson Mandela Bay, and Buffalo City had the highest rates of food insecurity with a severe HHS of 7.0% in all three districts. Additionally, households from Buffalo City, Joe Gqabi, and Amathole regions had the lowest dietary diversity of 10.0% and 8.0%, respectively. Joe Gqabi had the highest number of households (80.0%) within the poor food consumption score category. Severe food insecurity was more prevalent among households headed by household-heads of the old age group.

Significant relationships were found between household food security status and some demographic and socio-economic factors such as gender, age of household head/ acting head, access to irrigation, water source, sanitation, social grants, household size, markets, education level of household head/ acting head, and involvement in agricultural production. Overall, the results showed that social grants, education levels, and employment were positively correlated with better food security outcomes. As an example, while 12.7% of households headed by people with no education were food secure, 70.1% of households headed by people with tertiary qualifications were food secure. Educated people have higher opportunities and higher chances of success in their endeavours, which leads to higher economic and welfare outcomes. Farming activities did play a significant role in supplementing food availability. However, households in farms (35.8%) reported higher levels of food security than those in urban (31.2%) or rural areas (21.3%) areas, suggesting that dealing with food insecurity in a province such as the Eastern Cape requires a multi-pronged approach which focuses on both agricultural activities and expansion of social protection measures (such as social grants), and creating employment opportunities.

Findings indicate that 80.1% of children under 2 years were breastfed at some point in their lives. The provincial prevalence of overall stunting, wasting, and underweight in children aged 0-5 years is 31.4%, 4.1%, and 7.7%, respectively, compared to 33.5%, 2.0% and 8.3% in 2012. These results indicate that the proportion of children experiencing acute and chronic undernutrition has decreased slightly over the past 10 years. Over the same time period, the combined prevalence of overweight and obesity in adult females has increased slightly from 63.5% to 68.0%, while that of adult males have increased more substantially from 24.3% to 34.3%. Across the districts, overall, Nelson Mandela remains at the highest risk with an overall prevalence of stunting of 40.3%, a severe stunting prevalence of 14.3%, a severe wasting prevalence of 1.3%, and a severe underweight prevalence of 4.7%. However, Buffalo City, Sarah Baartman, and Chris Hani have the highest prevalence of severe stunting (20.4%-22.7%). The nutrition indicators for both children and adults showed some significant correlations with food security status of households. In children, underweight was significantly correlated with food security status. In Adults underweight, obesity/overweight, increased waist hip ratios, and individual dietary diversity showed significant correlations with food security status of households.

The results also showed that the COVID-19 pandemic and the lockdown measures introduced to curb its spread led to serious disruptions of food supply chains and production systems. The increase in food prices was the biggest shock experienced across all eight districts in the Eastern Cape Province. The highest shocks were experienced in Alfred Nzo and Nelson Mandela Bay districts, with 74 % and 73% respectively. Alfred Nzo District had the highest percentage (34.2%) of households who were sometimes worried about their food running out before they can get money to buy some more food. Sarah Baartman (24.6%) and Amathole (24.3%) districts also had the highest percentages of households who reported that their food often runs out and they did not have money to buy more.

Several recommendations have been proposed, and these revolve around strategies to:

- increase incomes of households,
- create employment,

- ensure water security to adapt to the changing climate,
- enhance food safety,
- invest in post-harvest agro-processing and intrinsic land access,
- establish food banks,
- promote domestic food production,
- improve awareness of micro- and macro-nutrient consumption interventions, and
- implement full-scale nutrition-sensitive programmes.

Table A: Eastern Cape Food and Nutrition Security situation based on selected indicators

DISTRICTS	FOOD SECURITY INDICATORS (%)											
	Household Food Insecurity Access Scale (HFIAS)			Household Hunger Scale (HHS)			Household Dietary Diversity Score (HDDS)			Food Consumption Score (FCS)		
	Food Secure	Mild/ Moderate	Severe	Little/No	Moderate	Severe	Highest	Medium	Lowest	Acceptable	Borderline	Poor
Alfred Nzo	20.0	56.0	23.0	76.0	19.0	4.0	77.0	20.0	3.0	81.0	11.0	9.0
Amathole	25.0	51.0	24.0	74.0	20.0	6.0	74.0	18.0	8.0	52.0	26.0	22.0
Buffalo City	36.0	45.0	19.0	78.0	15.0	7.0	78.0	12.0	10.0	65.0	19.0	16.0
Chris Hani	24.0	58.0	17.0	78.0	17.0	5.0	79.0	16.0	5.0	56.0	29.0	15.0
Joe Gqabi	25.0	60.0	15.0	82.0	14.0	4.0	77.0	15.0	8.0	51.0	32.0	17.0
Nelson Mandela Bay	30.0	50.0	20.0	79.0	14.0	7.0	81.0	13.0	6.0	71.0	15.0	14.0
O.R Tambo	26.0	57.0	17.0	81.0	16.0	3.0	79.0	15.0	6.0	60.0	32.0	8.0
Sarah Baartman	23.0	54.0	24.0	78.0	15.0	7.0	77.0	17.0	6.0	64.0	15.0	22.0
Province	26.6	53.2	20.2	78.0	16.5	5.3	78.0	15.5	6.5	61.6	23.6	14.8
DISTRICTS	**NUTRITION INDICATORS (%)**											
	STUNTING			**WASTING**			**UNDERWEIGHT**			**BMI**		
	All	Moderate	Severe	All	Moderate	Severe	All	Moderate	Severe	Underweight	Overweight	Obese
Alfred Nzo	15.9	12.2	3.6	6.7	1.2	5.5	8.0	7.4	0.6	7.0	22.5	25.0
Amathole	25.6	9.8	15.8	3.3	2.5	0.7	2.8	2.2	0.7	6.1	27.0	36.1
Buffalo City	38.0	15.3	22.7	10.4	10.4	0.1	13.9	3.6	10.4	3.8	30.2	36.1
Chris Hani	34.5	14.1	20.4	1.2	0.4	0.7	6.8	5.9	0.8	6.0	24.5	31.9
Joe Gqabi	32.9	17.9	15.1	1.7	1.7	0.0	5.8	4.9	0.9	7.6	20.4	31.2
Nelson Mandela Bay	40.3	26.1	14.3	1.5	0.2	1.3	11.9	7.2	4.7	9.3	22.9	31.7
O.R Tambo	25.0	11.7	13.4	2.8	1.8	1.0	2.2	1.7	0.5	7.9	25.4	33.8
Sarah Baartman	38.6	16.5	22.1	6.1	1.5	4.7	13.5	8.9	4.6	10.5	15.1	29.9
Province	31.4	15.8	15.6	4.1	2.6	1.6	7.7	4.7	3.0	7.3	24.2	32.4

Food Secure,			0.0–9.9%
Little/ No Hunger,	Severe/	Mild/	10.0–19.9%
Highest,	Poor	Moderate/	20.0–29.9%
Acceptable		Borderline	30.0–39.9%
			40.0–49.9%
			50.0% +

1 Introduction

Food security which is widely defined as 'a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life' (FAO, 1996), is one of the strategic imperatives for South Africa. This is expressed in the Constitution, government policy documents, and development plans (e.g., the National Development Plan). The right to have access to sufficient food by all citizens is enshrined in the Constitution of the country. To translate this right into action, government approved the National Policy on Food and Nutrition Security in 2014. Since then, the National Food Security plan has been developed but not fully implemented. However, despite this legislative, constitutional, and policy framework for food and nutrition security imperatives, a significant proportion of South Africa's population faces massive food and nutrition challenges. These challenges include hunger, micronutrient deficiencies, stunting, wasting and obesity. While there is sufficient food to feed everyone in South Africa through domestic food production and food imports, many families and individuals go to bed hungry (Stats SA, 2019). Recent estimates are that the number of individuals with inadequate or severely inadequate access to food stands at 13.7 million (Stats SA, 2019). This was confirmed in 2019 by the World Food Programme.

Food security is a multi-dimensional concept[1], which needs to be addressed within the context of various issues in South Africa. These include land reform, employment, agricultural productivity, adequate responses to hazards and shocks, as well as economic dimension. This requires planning that is adequate, efficient, and effective in addressing the country's vulnerability to food insecurity. Such planning needs to be supported by up-to-date data at lower geographic levels and scientific evidence that is contextually relevant to the realities facing various communities and households in the country. Large-scale surveys, such as the NFNSS, can generate such data and evidence that is representative at the district levels. The NFNSS survey intends to address the following objectives:

1. To provide a baseline assessment of the food and nutrition security situation at household level in the respective livelihood zones in Eastern Cape Province, in terms of:
    a. Availability: to determine food availability at household level.
    b. Access: to determine food access at household level.
    c. Food utilisation: to determine individual food consumption within the household and compile anthropometric measurements.
    d. Food stabilisation: to assess household food stability with respect to food supply, price changes, shocks, and the coping mechanisms.
2. To analyse the link between food security and nutrition and explore reasons for people's vulnerability.
3. To assess the impact of COVID-19 on food security and nutrition at household level in South Africa.
4. To make recommendations for planning and targeting of interventions for food and nutrition security.

1 The four dimensions of food security that are commonly identified are food availability, food access, food utilisation, and stability. These dimensions are hierarchical, with availability necessary but not sufficient to ensure access, while access is, in turn, necessary but not sufficient for effective utilisation (Barrett, 2010).

2 Background

The state of food and nutrition vulnerability in South Africa has been exacerbated by both the economic hardships, which are a result of the high rate of unemployment, and the outbreak of COVID-19 with the associated control measures implemented by the government to contain its spread. As an intervention, the Department of Agriculture Land Reform and Rural Development (DALRRD) has in the past developed and implemented various programmes that are intended to cushion communities from the vulnerability and devastating effects of hunger and poverty. There is, therefore, a need to systematically determine if these government programmes and interventions are having the desired impact of protecting households from exposure to food insecurity. To do this, the DALRRD commissioned a nationwide food security and nutrition survey. The survey sought to develop a deeper understanding of the state of food security and hunger at household level. Its ultimate objective was to develop targeted programmes and intervention measures that address prevalent problems and is, therefore, likely to yield impactful results.

The DALRRD provides the secretariat for, and chairs, the South African Vulnerability Assessment Committee (SAVAC). The committee exists as a multi-stakeholder forum for organising the development and maintenance of a well-coordinated information system for classifying, measuring, monitoring, and forecasting food insecurity and vulnerability levels in the country. Not long ago, SAVAC began a process of conducting baseline assessments to determine the status quo of livelihoods, food, and nutrition security in localised geographical areas for informed planning and targeting of interventions. The initial baseline assessments were conducted in 19 of the 119 Livelihood Zones of South Africa (Ngidi et al., 2016). However, for the information system to be fully functional, there was a realisation of the need to undertake a national baseline against which the national vulnerability forecasts and monitoring surveys can be conducted.

In this regard, SAVAC endorsed the need for a national food, nutrition, and security assessment that would enable the country to have a complete baseline data set of open access, exclusive access, and urban areas to provide a complete picture of the food and nutrition security situation at municipal, district, and provincial levels. Such a national baseline is meant to guide planning, including design of intervention strategies for the National Food and Nutrition Security Plan (NFNSP).

The national report will provide the first ever full-scale baseline assessment of National Food and Nutrition Security Survey (NFNSS) conducted in all the districts across the nine provinces of South Africa. This report contains the results from the Eastern Cape Province only. The survey seeks to provide the first step towards the development of a multi-dimensional index to assess countries' vulnerability to food insecurity across all the four food security dimensions. It supplements the South Africa Demographic and Health Survey (SADHS) by updating the provincial-level data that it presented. The General Household Surveys (GHS) cover approximately 32 000 households annually since 2002, but do not include nutrition indicators. They focus on the experience of hunger and access to food only. In most countries, food and nutritional security assessments provide estimates which are representative at administrative levels or areas (i.e., province, districts, and sub district) by rural/ urban divide, or for both rural and urban as defined by the livelihood zones.

3 Methodological Matrix

The survey adopted the SAVAC endorsed methodological framework for measuring food insecurity and vulnerability. The framework combines qualitative and quantitative research dimensions to enhance methodological and data triangulation. Broadly, the framework adopts the food security continuum and the Household Economy Approach (HEA).

3.1 Food Security Continuum

The food security continuum builds on the iterative understanding of food insecurity as a phenomenon. It brings convergence to the economic, social, environmental, and political aspects of food insecurity and, by focusing on household and individual experience on food security. Figure 1 provides an overview of the food security continuum.

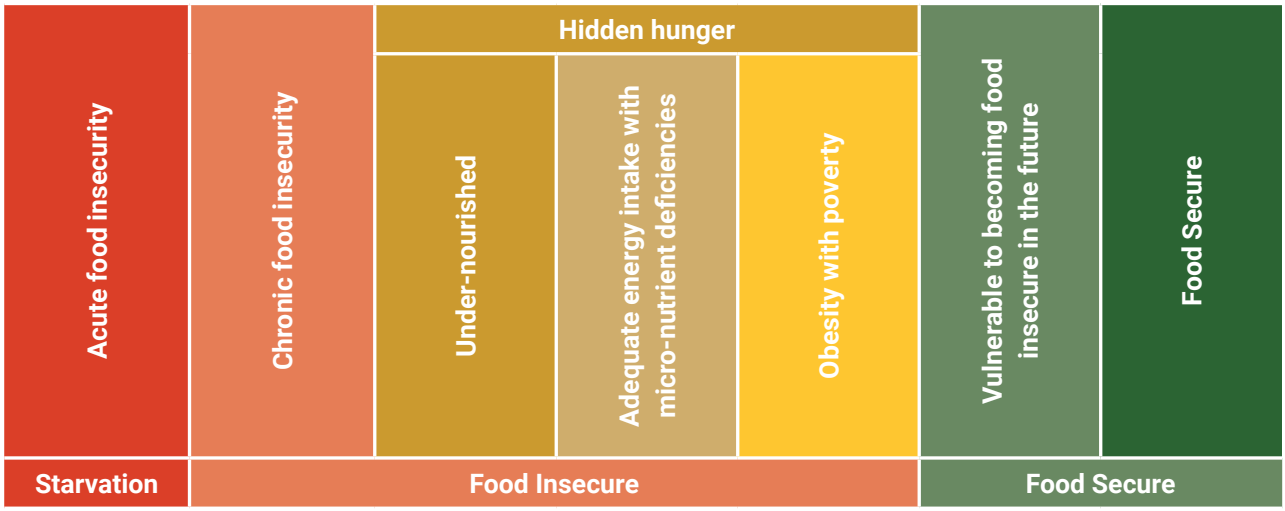


Figure 1: *Food Security Continuum (Hendriks, 2016)*

A set of indicators to monitor food security and nutrition were considered, including HFIAS, HHS, DDS, and anthropometric measurements to determine the number of households that are food insecure and using various categorisations in the Food Security Continuum.

3.2 Indicators of Food and Nutrition Security Measurement

The household food and nutrition security (FNS) levels were measured using different indicators. The multi-dimensional nature of FNS makes it difficult to adequately capture all its dimensions using only one indicator. There is currently no perfect single indicator of FNS and, instead, several complementary indicators - each focusing on one or more of the four dimensions of FNS (i.e., availability, access, utilization or nutrition, and stability) - exist (Hendriks et al., 2016). The food availability dimension refers to the availability of sufficient quantities of food of appropriate quality, supplied through domestic production, imports or donations. This report focuses on food production activities. Food access is about households or individuals having adequate resources to acquire, in a socially acceptable manner, appropriate foods for a nutritious diet. The food utilisation pillar relates to the ability of households to select, store, prepare, distribute, and eat food in ways that ensure adequate nutritional absorption for all members of a household. This dimension, therefore, focuses on how households use the food through adequate diets, clean water, sanitation, and health care to

reach a state of nutritional well-being where all members' physiological needs are met. The food stability pillar points to the fact that to be food secure, a population, household, or individual must have access to adequate food at all times. They should not risk losing access to food due to sudden shocks (e.g., an economic or climatic crisis) or cyclical events. Studies that have investigated the correlations among the different FNS indicators in South Africa and internationally have found that correlations among different FNS indicators vary from relatively weak across FNS dimensions (those comparing indicators of the different FNS dimensions), to relatively strong within FNS dimensions (comparing indicators of the same dimension). It is, thus, important that a suite of FNS indicators be reported to adequately monitor the different dimensions of FNS. In acknowledging that there is no single perfect agreed global measure that captures all aspects of food insecurity, the framework proposed the use of standard and acceptable food and nutrition measurement indicators. Through the food security continuum, an array of indicator tools was used, and these were complemented with the HEA as indicated in Table 1.

Table 1: Tools that were used for both quantitative and qualitative methods

	Baseline Assessment Indicators	Tools	Instrument: Section	
Food Security Continuum	Availability	• Production • Post-Harvest	6	**** Household Economic Approach
	Access	• Hunger Scale (12months) • Hunger Scale (4Weeks) • HFIAS	7 A, B, C, D 9	
	Stability	• Food expenditure • Key Informant Interviews • Shocks	8, 11, 12	
	Utilisation	• HDD • Anthropometry Measurements	Individual Nutrition Questionnaire	

**HEA: 1) Food Security Livelihood Zoning 2) Wealth Breakdowns 3) Livelihood Strategies 4) Problem Specification 5) Analysis of Coping Strategies 6) Projected Outcomes.

3.3 Household Economy Approach (HEA)

The second approach has been the livelihoods-based vulnerability assessment system referred to as the Household Economy Approach (HEA), commonly used in many Southern African Developing Community (SADC) countries. This approach provides an understanding of how people make a living (livelihood systems), a forecast analysis for food security and livelihood outcomes in the context of a dynamic environment, and is necessary for planning and targeting of interventions. Data captured in this approach is based on the use of rapid appraisal methods and semi-structured interviews to determine wealth breakdown and livelihood strategies in different areas. This is a qualitative dimension of the food security and nutrition assessment in which key informant interviews and focus group discussions were used in different livelihood zones.

4 Survey Design and Sampling

4.1 Study design and sampling for the household survey

The study design was cross-sectional and sought to provide representative and precise information at the household level. The first stage of the two-stage cluster sampling design is the selection of SALs or clusters in each district using PPS (Probability Proportional to Size). In this province we selected a total of 201 SALs. The second stage was a simple random selection of households within each selected SAL/Cluster, and for this study, we selected 35 households per SAL. Then in each household, we selected an average of 3 persons (household head, mother/caregiver, and child under 5 years old).

As for the HEA, qualitative information was gathered in the form of focus group discussions and key informant interviews in the selected open access livelihood zones of Eastern Cape Province. A livelihood zone is an area within which people share broadly the same pattern of livelihood, including options for obtaining food and income and market opportunities.

4.2 Determination of the geographical area (strata) for household sample design

Often food security and nutrition indicators per geographical area, e.g., district, is used as a basis for drawing the sample for the study. However, food and nutrition insecurity may vary across the country given the heterogeneity across the livelihood zones (LHZ).

Administratively, Eastern Cape Province is divided into six districts, and 26 local municipalities (mixed urban and rural). In this study, the smallest geographic unit is the small area layer (SAL), composed of 35 households sampled. Given the heterogeneity in livelihoods within regions, the province has two Open Access livelihood zones that have people living in them. The LHZ strata can cover several districts or cross over several provinces. This means a district will not necessarily have all the livelihood zones. A GIS function was used to overlay the administrative boundaries with the livelihood zones (as illustrated in Figure 2).

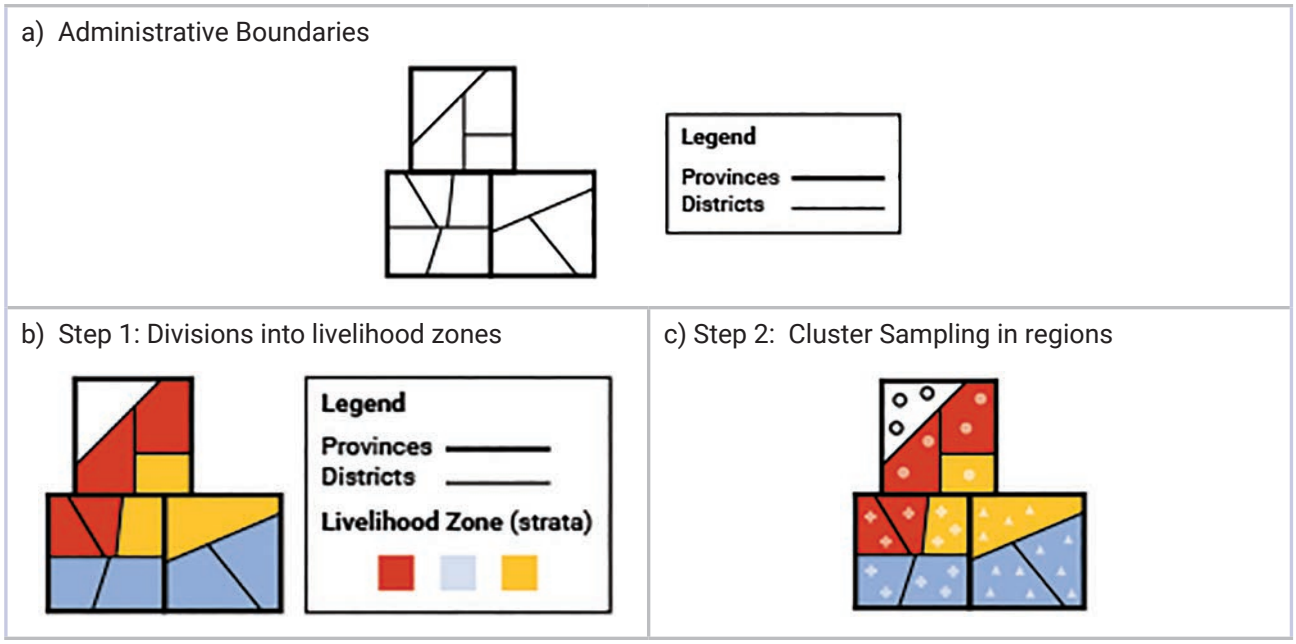


Figure 2: *Schematic representation of the overlay of administrative boundaries and LHZ*

Stratification by administrative boundary and livelihood zones serves two functions:

I. First, administrative boundaries rarely correspond with household characteristics related to food insecurity and thus estimates for administrative aggregations are likely to mask meaningful differences between sub-groups.

ii. Second, defining sub-groups for stratification using criteria related to vulnerability or food insecurity improves the precision of both sub-group and overall food security estimates.

For district level estimates, the strata of investigation are the six districts, with clusters/ SALs distributed across livelihood zones within districts. In this study, given the resource and time constraints, the focus was on the district strata.

4.3 Eligibility

4.3.1 Participant inclusion criteria

- Randomly selected households within the defined geographic area of survey coverage.
- All children under 5 years of age at the time of data collection who live in selected households, will be eligible for the survey, on condition that their parent or caregiver provides consent for participation. Parents or caregivers will provide individual dietary information related to the child, and children will participate in anthropometry measurements.
- Mothers/ primary caregivers of the children in the household will be eligible if they are included in the survey sample and have given consent for data collection.

4.3.2 Participant exclusion criteria

- Households not currently living in the defined geographic area, or consent for participation is denied by the adult household member approached by the survey team.
- Individuals in selected households will be ineligible if consent for individual participation is denied.
- Children will be ineligible for anthropometric measurement if they have a disability, which prevents accurate weight or height measurements from being taken.
- Children above 5 years of age.
- Adults who are not the head of the household or those who are not responsible for food preparation or not the primary caregiver / biological mother of the children aged under 5 years.

4.4 Sample Size Estimation

The sample size estimate was aimed at informing the surveillance purpose of tracking important changes in the food and nutritional security in South Africa over time; that is, between rounds of food and nutritional security. In addition, this sample was not meant to produce precise estimates of malnutrition prevalence at district level. The primary goal of collecting the nutrition data and/or anthropometric measures data was to analyse the link between food security and nutrition. The sample design was based on estimated prevalence of food security outcome indicators described in Section 3.2. This was deemed sufficient to calculate the minimum sample size that allow the link between children nutritional status and household level of food security.

In order to enhance precision in the estimation of the main outcome indicators, Standardised Monitoring and Assessment of Relief and Transitions (SMART) methodology was adopted. Essentially the sample size considered both nutrition and food security indicators through a stepwise process.

Two different samples based on both food and nutritional security indicators, were calculated and the following was applied:

- If there was a small difference in the nutrition sample size and food security derived sample sizes, the higher sample size was taken and both food security and nutrition indicators were assessed in all sampled households.

To ensure that the appropriate sample size was covered, extra clusters per strata were added to substitute inaccessible areas, insecurity, or rejection of some original clusters. Likewise, households within each cluster were reserved to compensate for nonresponse or refusal. The inaccessible areas were replaced by the cluster with the same characteristics. This approach was adopted to ensure unbiased selection and to maintain the precision of the study outcomes.

4.4.1 Determining sample size for the food security survey

The sample size calculation sought to provide statistically representative and precise information of food security at the district level. The required sample size for each stratum (district) was determined using the formula presented below and food security indicators provided in Table 2 and recommended parameters listed in Appendix 5. Due to many different indicators that could be used to measure food security, a proportion of 50% to get the largest sample desired for analysis of multiple indicators of food security at district level was considered.

$$n = \frac{Z^2\, p(1-p)}{E^{2*}\, Deff}$$

- 95% degree of confidence (Z Score=1.96);
- P is the prevalence of food insecurity measures for each province, if missing we assume a P of 50% which will yield the required sample size which is desired for analysis of multiple indicators of food security at varying prevalence (p);
- Deff: A design effect 1.5 to adequately address effects of intra-cluster correlation;
- 7-10% minimum desired precision (MOE) or maximum tolerable error (from other studies in sub-Saharan Africa and budgetary constraints on sample size)
- 80% statistical power;
- Household response rate (SANHANES) 2013- varies across provinces.

Table 2: Food Security Indicators

Parameters for food security	Value	Value	Value
Estimated Prevalence of food insecurity (%)	50%	50%	50%
± Desired precision	5%	6.5%	7%
Design Effect (if applicable)	1.5	1.5	1.5
% Non-response Households	15%	15%	15%
% Confidence interval	95%	95%	95%
% Power	80%	80%	80%
Households per district (strata)	**678**	**401**	**346**
TOTAL SAMPLE	**35 256**	**20 852**	**17992**

A sample of 401 households per stratum (district) provides required estimate of food insecurity of 50% (SANHANES, 2013), with a 6.5% precision around the estimate assuming a 15% household non-response rate, and a design effect of 1.5 with 95% confidence level and 80% power. This was adopted for the Eastern Cape Province with an expected calculated average of 968 households per district (Table 3). A lower precision, e.g., 7%, recommended for lower geographies, yields 346 households per region. The 6.5 % precision was informed by budgetary constraints on sample size and the fact that the recommended precision range between 2-10% for higher geographies (e.g. province, district) and at least 20% for lower geographies (livelihoods).

4.4.2 Determining sample size for nutritional indicators survey

The sampling did not aim at providing estimate of malnutrition in lower geographies. The goal was to establish the link between food security and nutrition. It was estimated that, a sample of 106 children under

five for each stratum (district) converted into 366 households provides the required estimate of stunting of 21.5% (SANHANES, 2013), with a 10% precision around the estimate assuming a 21% non-response rate, and a design effect of 1.5 with 95% confidence level and 80% power. (See formula in Box 1 and parameters in Appendix 5 & 6.) The 10% precision was informed by budgetary constraints on sample size, and the fact that the study was only interested in linkages between malnutrition and food security in the households. However, the malnutrition prevalence was relatively precise at national and provincial levels. The recommended precision ranged between 2-10% for higher geographies (e.g., province) and between 10-20% for lower geographies (municipalities).

Table 3: Parameters for nutritional indicators

Parameters for Anthropometry	Value*	Value
Estimated Prevalence of stunting (%)	21.5%	21.5%
± Desired precision (MOE)	9%	10%
Power	80%	80%
Confidence Interval	95%	95%
Design Effect (if applicable)	1.5	1.5
Children to be included	**131**	**106**
Average HH Size	3.7	3.7
% Children under-5	11%	11%
% Non-response Households	21%	21%
Households to be included	**452**	**366**
Strata (Districts)	52	52
Total households for the study		
* SANHANES (Shisana et.al 2013) Appendix Table 1		

This survey was conducted in 201 SALs, across 8 districts in the province. Within each SAL a random sample of 35 visiting points was identified. One household was to be selected at each visiting point. This yielded a total sample size of 7 035 households. Once a household was selected, specific household members were eligible to participate in the survey (as per the inclusion and exclusion criteria set refer to 4.3). These include the head of the household and / or the person responsible for food procurement and food preparation, as well as the biological mother of any children under the age of 5 years and all children between the ages of 0-5 years. We had estimated that on average each household will yield 3 people. The total sample was thus 7 035 Households. The survey succeeded to obtain the participation of 700 children in the province.

4.4.3 Sampling procedure: selecting clusters

The representativeness of the sample also depends on the sample structure including the selection of clusters and households within clusters. Clusters or SALs within districts were selected using PPS (Probability Proportional to Size) which measures the size of the number of households in each SAL. To ensure results could be reported at district or livelihood zones, the SALs were distributed across the livelihood zones within each district.

The study adopted the World Food Program (WFP) Technical Guideline which defines a cluster based on SALs, cluster size or the number of household's survey teams that can visit safely in one day, and the number of clusters a with number of households in each for each indicator. Usually, 20 to 30 clusters/EAs per stratum are typical for most settings (Technical Guideline, WFP - see Appendix I). In this province, 35 households per cluster or (SAL) were thus used.

4.4.3.1 Household Response Rate

Out of the targeted 7 035 visiting points (VPs), 97.8% were valid. Out of these valid VPs, 86.7% (6 104) were realised or interviewed while the refusals accounted for 2.6% (Table 4). Absent or 'other' constituted 8.4%. 'Other' included those who were not eligible to participate such as those who were incapacitated, were underage and had no adult to consent, were not at home for the duration of the study, and those who could not participate due to COVID-19 exposure.

Table 4: Household response rate by district

	Total VPs	Valid VPs		Interviewed		Refused		Absent/Other	
Cacadu	875	863	98.6	778	88.9	2	0.3	26	3.0
Amathole	875	848	96.9	738	84.3	8	0.9	107	12.2
Chris Hani	875	848	96.9	707	80.8	24	2.8	113	12.9
Joe Gqabi	875	854	97.6	735	84.0	20	2.4	94	10.3
O.R.Tambo	910	869	95.4	750	82.4	21	2.3	106	12.1
Alfred Nzo	875	873	99.7	865	98.8	0	0	28	3.2
Buffalo City	875	859	98.2	721	82.4	72	8.2	78	8.9
Nelson Mandela Bay	875	869	99.3	810	95.6	36	4.1	34	3.8
Total	7 035	6 883	97.8	6 104	86.7	183	2.6	586	8.4

4.4.3.2 Delimitation of the Household Economic Approach

Three open-access livelihood zones were selected for the qualitative analysis of the study. These zones lie across all districts in the province. These livelihoods are open access, and most households are involved in farming and use other sources of income such as casual labour, small business, grants and salaried employment to complement their livelihood needs. Ten communities/ villages were selected from each livelihood zones and thirty-six focus group discussions were conducted in each livelihood zone. The discussions were based on determinants of wealth, sources of food, and income and expenditure as stipulated by the key informants and focus group participants from various livelihood zones.

4.5 Field Data Collection

The data collection process in the field was preceded by training which followed an operational manual for field staff. The manual encapsulated processes and step for household survey data collection together with the HEA data collection, in the selected livelihood zones. The primary purpose of the training was to outline the standard procedure for the fieldwork to ensure consistency and systematic enquiry across the data collection activities. In doing so, the protocol ensured that the fieldwork was consistent, rigorous and that it upholds the highest degree of ethical standards. Some of the broad undertakings enshrined in the training included the Standard Operational Guideline for data collection in the Covid-19 environment, ethics, and the broader governance structure and team structure. (Refer to Operational Manual Annexure.)

4.5.1 COVID-19 safety procedures and protocols

The preliminary survey took place during the outbreak of the Covid-19 pandemic. As such a Covid-19 Standard Operation Procedure (SOP) was designed to ensure compliance with a set of rules, regulations, principles, and guidelines imposed to mitigate the exposure and risks of infections by research participants and data collectors. Prior to the study, all enumerators were tested for Covid-19. Each research team under the leadership of their team leader was provided with Covid-19 apparatus such as a thermometer, and protection during the fieldwork. All Covid-19 prevention precautionary measures were strictly adhered to throughout the data collection exercise.

4.5.2 Survey data collection

Some of the salient steps articulated to field workers during the training included among others:

- Entering an SAL (community entry and stakeholder identification), identification of Visiting Points (VPs) (using maps and GPS coordinates), selection of household (using the Kish Grid) and obtaining verbal consent.

4.5.3 Structured household questionnaire administration

This component constituted the quantitative dimension of food and nutrition security. This approach employed a survey which involved structured household questionnaire administration in the eight districts. A total of 201 Small Area Layer (SALs) with 7 035 households were preselected for the survey using Geographic Information Systems with maps developed and used for the identification of the selected households (Table 4). A combined set of questionnaires with both food security and nutrition indicators was administered within a household.

In each household, the head of the household was targeted as a respondent on household food security status, whilst the care giver or the mother was targeted as a respondent for individual nutrition questions for adults and children within the household. The food utilisation dimension involved anthropometric measurements such as height, weight, etc. (Table 1.) Data collection was done using tablets that were linked to the central server where data was deposited through real time streaming that took place under strict supervision.

- There was rigorous training on the data collection instruments i.e., Household Questionnaire, looking at all the dimensions of food security and the questions which related to the food security and nutrition indicators thereof.
- The nutrition section of the household questionnaire followed the SMART standard procedure. Some of the key indicators pertain to Anthropometric measurements and MUAC as well as the individual household set of questions.

4.5.4 HEA Data collection

Discussions were undertaken with community representatives (key informants) to develop wealth breakdown for the selected community or study area. A grouping of people based on local definitions of wealth and a quantification of assets within communities was the major focus.This process disaggregated the community population and households into common 'access' groups, which allowed key informants to isolate important differences in households' assets, capital, vulnerabilities to different shocks and to estimate numbers of people who will be affected by different changes. Key informants from each communities managed to identify participants for each wealth group based on the wealth characteristics which were established based on the local definition of wealth. Community leaders assisted with organising 4-6 people from each wealth group from different households. At least half of the participants or groups were women. The approach identified a typical household size of each wealth group and quantified available household food and income sources to caloric measurement (8800KJ/person/day) and income equivalent to meet household needs for the whole year. The 8800KJ/person/day is used as a survival threshold. Some of the salient HEA steps articulated to field workers during the training included:

- Broader understanding of livelihood strategies;
- Problem specification and understanding of the coping strategies.

4.6 HEA Sampled Livelihood Zones

4.6.1 Midlands and Coastal Open Access Mixed Livestock and Crops (ZAMIO) of Alfred Nzo, OR Tambo, Chris Hani, Joe Gqabi, and Amathole

This livelihood zone covers a number of districts including Alfred Nzo, OR Tambo, Chris Hani, Joe Gqabi, and Amathole. It covers an area of 2,556,199ha in Eastern Cape Province. It lies on the coast or just at the foot of some of the mountain ranges, where rainfall is more reliable and where soils are more fertile. It supports

cropping and livestock husbandry, with some dairy. It is connected via the R6 Highway, and the R410 and R61. Livestock, consisting of cattle, goats, and sheep are the basis of the economy, with other sources of income such as petty trading, casual labour and grants playing an important role for households. Water and good pastures are scarce - and good access to the two is essential for production.

The vegetation consists of bush shrubs and grassland. It has poor to fertile sandy to loam soils and the topography is generally mountainous and characterised by highlands, steep valleys, and undulating plains. The main features close to and within the zone are Drakensberg Mountain, Mbashe River, Umzimvubu River, Tsomo River, Fish River, and Xuka River. The population is not dense and is largely made up of the Xhosa people. Because of its proximity to some urban centres and private farms, households also obtain income from remittances, petty trading, and casual labour.

- The average population density ranges from 41 people per km^2;
- Livestock holdings are not limited by population density; and
- Livelihoods augmented by other income sources such as remittances, trading, grants, and casual or formal labour.

Most of the zone receives rainfall ranging from 500 to 550mm per annum. The temperature ranges from -1°C to 37°C. Loam to clay soils characterize the zone and the land capability is classified as 'moderate potential agricultural area' characterized by food deficits. The main crops that are grown for food are maize, sorghum, groundnuts, beans, and vegetables. Wealthier households keep cattle, goats, sheep, and pigs which make use of the extensive grazing in the surrounding open-access areas. Households also depend on both formal and informal cash transfers.

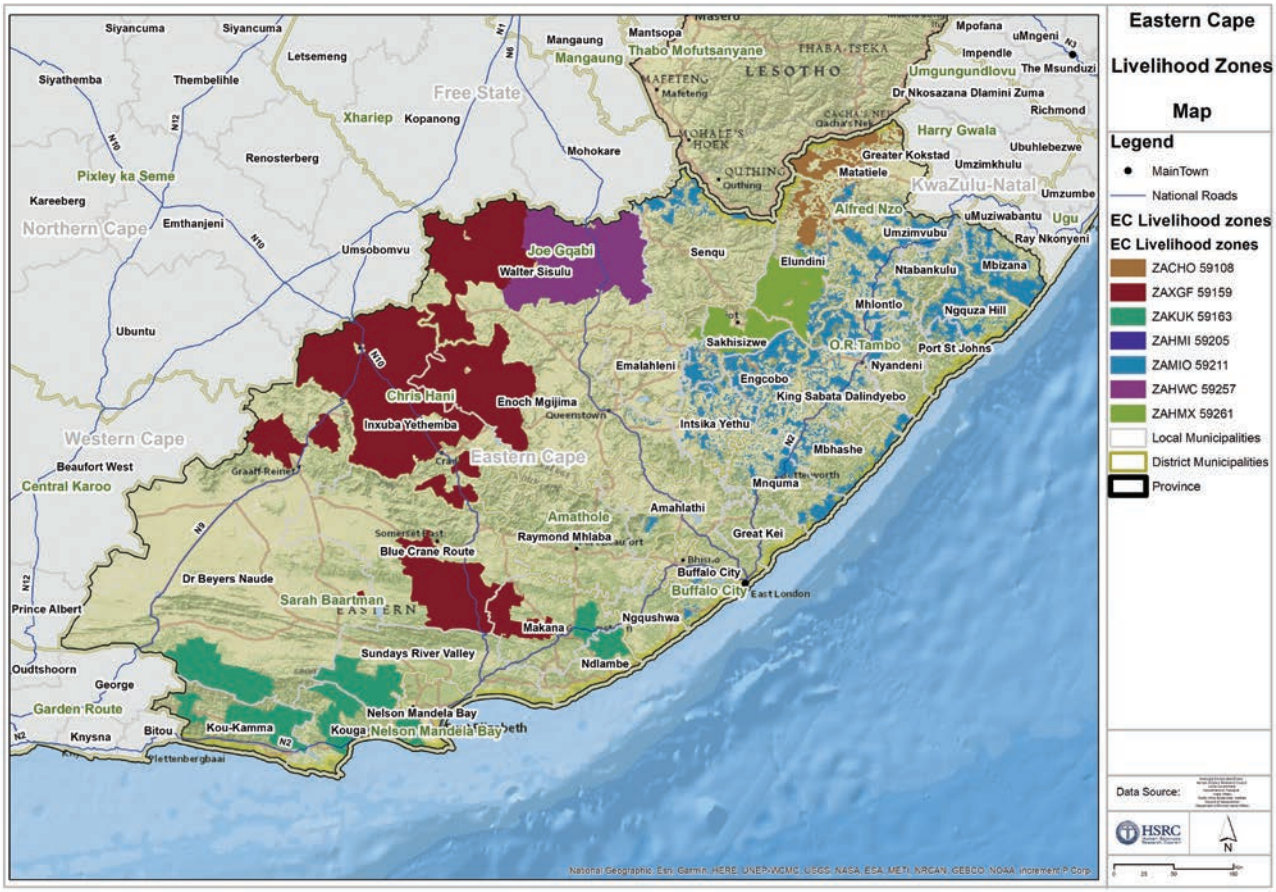


Figure 3: *Map of some selected livelihood zones in Eastern Cape*

4.6.2 Cold Highlands Open Access Livestock (ZACHO)

This livelihood zone covers several districts in both Eastern Cape and Free State provinces. It covers an area of 95,600ha in Eastern Cape and 51,100ha in Free State. It includes Qwa Qwa and the strip of land along the northern border of the Eastern Cape with Lesotho. It has very cold winters (snow is common and regular) and the land is not suitable for cultivation as it is hilly and not fertile. Most of the surrounding land in Thabo Mufutshanyana and Alfred Nzo districts is more of grazing than arable land and is suitable for domestic production of both livestock and crop production. The grazing does support livestock although the population density in Qwa Qwa is high, and work opportunities are limited. Livestock, consisting of cattle, goats, and sheep are the basis of the economy, with other sources of income such as petty trading, casual labour, and grants playing an important role for households. Water and good pastures are scarce - and good access to the two is essential for production. The vegetation consists of valley bush shrubs and grasslands. It has poor sandy soils and is fairly flat with shallow valleys, mountains and lowlands with mixed soil types dominated by red soils (DAFF, 2015). The population is largely made up of the Xhosa people.

- The average population density ranges from 41 people per km^2;
- Livestock holding is limited by population density; and
- Livelihoods are augmented by other income sources such as remittances, trading, grants, and casual or formal labour.

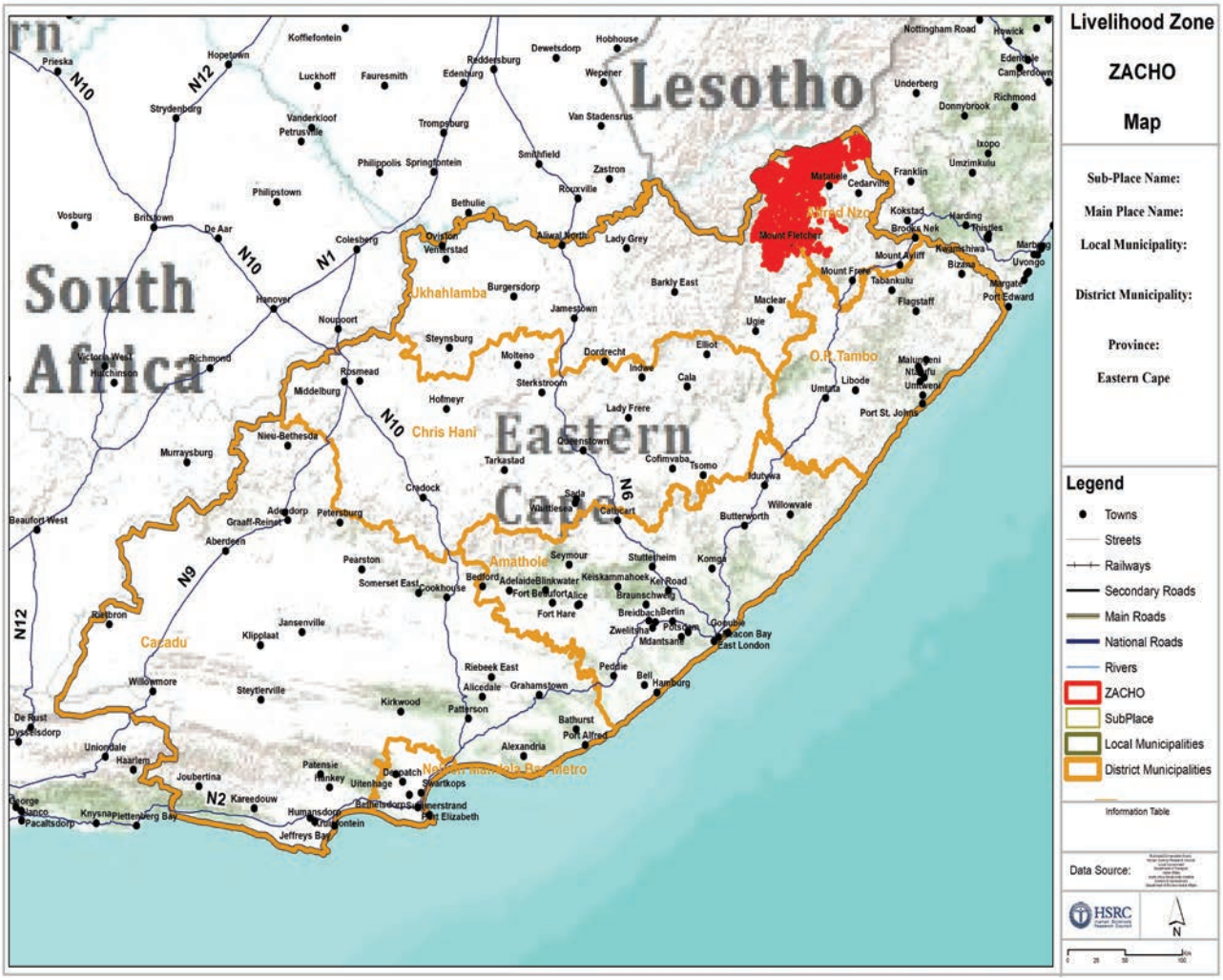


Figure 4: *Map of the livelihood zone*

Most of the zone receives 500 to 5500mm mean annual rainfall, and crop production is relatively poor because of poor-quality clay and sandy soils. The temperature ranges from 16°C to 34°C in summer, and -2°C to 14°C in winter. The main crops that are grown for food are maize and vegetables and also stone fruits but not for commercial purposes. Moisture availability is considered 'slight' and the land capability in the zone is classified as 'marginal potential arable' due to the low rainfall and the soils. Wealthier households keep cattle, sheep, and goats which make use of the extensive grazing in the surrounding veld, and also have stone fruit trees especially peach in every household even though there is reduced/ no yield of peach due to drought and poor management of orchards.

The Alfred Nzo and Thabo Mofutsanyana districts are very traditional and are governed by Chiefs. They are still responsible for managing most of the communities' civil matters and still judge at the tribal court. The towns serve as the main administrative and business centres to people in the zone.

Wealthier households keep cattle, goats, and sheep which make use of the extensive grazing in the surrounding open access areas. Households also depend on both formal and informal cash transfers.

Figure 4 is a map of the zone, and the zone is serviced by national roads and numerous smaller feeder roads. The area is more remote than the coastal plains and hills, with the N2 and R63 routes feeding in from Umtata and East London.

4.6.3 Baviaans Karoo Mountains Livestock (ZAKUK) of Buffalo City and Nelson Mandela Bay districts

This is a rural zone, with farming activities tending to be extensive - with small stock dominating and ostrich farming a secondary activity. It covers an area of 722,300ha mostly in the Buffalo City and Nelson Mandela Bay districts of Eastern Cape Province and 266,400ha of the Western Cape. There is very limited crop farming, and the area is confined to areas close to the major rivers, which are few in this zone. The population density is very low; there are only 28.8 people per 1,000 hectares (2.88 people per km2). The N12 Highway cuts the western half of the zone as it goes from Oudtshoorn to George, while the N9 traverses the eastern half past Uniondale, exiting from the southern border of the zone where it goes on to join the N12 at Herold, close to George.

4.6.4 Kou-KammaLangkloof valley crops and livestock (ZALAN) of OR Tambo District

This is a rural zone with a very low population density of 20.7 people per 1,000 Hectares (or 2.07 people per km^2). It covers an area of 307,700ha mostly in OR Tambo Bay District of the Eastern Cape Province, and 38,100ha in the Western Cape. Agriculture in this area includes pome fruit (apple farming is particularly important) and stone fruit, which are grown in the fertile valley while stock, large and small, is kept in the surrounding hills. The R62 Highway runs the length of the kloof and the R339 goes north-south from Uniondale to Knysna over the mountains, via the difficult and historical Prince Alfred's Pass. There was a narrow-gauge railway down the kloof (the 'Apple Express') but it is no longer operational.

4.6.5 Upper Senqu and Harrismith cereal and cattle (ZAHWC) of Joe Gqabi District

This is a cold, high-altitude area that is reasonably well-watered. It is less suited to maize because of the cold. Wheat is grown in this area. It covers an area of 495,200ha mostly in the Joe Gqabi District of the Eastern Cape Province, and 1,377,200ha in the Free State. Cattle is kept, mostly for beef, but in some small stocks. The Harrismith area has good access to the N3 Highway, but the Upper Senqu/Orange area is more remote and is accessed from the N6 near Aliwal North.

4.7 Data Management, Weighting, and Analysis

4.7.1 Data management

Database reflecting the quantitative survey questionnaire was designed by joining different projects/forms using the REDCap. REDCap was the preferred technology because the application allows for data collection where there is no internet service (e.g., no Wi-Fi or cellular service) or where there is unreliable internet service. The data was captured/collected electronically using CAPI (Computer Assisted Personal Interviewing) technology using tablets.

The data was transmitted to the central database. Once all the data was collected, it was downloaded and converted into Statistical Analyses Systems (SAS) and Statistical Package for Social Scientist (SPSS) for further manipulation. Data management included data-cleaning exercises. Data was checked and edited for logical consistency, for permitted range checks, for reliability on derived variables and for filter instructions. Data with wrong small area layer (SAL) numbers were also cleaned.

Due to the Covid-19 pandemic, HSRC researchers could not do physical back checks, but extensive telephonic back checks were undertaken in the province. A total of more than 15% back checks were undertaken to validate the methodology and fill in the missing gaps in the data.

Captured data and validated data that contains 7 035 cases, and 3 749 variables was converted to (SPSS) for descriptive analyses and exploration of data quality. Verified and cleaned data was further converted to Stata and SAS for further detailed exploratory analysis, cross-tabulations, and weighting.

4.7.2 Data weighting

The data were weighted to take into account of the fact that not all participants covered in the survey had an equal chance of being selected. The weighting reflected the relative selection probabilities of the individual at the three main stages of selection: Visiting point (address), household, and individual. To ensure representativity of non-responses and smaller groups weights needed to be applied.

SAL base weights were appropriately adjusted to incorporate non-response at an SAL level. Households within SAL also had a base weight as they were sampled a priori. However, not all sample households were available or agreed to participate. Thus, the household base weights were further adjusted using a non-response correction factor of the ratio of sampled households divided by realised households. A sampled individual within a household had a weight computed as the ratio of the number of eligible household members and the targeted individuals in the household. The final sample individual weight was computed as the product of the weights from SAL, household and individual.

The survey is a national survey and thus the results should be generalisable to the entire population. The sample was then benchmarked to the population of the province. These benchmark variables for persons and District of the respondent in the household were selected due to their reliability and validity. The marginal totals for the benchmark variables were obtained from the Eastern Cape Province 2021 mid-year population estimates as published by Statistics South Africa. The estimated South African population was therefore used as the target population. Person and household weights were benchmarked using the Stata survey commands.

A total of 6 104 people were interviewed in this province. When weighted, this total represents 4 098 350 South Africans living in Eastern Cape Province of 18 years and older (Table 5).

The final data set (unweighted and weighted) are disaggregated by key demographic variables of household heads (Table 6).

Table 5: District weighted and unweighted N's for household heads

District	Unweighted N	Weighted N
Sarah Baartman	778	327 452
Amathole	738	458 541
Chris Hani	707	427 180
Joe Gqabi	735	202 674
O.R.Tambo	750	833 667
Alfred Nzo	865	430 346
Buffalo City	721	552 349
Nelson Mandela Bay	810	866 141
Total	**6 104**	**4 098 350**

Table 6: Gender weighted and unweighted N's for household heads

Gender	Unweighted N	Weighted N
Male	2 840	1 835 247
Female	3 264	2 263 103
Total	**6 104**	**4 098 350**

Table 7: Age groups weighted and unweighted N's for household heads

Age groups	Unweighted N	Weighted N
18-24	186	671 730
25-34	590	986 634
35-44	953	818 091
45-54	1 200	582 245
55-64	1 370	476 933
65+	1 805	562 718
Total	**6 104**	**4 098 350**

4.7.3 Data analysis

Descriptive statistical analyses were conducted as a first step towards developing insights from the data collected. Stata and SPSS software packages were used to obtain the proportions of responses and cross-tabulations. Weighted [benchmarked to the 2021 mid-year] population estimates provided by Statistics South Africa (StatsSA) for age, race, age group, and province], was done to ensure that the estimates of the food and nutrition survey variables were aligned to the general population of the Eastern Cape Province. Analysis of weighted data was conducted considering the multi-level sampling design and adjusting for non-responses.

5 Demographics

5.1 Demographics of the respondents

5.1.1 Characteristics of the household heads and members

Table 8 depicts the characteristics of household heads and members from the households that were realised. More than half (53.5%) of household heads were females. The majority were the Black African population group (84.9%) while those aged 35 years and older constituted 29.6%. In terms of marital status, those who were single accounted for around 38%. Alfred Nzo recorded the highest percentage with 14.2%, while Amathole accounted for the least proportion with 11.5%. Regarding household members, a similar pattern as with household heads exists in relation to sex and population group, with 55.3% of household members being females and 86.0% being Black Africans. Children aged 0 to 14 years old constituted the highest percentage of household members - with 28.8%. Almost three quarters (73.6%) of household members were single. Alfred Nzo had the highest percentage (14.2%) of household members, while Chris Hani had the least with 10.9%.

Table 8: Characteristics of the sample for household heads and members in Eastern Cape Province

	Household heads			Household members		
	%	95% CI		%	95% CI	n
Sex						
Male	46.5	[45.3-47.8]	2,840	44.7	[44.1-45.4]	10,146
Female	53.5	[52.2-54.7]	3,264	55.3	[54.6-55.9]	12,542
Total	**100.0**		**6,104**	**100.0**		**22,688**
Population group						
Black African	84.9	[84.0-85.8]	5,179	86	[85.5-86.4]	19,553
White	4.8	[4.3-5.4]	294	3.2	[3.0-3.4]	722
Coloured	10.0	[9.3-10.8]	612	10.6	[10.2-11.0]	2,417
Indian/Asian	0.2	[0.1-0.4]	14	0.2	[0.2-0.3]	50
Total	**100.0**		**6,099**	**100.0**		**22,742**
Age group						
0-14				28.8	[28.2-29.4]	6,409
18-24	3.0	[2.6-3.5]	186	17.4	[16.9-17.9]	3,876
25-34	9.7	[8.9-10.4]	590	14.1	[13.7-14.6]	3,146
35-44	15.6	[14.7-16.5]	953	11.2	[10.8-11.6]	2,490
45-54	19.7	[18.7-20.7]	1,200	9.7	[9.3-10.1]	2,159
55-64	22.4	[21.4-23.5]	1,370	9.1	[8.7-9.5]	2,021
65+	29.6	[28.4-30.7]	1,805	9.8	[9.4-10.2]	2,174
Total	**100.0**		**6,104**	**100.0**		**22,275**

	Household heads			Household members		
	%	95% CI		%	95% CI	n
Marital status						
Married/Living together	35.3	[34.1-36.5]	2,144	18.4	[17.9-18.9]	4,166
Divorced/Widowed/ Separated	26.7	[25.6-27.8]	1,619	8.0	[7.6-8.3]	1,804
Single	38.0	[36.8-39.2]	2,307	73.6	[73.0-74.2]	16,635
Total	**100.0**		**6,070**	**100.0**		**22,605**
District						
Alfred Nzo	14.2	[13.3-15.1]	865	14.2	[13.8-14.7]	3,245
Amathole	11.5	[10.8-12.4]	705	11.9	[11.5-12.3]	2,710
Buffalo City	12.4	[11.6-13.2]	754	12.3	[11.9-12.7]	2,804
Chris Hani	11.6	[10.8-12.4]	707	10.9	[10.5-11.3]	2,488
Joe Gqabi	12.0	[11.2-12.9]	735	11.9	[11.5-12.3]	2,716
Nelson Mandela Bay	13.3	[12.4-14.1]	810	12.7	[12.3-13.1]	2,890
O.R.Tambo	12.3	[11.5-13.1]	750	13.4	[12.9-13.8]	3,047
Sarah Baartman	12.7	[11.9-13.6]	778	12.7	[12.3-13.1]	2,890
Total	**100.0**		**6,104**	**100.0**		**22,790**

*CI - Confidence Interval: Subtotals for the province are not always equal due to non-response or missing data

Table 9 shows characteristics of household heads and members from the households that were realised by local municipality. Due to low numbers at household head level, further breakdown by local municipalities throughout the report were done only for household members.

Table 9: Characteristics of the sample for household heads and members disaggregated by local municipality in Eastern Cape Province

	Household heads			Household members		
	%	95% CI		%	95% CI	n
Municipality						
Amahlathi	2.5	[2.1-2.9]	153	2.7	[2.4-2.9]	604
Blue Crane Route	0.6	[0.4-0.8]	34	0.7	[0.6-0.8]	156
Buffalo City	12.4	[11.6-13.2]	754	12.3	[11.9-12.7]	2,804
Dr Beyers Naude	0.8	[0.6-1.0]	47	0.7	[0.6-0.8]	152
Elundini	3.2	[2.8-3.6]	193	2.9	[2.7-3.1]	657
Emalahleni	3.2	[2.8-3.7]	197	3.1	[2.8-3.3]	697
Engcobo	1.5	[1.2-1.8]	92	1.5	[1.4-1.7]	344
Enoch Mgijima	3.0	[2.6-3.4]	182	2.9	[2.7-3.1]	664
Great Kei	0.4	[0.3-0.6]	25	0.5	[0.4-0.6]	119
Intsika Yethu	2.2	[1.9-2.6]	136	2.2	[2.0-2.4]	495
King Sabata Dalindyebo	2.8	[2.4-3.2]	170	2.9	[2.7-3.1]	657

	Household heads			Household members		
	%	95% CI		%	95% CI	n
Municipality						
Kou-Kamma	0.6	[0.4-0.8]	35	0.6	[0.6-0.8]	148
Kouga	4.3	[3.9-4.9]	265	4.1	[3.9-4.4]	935
Makana	1.7	[1.4-2.1]	104	2.0	[1.8-2.2]	459
Matatiele	5.1	[4.6-5.7]	313	4.3	[4.1-4.6]	982
Mbhashe	2.5	[2.1-2.9]	150	2.8	[2.6-3.0]	640
Mbizana	4.6	[4.1-5.1]	279	5.1	[4.8-5.4]	1,162
Mhlontlo	1.4	[1.1-1.7]	86	1.6	[1.4-1.7]	355
Mnquma	1.9	[1.6-2.3]	119	1.9	[1.8-2.1]	438
Ndlambe	2.1	[1.8-2.5]	128	1.9	[1.8-2.1]	440
Nelson Mandela Bay	13.3	[12.4-14.1]	810	12.7	[12.3-13.1]	2,890
Ngqushwa	0.4	[0.2-0.5]	22	0.3	[0.3-0.4]	73
Ngquza Hill	3.1	[2.7-3.6]	192	3.5	[3.2-3.7]	792
Ntabankulu	2.2	[1.9-2.6]	136	2.7	[2.5-2.9]	607
Nyandeni	1.9	[1.6-2.3]	119	2.3	[2.1-2.5]	523
Port St Johns	3.0	[2.6-3.5]	183	3.2	[2.9-3.4]	720
Raymond Mhlaba	4.6	[4.1-5.1]	279	4.2	[3.9-4.4]	952
Sakhisizwe	0.9	[0.7-1.2]	57	0.8	[0.7-0.9]	172
Senqu	5.3	[4.7-5.9]	322	5.2	[4.9-5.5]	1,178
Sundays River Valley	2.7	[2.3-3.1]	165	2.6	[2.4-2.8]	600
Umzimvubu	2.2	[1.9-2.6]	137	2.2	[2.0-2.4]	494
Walter Sisulu	3.6	[3.2-4.1]	220	3.9	[3.6-4.1]	881
Total	**100.0**		**6,104**	**100.0**		**22,790**

5.1.2 Education attainment of household heads

Table 10 highlights the educational attainment by the household heads. Secondary school education accounted for 39.3%, and those with matric qualification were 22.0%. The older household heads, those aged 65 years and older and those aged 55 years to 64 years, had the higher percentages of no schooling with 17.8% and 8.4%, respectively. Buffalo City had the highest percentage (18.8%) of household heads with tertiary education, while Chris Hani had the highest percentage (8.3%) of household heads with no schooling education.

Table 10: Educational attainment of household heads by sex, age, and district in Eastern Cape Province

	No schooling		Primary		Secondary		Matric		Tertiary	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI
Sex										
Male	3.0	[2.3-4.0]	22.8	[18.1-28.2]	39.7	[34.1-45.6]	21.9	[19.3-24.8]	12.6	[9.6-16.2]
Female	6.8	[5.2-8.7]	24.2	[18.5-31.0]	39	[34.2-43.9]	22.1	[18.2-26.5]	7.9	[5.6-11.1]
Total	**5.1**	**[4.0-6.4]**	**23.6**	**[18.6-29.4]**	**39.3**	**[34.8-44.0]**	**22.0**	**[19.3-25.0]**	**10.0**	**[7.7-12.9]**
Age group										
18-24	4.3	[1.9-9.4]	10.4	[5.9-17.7]	41.7	[32.3-51.7]	35.2	[24.9-47.2]	8.4	[4.5-15.2]
25-34	1.2	[0.5-3.0]	17.7	[9.8-29.9]	46.5	[38.6-54.5]	24.2	[18.9-30.4]	10.4	[7.2-14.9]
35-44	1.6	[0.9-2.8]	15.5	[10.4-22.4]	46.2	[39.6-53.0]	24.2	[20.3-28.6]	12.5	[8.9-17.1]
45-54	2.6	[1.5-4.4]	24.1	[19.1-29.8]	38.5	[31.9-45.5]	22.8	[17.5-29.1]	12.1	[8.6-17.0]
55-64	8.4	[5.8-12.0]	39.9	[34.4-45.5]	29.3	[24.1-35.1]	12.1	[9.2-15.7]	10.4	[7.2-14.8]
65+	17.8	[14.2-22.1]	47.1	[42.9-51.5]	22.8	[20.0-25.9]	7.2	[5.2-9.9]	5.0	[3.3-7.6]
Total	**5.1**	**[4.0-6.4]**	**23.6**	**[18.6-29.4]**	**39.3**	**[34.8-44.0]**	**22.0**	**[19.3-25.0]**	**10.0**	**[7.7-12.9]**
District										
Alfred Nzo	5.7	[3.6-8.8]	25.5	[19.5-32.6]	41.1	[33.2-49.5]	21.0	[14.5-29.6]	6.7	[3.3-12.9]
Amathole	6.5	[3.7-10.9]	27.4	[20.4-35.7]	40.5	[34.9-46.3]	16.6	[11.7-23.2]	9.0	[3.5-21.2]
Buffalo City	1.9	[1.1-3.1]	11	[8.0-15.0]	38.3	[30.6-46.5]	30.1	[24.6-36.3]	18.8	[11.4-29.4]
Chris Hani	8.3	[5.0-13.3]	33.3	[27.1-40.1]	39.8	[32.3-47.9]	12.8	[8.8-18.4]	5.8	[3.2-10.2]
Joe Gqabi	5.1	[4.0-6.5]	31.9	[23.2-42.1]	43.9	[35.6-52.6]	16	[10.6-23.3]	3.1	[1.6-5.6]
Nelson Mandela Bay	2.3	[1.2-4.3]	12.1	[8.9-16.1]	43.1	[35.2-51.4]	28	[21.3-36.0]	14.5	[8.2-24.4]
O.R.Tambo	7.2	[3.8-13.3]	34.5	[18.7-54.6]	30.1	[18.4-45.1]	21	[14.4-29.5]	7.2	[4.6-11.1]
Sarah Baartman	6.0	[3.8-9.2]	22.9	[16.8-30.4]	47.1	[38.3-56.0]	18.8	[12.4-27.4]	5.3	[3.1-8.9]
Total	**5.1**	**[4.0-6.4]**	**23.6**	**[18.6-29.4]**	**39.3**	**[34.8-44.0]**	**22.0**	**[19.3-25.0]**	**10.0**	**[7.7-12.9]**

5.1.3 Education attainment of household members

Table 11 shows the education attainment by the household members aged 7 years and older. A similar trend was noticed as it was for household heads, as those with secondary school education accounted for 36.5% followed by those with matric qualification - at 18%. The older household members, those aged 65 years and older and those aged 55 years to 64 years, had the higher percentages of no schooling with 17.5% and 7.7%, respectively. When considering those aged 20 years and older, 5.2% of household members did not have any form of schooling, while 23.9% had matric education.

Table 11: Educational attainment of household members aged 7 and older disaggregated by sex, age, and district

	No schooling		Primary		Secondary		Matric		Tertiary	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI
Sex										
Male	3.2	[2.7-3.8]	36.9	[34.7-39.0]	36.0	[34.4-37.5]	17.2	[15.7-18.7]	6.8	[5.5-8.3]
Female	4.7	[4.0-5.5]	32.4	[30.9-34.0]	37.0	[35.7-38.3]	18.6	[17.3-20.0]	7.3	[6.0-8.9]
Total	**4.0**	**[3.5-4.7]**	**34.4**	**[32.7-36.1]**	**36.5**	**[35.3-37.8]**	**18.0**	**[16.7-19.3]**	**7.1**	**[5.8-8.6]**
Age group										
7-14	1.7	[1.2-2.3]	87.9	[86.6-89.2]	9.9	[8.8-11.2]	0.4	[0.2-0.7]	0.1	[0.0-0.3]
15-24	0.9	[0.6-1.3]	11.3	[10.0-12.8]	59.4	[57.2-61.6]	25.0	[23.0-27.0]	3.4	[2.6-4.4]
25-34	1.5	[1.1-2.2]	10.7	[9.2-12.4]	44.4	[41.9-46.9]	32.0	[29.6-34.4]	11.4	[9.5-13.6]
35-44	2.0	[1.4-2.8]	14.7	[12.6-17.0]	44.8	[41.8-47.9]	27.0	[24.3-30.0]	11.4	[9.0-14.4]
45-54	3.0	[2.2-4.0]	22.1	[19.2-25.4]	40.4	[37.5-43.3]	21.3	[18.9-23.9]	13.2	[10.3-16.9]
55-64	7.7	[6.1-9.7]	40.0	[36.3-43.8]	30.3	[27.4-33.3]	12.3	[10.0-14.9]	9.8	[7.5-12.6]
65+	17.5	[14.5-20.8]	44.7	[40.8-48.6]	23.9	[21.1-27.0]	8.0	[5.9-10.9]	5.9	[4.4-7.9]
Total	**4.0**	**[3.5-4.6]**	**34.4**	**[32.8-36.1]**	**36.5**	**[35.3-37.7]**	**18.0**	**[16.7-19.3]**	**7.1**	**[5.8-8.6]**
District										
Alfred Nzo	4.8	[3.5-6.3]	38.9	[34.8-43.1]	35.3	[32.8-37.9]	15.2	[12.9-17.9]	5.9	[3.4-9.9]
Amathole	4.1	[2.7-6.1]	39.3	[36.0-42.7]	36.2	[33.7-38.9]	15.4	[13.3-17.8]	5.0	[3.3-7.5]
Buffalo City	2.5	[1.6-4.1]	25.9	[22.6-29.4]	35.6	[32.8-38.6]	24.8	[22.2-27.7]	11.2	[7.9-15.5]
Chris Hani	5.1	[3.6-7.1]	43.4	[39.8-47.2]	35.0	[31.8-38.3]	13.2	[9.9-17.4]	3.3	[1.9-5.5]
Joe Gqabi	5.4	[4.4-6.7]	43.4	[39.7-47.2]	35.6	[32.7-38.7]	12.9	[10.9-15.2]	2.6	[1.9-3.7]
Nelson Mandela Bay	1.7	[1.0-2.8]	25.2	[21.7-29.1]	38.2	[33.8-42.7]	23.5	[20.0-27.3]	11.5	[7.1-18.0]
O.R.Tambo	5.1	[3.7-7.1]	34.8	[31.0-38.9]	36.9	[34.5-39.2]	16.4	[13.8-19.4]	6.8	[4.5-10.1]
Sarah Baartman	5.6	[3.9-7.9]	33.5	[30.1-37.0]	38.7	[35.7-41.7]	17.2	[14.4-20.5]	5.0	[2.7-9.2]
Total	**4.0**	**[3.5-4.6]**	**34.4**	**[32.8-36.1]**	**36.5**	**[35.3-37.7]**	**18.0**	**[16.7-19.3]**	**7.1**	**[5.8-8.6]**

5.1.4 Employment Status

Table 12 shows that among the household heads and members who were economically active, 56.6% and 74.6% respectively were unemployed. A higher proportion (69.0%) of female household heads were unemployed, compared to their male counterparts with 42.4% being unemployed. For household members, a similar pattern exists. About 77% of female household members were unemployed, compared to 71.3% of males. Among the youth, those aged 34 years and younger, the unemployment rate was 59.7% and 84.5% for household heads and members, respectively. Those aged between 55 and 64 years old had the highest unemployment rate of 75.0% for household heads, while the younger people (15 to 24 years) had the highest unemployment rate with 93.7%. The highest unemployment rate for both household heads and members was reported in O.R. Tambo District with 77.6% and 82.5%, respectively.

Table 12: Employment status of household heads and members disaggregated by sex, age, and district in Eastern Cape Province

	Household heads				Household members			
	Employed		Unemployed		Employed		Unemployed	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI
Sex								
Male	57.6	[51.3-63.6]	42.4	[36.4-48.7]	28.7	[26.0-31.6]	71.3	[68.4-74.0]
Female	31.0	[26.6-35.8]	69	[64.2-73.4]	22.7	[20.8-24.8]	77.3	[75.2-79.2]
Total	**43.4**	**[38.3-48.5]**	**56.6**	**[51.5-61.7]**	**25.4**	**[23.3-27.7]**	**74.6**	**[72.3-76.7]**
Age group								
18-24(15 -24 for HH Members)	31.0	[20.8-43.5]	69.0	[56.5-79.2]	6.3	[5.2-7.8]	93.7	[92.2-94.8]
25-34	45.1	[36.8-53.7]	54.9	[46.3-63.2]	26.4	[23.9-29.1]	73.6	[70.9-76.1]
35-44	53.6	[45.8-61.2]	46.4	[38.8-54.2]	40.4	[37.2-43.7]	59.6	[56.3-62.8]
45-54	51.1	[46.4-55.7]	48.9	[44.3-53.6]	43.2	[39.8-46.6]	56.8	[53.4-60.2]
55-64	25.0	[20.5-30.2]	75.0	[69.8-79.5]	20.9	[18.3-23.7]	79.1	[76.3-81.7]
Total	**43.4**	**[38.3-48.5]**	**56.6**	**[51.5-61.7]**	**25.3**	**[23.2-27.6]**	**74.7**	**[72.4-76.8]**
District								
Alfred Nzo	35.1	[25.8-45.6]	64.9	[54.4-74.2]	20.7	[16.0-26.4]	79.3	[73.6-84.0]
Amathole	39.9	[30.4-50.2]	60.1	[49.8-69.6]	20.6	[15.6-26.8]	79.4	[73.2-84.4]
Buffalo City	54.6	[46.4-62.6]	45.4	[37.4-53.6]	30.2	[25.6-35.3]	69.8	[64.7-74.4]
Chris Hani	32.0	[21.1-45.3]	68.0	[54.7-78.9]	20.9	[15.5-27.6]	79.1	[72.4-84.5]
Joe Gqabi	39.6	[30.0-50.0]	60.4	[50.0-70.0]	21.0	[18.7-23.6]	79	[76.4-81.3]
Nelson Mandela Bay	53.7	[44.2-62.9]	46.3	[37.1-55.8]	34.0	[28.2-40.2]	66	[59.8-71.8]
O.R.Tambo	22.4	[16.7-29.2]	77.6	[70.8-83.3]	17.5	[13.8-21.9]	82.5	[78.1-86.2]
Sarah Baartman	73.9	[61.5-83.4]	26.1	[16.6-38.5]	37.6	[32.8-42.7]	62.4	[57.3-67.2]
Total	**43.4**	**[38.3-48.5]**	**56.6**	**[51.5-61.7]**	**25.3**	**[23.2-27.6]**	**74.7**	**[72.4-76.8]**

At local municipality level, Engobo, Mnquma, and Ntabankulu local municipalities fell under the highest band (86.8% to 92.3%) of unemployed household members (Figure 5). Dr Beyers Naude and Sundays River Valley were under the lowest band of 48.8% to 52.8% of household members being unemployed.

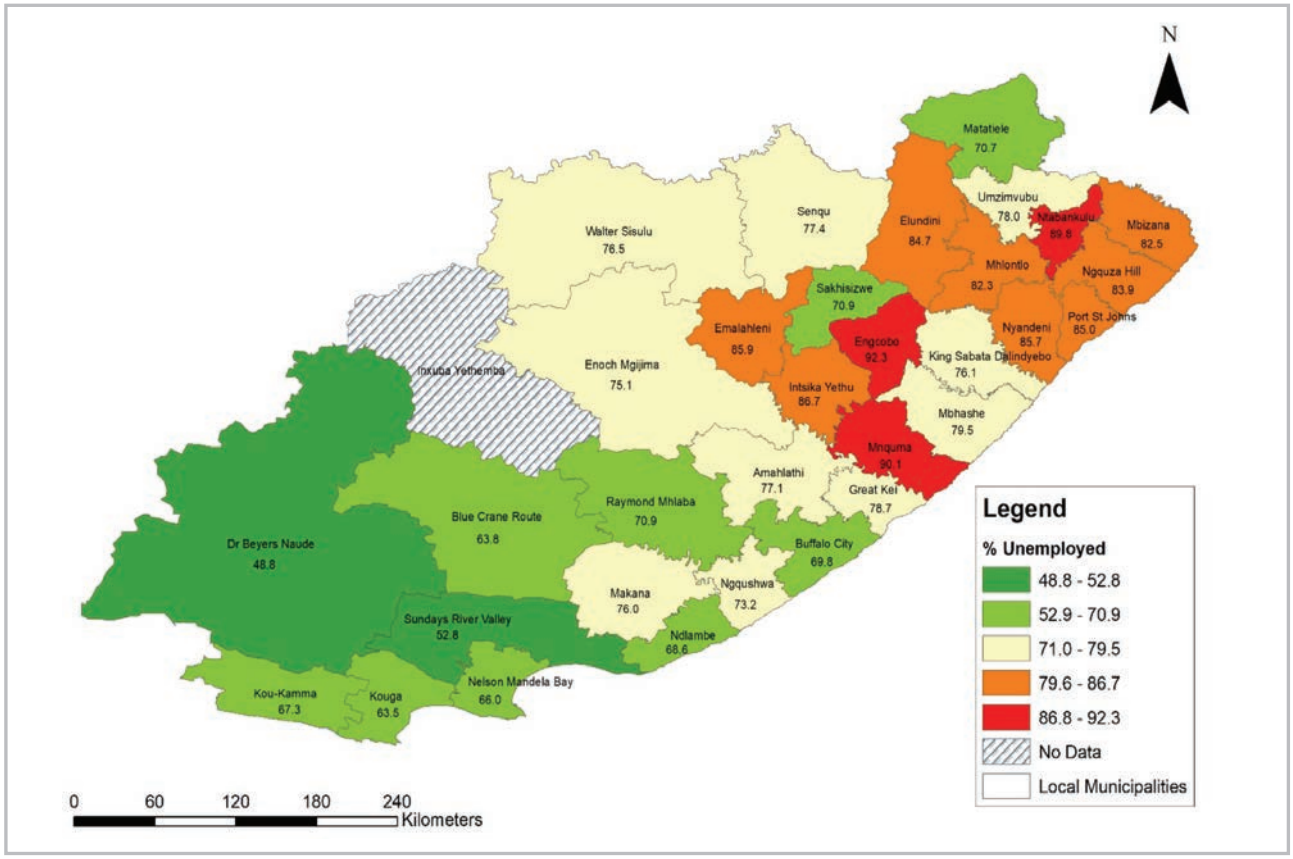


Figure 5: *Employment status of household members disaggregated by local municipality in Eastern Cape Province*

5.1.5 Household Income

Table 13 shows household income disaggregated by household head sex, age, and district. The highest percentage (35.0%) was recorded among households which earned between R1 501 and R3 000, followed by those which earned more than R6 000 - with 20.3%. Male-headed households had a significantly higher percentage (26.1%) of household income of more than R6 000 compared to female-headed ones with 15.4%; the difference was significantly based on the none overlapping confidence intervals. Households headed by those aged from 45 to 54 years old had the highest percentage of household income of more than R6 000, with 28.2%. Joe Gqabi had the highest percentage (22.9%) of households which had no income or earned less than R1 500, while Nelson Mandela Bay had the highest percentage (32.1%) of households which earned more than R6 000.

Table 13: Household income disaggregated by sex, age, and district in Eastern Cape Province

	No income or <R1500		R1501-R3000		R3001-R4500		R4501-R6000		>R6000	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI
Sex										
Male	16.0	[14.1-18.0]	27	[24.5-29.6]	18.8	[16.9-20.8]	12.2	[10.8-13.7]	26.1	[22.4-30.3]
Female	16.9	[15.3-18.7]	41.8	[39.5-44.2]	17.2	[15.5-18.9]	8.7	[7.6-9.9]	15.4	[13.2-17.9]
Total	**16.5**	**[15.1-18.0]**	**35.0**	**[32.9-37.2]**	**17.9**	**[16.6-19.3]**	**10.3**	**[9.4-11.3]**	**20.3**	**[17.6-23.4]**
Age group										
18-24	33.2	[26.3-40.9]	35.3	[27.9-43.5]	10.7	[6.6-16.7]	5.7	[2.9-11.1]	15.1	[10.0-22.2]
25-34	31.1	[26.7-35.8]	26.4	[22.3-31.0]	15.6	[12.4-19.5]	12.3	[9.2-16.1]	14.6	[11.3-18.7]
35-44	27.0	[23.7-30.6]	26.2	[23.2-29.5]	13.4	[10.8-16.3]	9.7	[7.5-12.4]	23.7	[19.8-28.1]
45-54	24.5	[21.5-27.8]	23.1	[20.2-26.4]	14.1	[11.8-16.8]	10.0	[8.3-12.1]	28.2	[23.7-33.1]
55-64	12.8	[10.8-15.1]	40.5	[37.2-44.0]	17.2	[15.2-19.5]	9.4	[7.8-11.4]	20.0	[16.6-23.9]
65+	2.8	[2.1-3.8]	45.6	[42.3-48.9]	24.4	[22.0-26.9]	11.2	[9.8-12.7]	16.1	[13.3-19.4]
Total	**16.5**	**[15.1-18.0]**	**35.0**	**[32.9-37.2]**	**17.9**	**[16.6-19.3]**	**10.3**	**[9.4-11.3]**	**20.3**	**[17.6-23.4]**
District										
Alfred Nzo	16.1	[13.2-19.4]	38.6	[33.4-44.0]	17.8	[15.0-21.0]	11.1	[9.1-13.5]	16.4	[11.0-23.9]
Amathole	14.6	[11.7-18.0]	40.7	[35.4-46.3]	19.1	[15.7-23.1]	11.4	[9.0-14.3]	14.2	[10.3-19.3]
Buffalo City	16.7	[12.8-21.6]	28.1	[23.8-32.9]	15.5	[12.8-18.6]	10.4	[8.5-12.6]	29.3	[22.0-37.9]
Chris Hani	18.7	[15.0-23.0]	42.1	[37.0-47.3]	21	[17.6-24.8]	7.8	[5.5-10.8]	10.5	[6.2-17.3]
Joe Gqabi	22.9	[19.5-26.7]	41.1	[37.2-45.0]	17.9	[15.2-21.0]	7.0	[5.4-9.2]	11.1	[8.3-14.9]
Nelson Mandela Bay	15.0	[11.2-19.8]	27.6	[22.4-33.4]	13.7	[11.2-16.8]	11.6	[9.1-14.7]	32.1	[22.9-42.8]
O.R.Tambo	17.7	[14.3-21.7]	37.1	[31.6-42.9]	20.3	[16.7-24.5]	8.9	[7.0-11.2]	16.0	[10.5-23.5]
Sarah Baartman	11.5	[8.9-14.8]	24.9	[20.5-29.9]	18.0	[14.5-22.1]	14.7	[12.2-17.4]	30.9	[24.8-37.7]
Total	**16.5**	**[15.1-18.0]**	**35.0**	**[32.9-37.2]**	**17.9**	**[16.6-19.3]**	**10.3**	**[9.4-11.3]**	**20.3**	**[17.6-23.4]**

Table 14 shows that the majority of household heads had salaries and wages as their source of income, with 33.0%. The majority of household members relied on social welfare grants (including old age grant) as their source of income - with 44.9%.

5.1.6 Sources of Income

Table 14: Sources of income of household heads and members in Eastern Cape Province

	Household heads	Household members
Source of income	**%**	**%**
Salaries and wages	33.0	13.4
Social welfare grants (including old age grant)	26.4	44.9
Regular allowances/remittances received from non- Household members	4.9	1.2
Alimony, maintenance, and similar allowances from a divorced spouse, family members, etc., living elsewhere	4.3	1.1
Net profit from business or professional practice/activities or commercial farming	4.0	1.8
Other	1.6	0.6
Regular receipts from pension from previous employment and pension from annuity funds	1.6	1.4
Income from letting of fixed property	0.3	0.1
Dividends on shares (e.g., unit trusts)	0.2	0.0
Interest received and/or accrued on deposits, loans, savings certificates	0.2	0.1
Income from small-scale farming	0.2	0.2
Royalties	0.1	0.0
Income from share trading	0.0	0.0

Further breakdown of social welfare grants as source of income for household heads and members by sex, age, and district was explored in Table 15. Significantly more female household heads (30.1%) relied on social welfare grants as a source of income compared to their male counterparts with 21.8% reporting social welfare grants as their source of income. A similar pattern is noticed at household members level as there were more females (45.8%) who relied on social welfare grants as a source of income compared to their male counterparts with 44.0%; even though the difference was very small and not significant in this case. Amathole District had the highest proportion (34.1%) of household heads while Alfred Nzo had the highest proportion of (51.7%) household members who relied on social welfare grants as their source of income.

Table 15: Social welfare grants as source of income of household heads and members disaggregated by sex, age, and district

	Household heads who had social welfare grants as source of income			Household members who had social welfare grants as source of income		
	%	95% CI	n	%	95% CI	n
Sex						
Male	21.8	[18.5-25.5]	2,826	44.0	[41.7-46.3]	10,075
Female	30.1	[27.1-33.3]	3,260	45.8	[43.9-47.7]	12,472
Total	**26.4**	**[24.0-29.0]**	**6,086**	**45.0**	**[43.1-46.9]**	**22,547**
Age group						
0-14				75.6	[73.1-78.0]	6,393
18-24(15 -24 for HH Members)	16.3	[10.4-24.4]	179	34.1	[31.9-36.3]	3,864
25-34	9.9	[7.1-13.8]	589	10.3	[8.9-11.8]	3,130
35-44	8.2	[5.8-11.6]	950	11.7	[10.1-13.5]	2,484
45-54	12.2	[9.5-15.7]	1,197	14.1	[12.4-15.9]	2,155
55-64	50.2	[44.6-55.8]	1,366	51.5	[48.4-54.7]	2,014
65+	88.1	[85.0-90.7]	1,805	87.3	[83.9-90.0]	2,174
Total	**26.4**	**[24.0-29.0]**	**6,086**	**44.9**	**[43.0-46.8]**	**22,214**
District						
Alfred Nzo	31.1	[23.9-39.2]	863	51.7	[47.7-55.7]	3,221
Amathole	34.1	[25.9-43.4]	701	50.3	[46.9-53.7]	2,687
Buffalo City	21.6	[17.2-26.9]	753	38.9	[34.7-43.3]	2,789
Chris Hani	41.0	[31.7-50.9]	703	51.5	[46.7-56.2]	2,449
Joe Gqabi	22.6	[15.8-31.4]	733	49.6	[45.7-53.5]	2,685
Nelson Mandela Bay	19.7	[15.8-24.3]	807	34.6	[29.8-39.7]	2,879
O.R.Tambo	27.4	[23.0-32.3]	748	47.2	[42.6-51.8]	3,026
Sarah Baartman	17.3	[11.2-25.8]	778	39.0	[34.7-43.6]	2,869
Total	**26.4**	**[24.0-29.0]**	**6,086**	**44.9**	**[43.0-46.9]**	**22,605**

Figure 6 shows that Elundini, Emalahleni, Engobo, Great Kei, Intsika Yethu, Mbizana, Mnquma, Ntabankulu, and Umzimvubu local municipalities fell under the highest band (51.1% to 64.3%) of household members who had social welfare grants as source of income. Dr Beyers Naude, Nelson Mandela Bay, and Sundays River Valley recorded the least percentages of household members who had social welfare grants as source of income as they were under the least band of 31.8% to 35.1%.

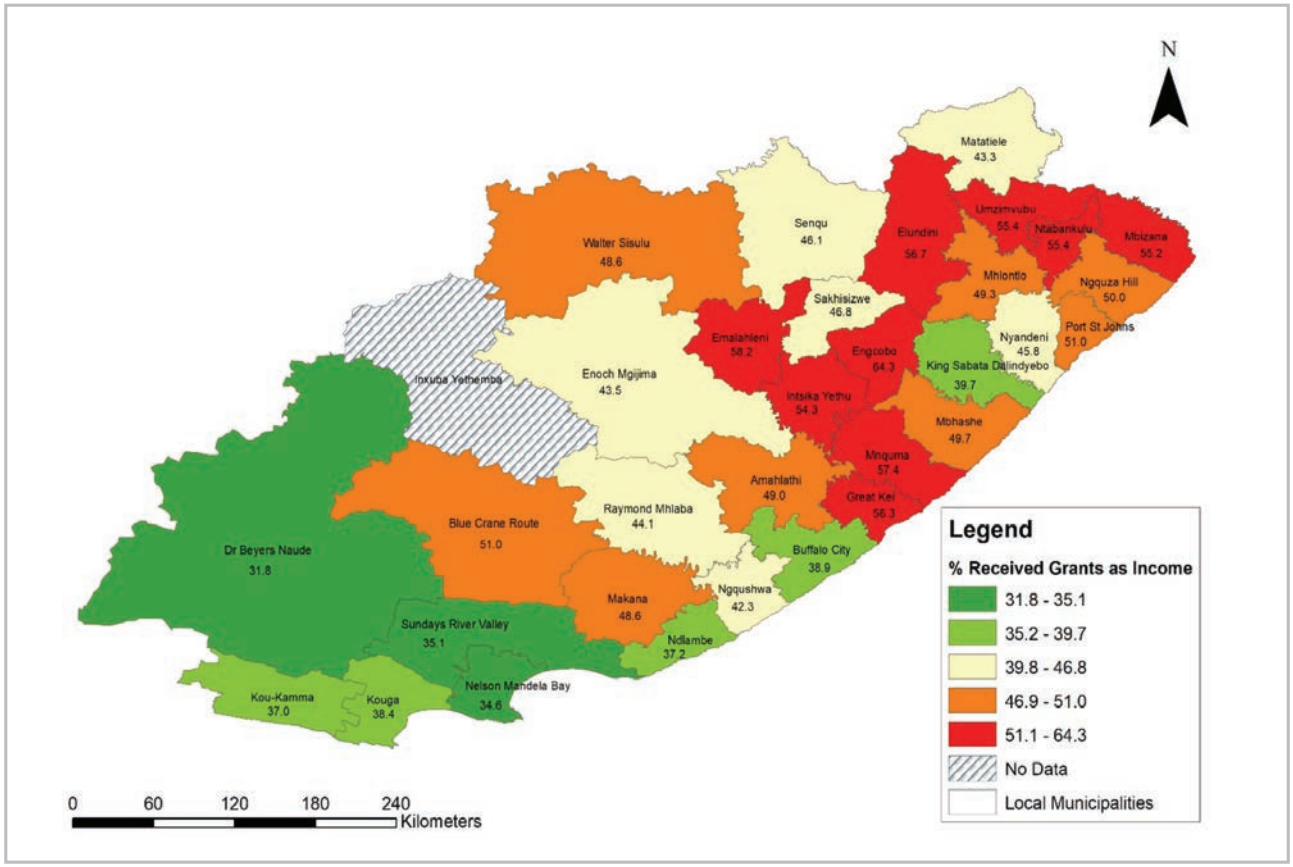


Figure 6: *Social welfare grants as source of income of household members disaggregated by local municipality in Eastern Cape Province*

Table 16 shows household heads and members receiving any social grant(s) during 12 months preceding the survey by sex, age, and district. Similar trends were noticed as for those who reported social welfare grants as their source of income. The majority of elderly household heads (88.3%) and members (86.2%) received social grants in the last 12 months prior to the survey. Three out of four (75.1%) children aged 14 and younger received social grants in the year preceding to the survey. Chris Hani District had the highest proportion (39.7%) of household heads while Alfred Nzo had the highest proportion (51.5%) of household members who had received social grants during 12 months preceding the survey.

Table 16: Household heads and members reported receiving any social grant(s) during 12 months prior to survey disaggregated by sex, age, and district in Eastern Cape Province

	Household heads received social welfare grants a year prior survey			Household members received social welfare grants a year prior survey		
	%	95% CI	n	%	95% CI	n
Sex						
Male	21.8	[18.4-25.6]	2,827	43.5	[41.3-45.6]	10,070
Female	31.1	[28.4-33.9]	3,256	45.7	[44.0-47.5]	12,467
Total	**26.9**	**[24.5-29.5]**	**6,083**	**44.7**	**[42.9-46.5]**	**22,537**
Age group						
0-14	-	-	-	75.6	[72.9-78.2]	6,385
18-24 (15 -24 for HH Members)	16.6	[11.0-24.3]	177	33.3	[31.1-35.5]	3,855
25-34	9.4	[6.7-13.0]	589	10.7	[9.3-12.2]	3,131
35-44	12.1	[8.5-17.0]	950	11.8	[10.1-13.7]	2,479
45-54	12.7	[10.1-15.8]	1,199	14.3	[12.7-16.1]	2,156
55-64	47.9	[44.0-51.8]	1,368	50.3	[47.3-53.4]	2,018
65+	88.3	[85.7-90.5]	1,800	86.2	[82.9-88.9]	2,168
Total	**26.9**	**[24.5-29.5]**	**6,083**	**44.6**	**[42.8-46.4]**	**22,192**
District						
Alfred Nzo	26.7	[21.5-32.5]	861	51.5	[47.2-55.7]	3,206
Amathole	34.5	[26.4-43.5]	701	48.1	[44.6-51.7]	2,697
Buffalo City	25.4	[19.9-31.8]	747	40.0	[36.0-44.2]	2,777
Chris Hani	39.7	[32.1-47.9]	706	50.2	[45.7-54.8]	2,464
Joe Gqabi	21.5	[16.3-27.7]	734	48.3	[44.8-51.8]	2,703
Nelson Mandela Bay	20.1	[16.3-24.5]	809	36.0	[31.4-40.9]	2,882
O.R.Tambo	29.6	[24.3-35.6]	749	46.6	[42.2-51.1]	3,045
Sarah Baartman	17.9	[11.6-26.5]	776	38.8	[34.6-43.1]	2,877
Total	**26.9**	**[24.5-29.5]**	**6,083**	**44.6**	**[42.9-46.4]**	**22,651**

In terms of grant type, the dominant grant for household heads was old age grant which accounted for 67.8%, while the child support grant was the dominant grant with 58.8% for household members (Table 17). Social relief destress was the second dominant grant for household heads with 18.1%, while the old age grant was the second dominant grant for household members with 27.3%.

Table 17: Social grant type received by household heads and members during 12 months prior to survey in Eastern Cape Province

Grant type	Household heads (%)	Household members (%)
Old age	67.8	27.3
Social relief destress	18.1	6.9
Disability	7.8	4.7
Child support	5.2	58.8
Foster care	0.3	0.8
Grant-in-aid	0.1	0.1
Care dependency	0.1	0.3
War veterans	0.0	0.0

Table 18 shows household heads and members reported to be receiving social relief during 12 months prior to survey. About 14% of household heads and 7.6% of household members reported receiving social relief during 12 months prior to survey. The youth, those aged 18 to 24 and 25 to 34 years old, had around 21% of household heads who received social relief during 12 months prior to the survey. Around 15% of household members reported having received social relief during 12 months prior to the survey. Sarah Baartman had the lowest percentage (6.3%) of household heads who received social relief during a year prior to the survey, which was lower than the provincial average of 14.0%.

Table 18: Household heads and members reported receiving social relief during 12 months prior to survey disaggregated by sex, age and district in Eastern Cape Province

	Household heads received social relief a year prior survey			Household members received social relief a year prior survey		
	%	95% CI	n	%	95% CI	n
Sex						
Male	11.0	[8.6-13.9]	2,830	7.2	[6.6-8.0]	10,084
Female	16.4	[12.0-21.9]	3,262	7.8	[7.1-8.6]	12,483
Total	**14.0**	**[11.5-16.8]**	**6,092**	**7.6**	**[7.0-8.2]**	**22,567**
Age group						
0-14				0.3	[0.2-0.5]	6,387
18-24 (15 -24 for HH Members)	21.1	[13.8-30.8]	179	11.6	[10.3-13.1]	3,865
25-34	21.2	[13.1-32.4]	590	14.7	[13.0-16.5]	3,139
35-44	14.0	[11.3-17.3]	951	15.0	[13.1-17.0]	2,483
45-54	13.3	[11.2-15.8]	1,200	12.2	[10.6-13.9]	2,157
55-64	5.9	[4.3-8.1]	1,368	6.0	[4.8-7.5]	2,018
65+	0.4	[0.2-0.9]	1,804	0.6	[0.3-1.1]	2,172
Total	**14.0**	**[11.5-16.8]**	**6,092**	**7.7**	**[7.1-8.3]**	**22,221**

District						
Alfred Nzo	18.6	[14.8-23.2]	865	7.7	[6.4-9.4]	3,219
Amathole	15.3	[10.1-22.6]	702	8.5	[7.3-10.0]	2,690
Buffalo City	10.5	[6.2-17.1]	753	7.5	[6.1-9.3]	2,781
Chris Hani	9.5	[6.2-14.4]	705	6.4	[4.9-8.3]	2,460
Joe Gqabi	11.7	[8.6-15.7]	733	7.1	[6.1-8.3]	2,694
Nelson Mandela Bay	12.4	[7.7-19.5]	808	6.9	[5.3-8.9]	2,877
O.R.Tambo	20.7	[15.2-27.6]	749	9.4	[7.7-11.3]	3,035
Sarah Baartman	6.2	[3.4-11.2]	777	4.3	[3.5-5.3]	2,875
Total	**14.0**	**[11.5-16.8]**	**6,092**	**7.6**	**[7.0-8.2]**	**22,631**

Figure 7 shows that Dr Beyers Naude local municipality had the lowest percentage (1.0%) of household members who received social relief during the year preceding the survey. Great Kei, Mnquma, Ngquza Hill, and Port St Johns local municipalities fell under the highest band (9.7% to 11.8%) of household members who received social relief during the year preceding the survey.

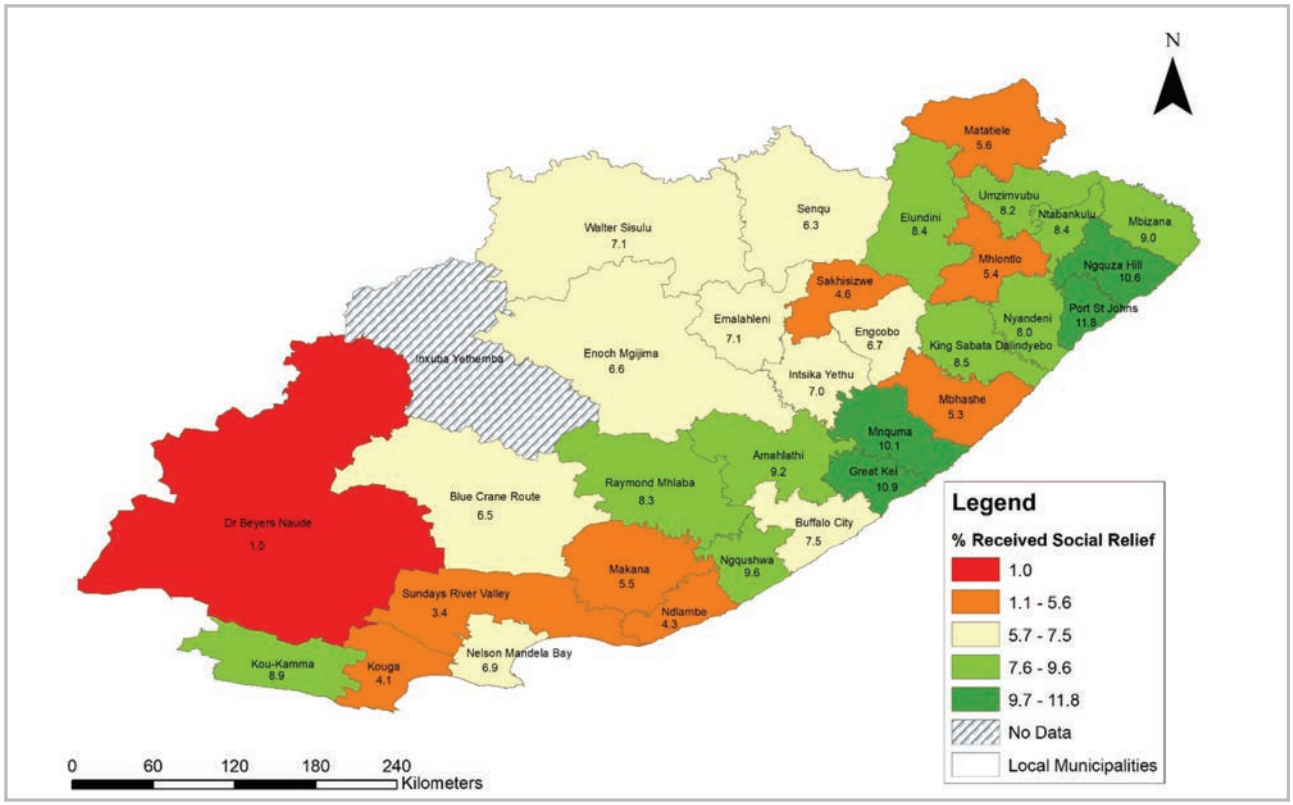


Figure 7: *Household members who received any social relief during 12 months prior to survey disaggregated by local municipality in Eastern Cape Province*

The Covid-19 social relief grant was the dominant social relief type for both household heads and members with 71.1% and 68.1%, respectively (Table 19). Cash was the second most dominant grant with 45.2% of household heads and 48.0% of household members reporting having received it. Food accounted for 6.4% and 3.0% for household heads and members, respectively.

Table 19: Social relief type received by household heads and members during 12 months prior to survey in Eastern Cape Province

Social Relief Type	Household heads (%)	Household members (%)
COVID-19	71.1	68.1
Cash	45.2	48.0
Food	6.4	3.0
Clothes	0.5	0.2
Blankets	0.3	0.3
Other	0.2	0.1

Further breakdown of the Covid-19 grant received by household members indicates that 66.8% of female members received this social relief grant, compared to 69.7% of their counterparts (Table 20). Those aged 25 to 34 years old and 35 to 44 years old had the highest proportions with 72.4% each, followed by those aged 45 to 54 years old with 69.2%. Chris Hani District had the highest percentage (84.0%) of household members who received the Covid-19 social relief grant during 12 months prior to the survey. Sarah Baartman had the lowest proportion of household members who received the Covid-19 social relief grant with 60.5%.

Table 20: Household members reported receiving Covid-19 grant during 12 months prior to survey disaggregated by sex, age, and district in Eastern Cape Province

	Yes		No		Total
	%	95% CI	%	95% CI	n
Sex					
Male	69.7	[64.1-74.9]	30.3	[25.1-35.9]	726
Female	66.8	[61.6-71.6]	33.2	[28.4-38.4]	955
Total	**68.1**	**[63.2-72.6]**	**31.9**	**[27.4-36.8]**	**1,681**
Age group					
0-14	25.1	[11.3-46.8]	74.9	[53.2-88.7]	34
15-24	66.5	[59.9-72.5]	33.5	[27.5-40.1]	439
25-34	72.4	[66.0-78.0]	27.6	[22.0-34.0]	443
35-44	72.4	[66.0-78.1]	27.6	[21.9-34.0]	359
45-54	69.2	[61.5-76.0]	30.8	[24.0-38.5]	267
55-64	57.9	[46.1-68.9]	42.1	[31.1-53.9]	122
65+	20.4	[6.4-48.9]	79.6	[51.1-93.6]	15
Total	**68.0**	**[63.1-72.5]**	**32.0**	**[27.5-36.9]**	**1,679**
District					
Alfred Nzo	61.9	[48.9-73.5]	38.1	[26.5-51.1]	255
Amathole	62.6	[49.4-74.2]	37.4	[25.8-50.6]	236
Buffalo City	63.1	[50.8-73.9]	36.9	[26.1-49.2]	220
Chris Hani	84.0	[66.7-93.2]	16.0	[6.8-33.3]	159
Joe Gqabi	73.4	[60.8-83.1]	26.6	[16.9-39.2]	193
Nelson Mandela Bay	51.5	[42.8-60.0]	48.5	[40.0-57.2]	207
O.R.Tambo	81.9	[72.6-88.5]	18.1	[11.5-27.4]	283
Sarah Baartman	60.5	[47.1-72.5]	39.5	[27.5-52.9]	131
Total	**68.0**	**[63.2-72.6]**	**32.0**	**[27.4-36.8]**	**1,684**

*CI: Confidence Interval: Subtotals for the province are not always equal due to non-response or missing data

Discussion

It is always important to give context of the demographic characteristics of the current study population in relation to other recent nationally representative surveys. For those aged 20 years and older, 5.2% of household members did not have any form of schooling compared to 3.4% in 2020, while 23.9% had matric education compared to 25.8% in 2020 (Stats SA, 2021).

The unemployment rate for household heads and members who were economically active from the current study was 55.5% and 69.6%, which is higher than the provincial official unemployment rate from the third quarter of the Quarterly Labour Force Survey in 2021 which was 47.4% (QLFS, 2021). According to the General Household Survey, a larger percentage of households received grants compared to salaries as a source of income in the Eastern Cape (63.6% versus 46.2%) in 2020. In most households, heads (33.0%) relied on salaries as their source of income while in contrast the majority of household members (44.9%) relied on social welfare grants (including old age grant) as their source of income. The provincial average of 44.7% of household members reported receiving social grant is in line with the Eastern Cape average for the household population of 44.9% and 45.5% in 2016 and 2020, respectively (SADHS, 2016; Stats SA, 2021). In terms of grant type, the child support grant was the most common type of grant with 58.8% of household members receiving this grant. Although this was also the case in 2016, the percentage of the household population that received the child grant in this province was lower with 30.9% (SADHS, 2016). Unsurprisingly, children and the elderly were more likely than other age groups to receive any type of grants. In terms of the Covid-19 grant, 68.1% of household members reported having received this grant in the Eastern Cape in the current study. This is higher than the provincial average of 7.0% of individuals who accessed the Covid-19 grants in 2020 (Stats SA, 2021). The reason behind this might be because the grant was being gradually rolled out as the pandemic was progressing. In addition, for 2020 statistics only those aged 18 years and older were counted whereas all household members were included in the current study.

5.2 Dwellings and services

5.2.1 Housing types

Findings from the Eastern Cape Province show that the most common dwelling type occupied by households was described as a formal dwelling/house or brick/concrete block structure on a separate stand or yard or on a farm (75.8%) (Table 21). The second most common dwelling type was a traditional dwelling/hut/structure made of traditional materials (12.9%). Around 4.5% of the households reported living in informal dwellings/ shacks, not in back backyards. Less than 1% of the households in the Eastern Cape were living in townhouses.

Table 21: Types of dwellings occupied by households in Eastern Cape Province

Dwelling types (n=6073)	Number (n)	Percentage (%)
Formal dwelling/ House or brick/concrete block structure on a separate stand or yard or on a farm	4,639	75.8
Traditional dwelling/Hut/Structure made of traditional materials	712	12.9
Informal dwelling/Shack not in backyard	293	4.5
Formal dwelling /House/ Flat/Room in backyard	254	4.1
Informal dwelling/Shack in backyard	110	1.6
Flat or apartment in a block of flats	29	0.5
Other	14	0.2
Townhouse (semi-detached house in a complex)	8	0.1
Semi-detached house	7	0.1
Room/Apartment on a property or an apartment in a larger dwelling, servants quarters/granny at/cottage	5	0.1
Caravan/Tent	2	0.0

5.3 Access to water service

5.3.1 Households main source of drinking water

Table 22 shows that the predominant source of water in the Eastern Cape Province was piped water in the dwelling (33.8%) followed by piped water in the yard (17.4%). The third most common source of water was public/communal taps (14.0%). Around 12.9 % of the households in the Eastern Cape had flowing water / stream /river as main source of water (Table 22).

Table 22: Main source of drinking water in Eastern Cape Province

Drinking water sources (n=6091)	Number (n)	Percentage (%)
Piped (tap) water in dwelling/house	2,048	33.8
Piped (tap) water in yard	1,197	17.4
Public/communal tap	876	14.0
Flowing water/stream/river	726	12.9
Rain-water tank in yard	684	12.7
Water-carrier/tanker	109	1.9
Stagnant water/dam/pool	89	1.6
Neighbour's tap	90	1.2
Spring	55	1.1
Water vendor (charge involved)	60	1.0
Borehole outside yard	49	0.8
Borehole in yard	46	0.8
Other	36	0.6
Well	26	0.3

A higher proportion of male-headed households (36.8%) had access to piped water in the dwelling than female-headed households (31.1%) (Table 23). Flowing water, streams, or rivers were cited as the main source of drinking water by a higher proportion of female-headed households (16.2%) than by male-headed households (9%). In terms of the distribution of water sources across the district, Nelson Mandela Bay (75.9%) had the highest proportion of households using piped water in the dwelling followed by Buffalo City (66.4%) and Sarah Baartman (57.8%). Joe Gqabi (40.6%) had the highest proportion of the households whose main source of water was pipped water in the yard while Nelson Mandela Bay had the least (11.6%) (Table 23). O.R. Tambo District (36.8%) had the highest proportion of the households which indicated using flowing water /stream/river followed by Alfred Nzo (31.2%). Joe Gqa (25.4%) had the highest proportion of households depending on public/communal tap followed by Chris Hani (23.5%) while Sarah Baartman had the least (1.7%).

Table 23: Household's main source of water disaggregated by sex of household head and districts in Eastern Cape Province

		Household head sex		District							
		Male	Female	Sarah Batart-man	Am-athole	Chris Hani	Joe Gqabi	O.R. Tambo	Alfred Nzo	Buffalo City	Nelson Mande-la Bay
Piped (tap) water in dwelling/ house	%	36.8	31.1	57.8	15.3	17.4	12.7	5.1	12.9	66.4	75.9
	95% CI	[31.1-42.9]	[25.7-37.0]	[48.9-66.3]	[7.8-27.8]	[9.5-29.8]	[6.8-22.5]	[1.5-16.1]	[5.4-28.0]	[53.6-77.1]	[64.9-84.3]
Piped (tap) water in the yard	%	17	17.7	22.8	19.4	18.2	40.6	15.7	15.2	13	11.6
	95% CI	[14.0-20.5]	[14.6-21.3]	[16.2-31.0]	[11.7-30.4]	[12.0-26.5]	[29.9-52.2]	[8.3-27.7]	[8.9-24.8]	[8.2-19.8]	[6.7-19.3]
Borehole in yard	%	1	0.5	1.2	1.2	1	0.3	0.1	1.3	1.4	0.1
	95% CI	[0.5-2.0]	[0.3-1.0]	[0.4-3.1]	[0.4-3.5]	[0.4-2.8]	[0.1-1.1]	[0.0-0.8]	[0.5-3.5]	[0.2-9.4]	[0.0-0.8]
Rainwater tank in yard	%	12.7	12.8	7.5	30.3	17.5	4.4	21.3	10.9	1.1	0.2
	95% CI	[10.0-16.0]	[10.0-16.1]	[4.6-12.0]	[20.9-41.7]	[11.4-26.0]	[2.6-7.5]	[15.5-28.6]	[8.1-14.6]	[0.2-4.6]	[0.0-1.7]
Neighbour's tap	%	1.3	1.1	1.1	1.4	1	4	0.7	2.3	1.1	0.4
	95% CI	[0.8-1.9]	[0.8-1.7]	[0.5-2.4]	[0.7-2.7]	[0.3-2.8]	[2.1-7.3]	[0.2-2.1]	[1.1-4.9]	[0.4-2.7]	[0.1-1.5]
Public/ communal tap	%	13.8	14.1	2.7	15	23.5	25.4	11.7	15.2	14.5	8.2
	95% CI	[10.6-17.8]	[10.9-18.1]	[0.7-10.7]	[8.1-26.2]	[14.3-36.1]	[15.6-38.6]	[6.2-21.0]	[8.5-25.8]	[6.9-27.9]	[2.6-22.6]
Water-carrier/ tanker	%	2.1	1.7	1.7	4.8	1.5	1.8	2.1	2.4	0.5	0.5
	95% CI	[1.5-3.0]	[1.2-2.5]	[0.4-7.1]	[2.8-8.2]	[0.8-2.8]	[0.6-5.2]	[1.2-3.7]	[1.2-4.6]	[0.2-1.3]	[0.2-1.5]
Water vendor (charge involved)	%	1.2	0.9	1	1.1	0.2	0.3	0.4	1.8	1	2
	95% CI	[0.7-1.9]	[0.6-1.4]	[0.3-2.8]	[0.4-2.9]	[0.0-1.1]	[0.0-1.8]	[0.1-1.5]	[0.7-5.1]	[0.4-2.4]	[1.0-4.0]
Borehole outside yard	%	1.2	0.5	2.9	0.8	0.9	0.5	0.3	2.1	0	0.5
	95% CI	[0.6-2.2]	[0.3-1.0]	[1.3-6.5]	[0.2-3.7]	[0.1-5.8]	[0.1-2.3]	[0.1-1.1]	[0.8-5.6]		[0.2-1.6]
Flowing water/ stream/ river	%	9	16.2	0.2	6.2	12.1	7.5	36.8	31.2	0	0
	95% CI	[6.7-12.0]	[12.4-21.0]	[0.0-1.2]	[3.3-11.3]	[7.1-19.8]	[2.4-21.1]	[26.6-48.4]	[20.4-44.4]		
Stagnant water/dam/ pool	%	1.5	1.6	0	2.8	4.6	0.9	2.1	1.2	0	0
	95% CI	[0.9-2.4]	[1.0-2.6]		[1.3-6.2]	[2.1-9.8]	[0.1-6.2]	[1.0-4.5]	[0.5-2.8]		
Well	%	0.2	0.3	0.2	0	0.1	1.2	0	1.7	0	0
	95% CI	[0.1-0.5]	[0.1-0.7]	[0.0-1.6]		[0.0-0.9]	[0.4-3.2]		[0.7-4.2]		

		Household head sex		District							
		Male	Female	Sarah Batart-man	Am-athole	Chris Hani	Joe Gqabi	O.R. Tambo	Alfred Nzo	Buffalo City	Nelson Mande-la Bay
Spring	%	1.3	1	0.4	1.1	1.3	0.2	3.4	1.3	0	0
	95% CI	[0.7-2.2]	[0.6-1.7]	[0.1-1.5]	[0.4-3.3]	[0.4-4.2]	[0.0-1.0]	[1.9-5.9]	[0.4-3.7]		
Other	%	0.9	0.3	0.6	0.7	0.8	0.3	0.2	0.5	1.1	0.6
	95% CI	[0.6-1.6]	[0.1-0.8]	[0.2-2.0]	[0.2-2.2]	[0.2-4.4]	[0.0-1.8]	[0.0-1.6]	[0.1-1.4]	[0.4-2.9]	[0.2-2.1]

*CI: Confidence Interval: Subtotals for the province are not always equal due to non-response or missing data

Water sources were further categorized into 'improved' and 'unimproved' following the WHO & UNICEF Joint Monitoring Programme (JMP) definition. 'Improved' drinking water sources include piped water (in dwelling and yard or plot), public taps or stan dpipes, tube wells or boreholes, protected dug wells, protected springs, and rainwater ((WHO and UNICEF, 2017)). Our results show that the majority (83.6%) of the households in the Eastern Cape Province were using improved water sources (Figure 8).

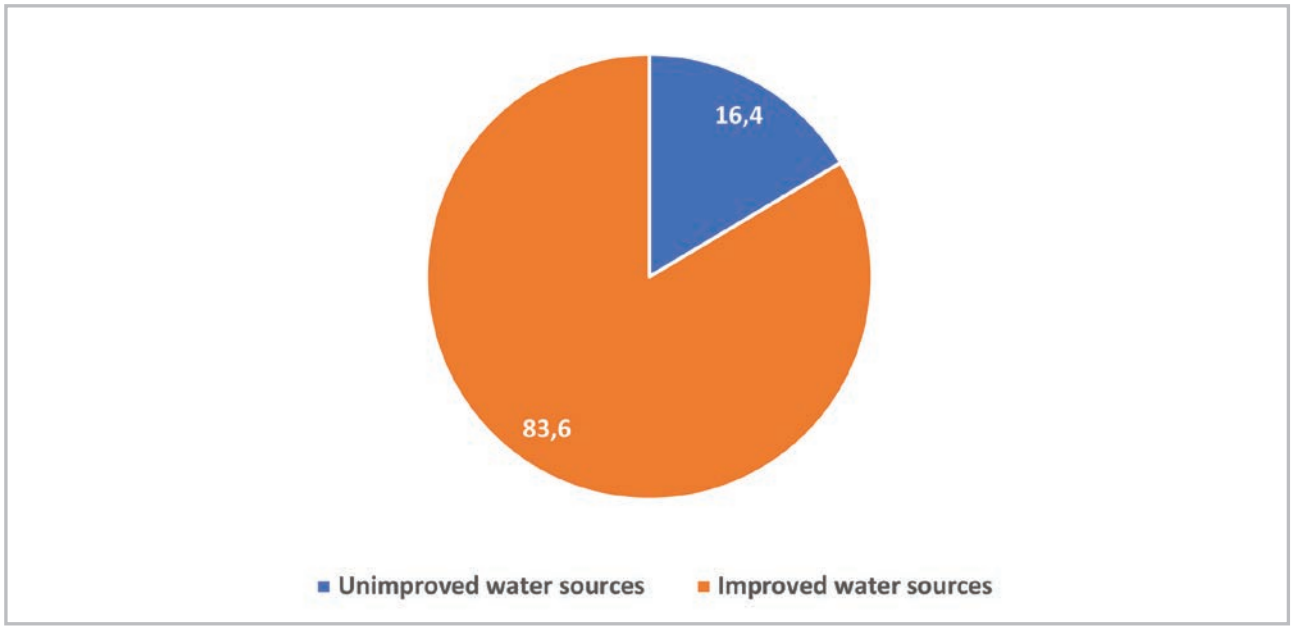


Figure 8: *Proportion of households using improved and unimproved water sources in Eastern Cape Province*

A higher proportion of male-headed households (87.1%) were using improved water sources than female-headed households (80.5%) (Table 24). Nelson Mandela Bay District (99.4%) had the highest proportion of households using improved water sources, closely followed by Buffalo City (99.8%) and Sarah Baartman. OR Tambo District (42.6%) had the highest proportion of households using unimproved water sources, followed by Alfred Nazo District (35.8%) (Table 24).

Table 24: Improved and unimproved water sources disaggregated by sex of the household head and district in Eastern Cape Province

	Unimproved water sources		Improved water sources	
	%	95% CI	%	95% CI
Household head sex				
Male	12.9	[10.0-16.5]	87.1	[83.5-90.0]
Female	19.5	[15.2-24.8]	80.5	[75.2-84.8]
District				
Sarah Baartman	1.3	[0.6-2.9]	98.7	[97.1-99.4]
Amathole	10.8	[6.4-17.5]	89.2	[82.5-93.6]
Chris Hani	18.9	[11.5-29.4]	81.1	[70.6-88.5]
Joe Gqabi	10	[3.7-24.7]	90	[75.3-96.3]
O.R.Tambo	42.6	[30.9-55.1]	57.4	[44.9-69.1]
Alfred Nzo	35.8	[23.4-50.3]	64.2	[49.7-76.6]
Buffalo City	1.1	[0.4-2.9]	98.9	[97.1-99.6]
Nelson Mandela Bay	0.6	[0.2-2.1]	99.4	[97.9-99.8]

*CI: Confidence Interval: Subtotals for the province are not always equal due to non-response or missing data

The water supplier for the majority (72.7%) of the households in the Eastern Cape was the municipality (Figure 9). About 18.6% of the households were supplied water by other water schemes. Households that are not supplied by a water scheme made up 7.3% of the households in the Eastern Cape (Figure 9).

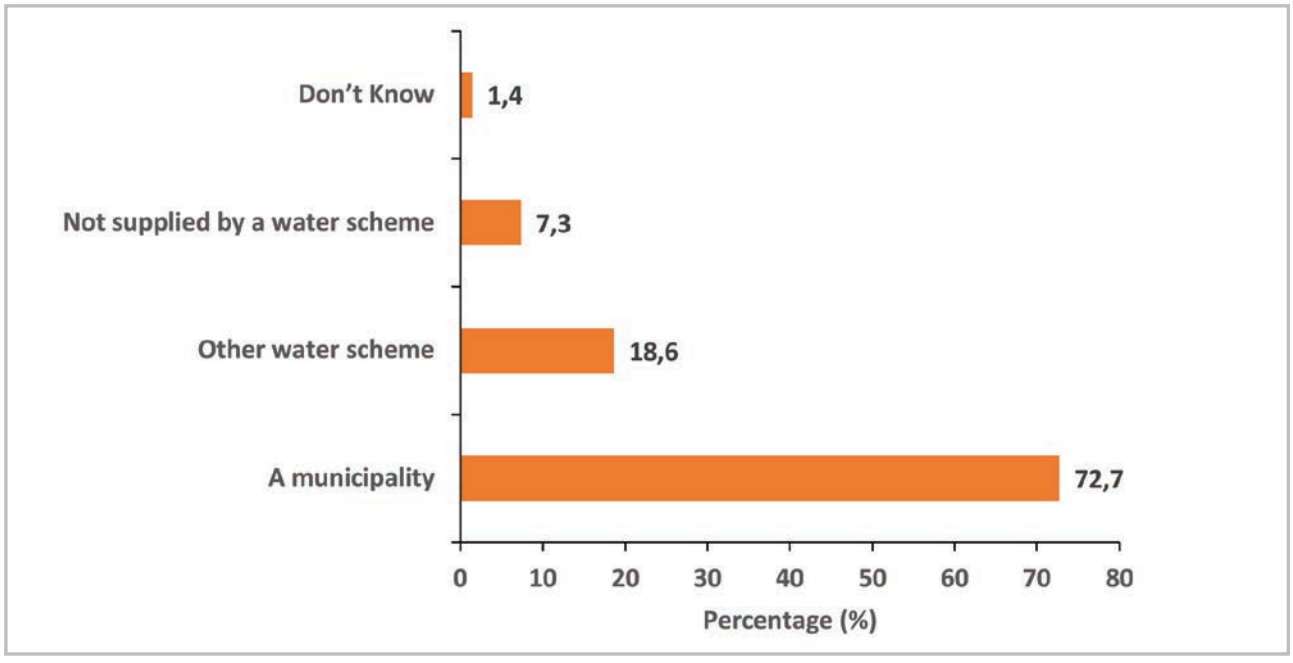


Figure 9: *Water supplier (n=5,382) in Eastern Cape Province*

5.3.2 Payment for water services

Figure 10 shows payment for water services in the Eastern Cape Province. The results of this study show that a low proportion (32.9%) of households pay for water services. A higher proportion of male-headed households (37.9%) paid for water services than female-headed households (28.6%) (Table 25). A comparison of the payment of water services by the district showed that Nelson Mandela Bay (65.5%) had the highest proportion of households that pay for water services, closely followed by Buffalo City (65.3%) (Table 25). OR Tambo District (92.8%) had the highest proportion of households not paying for water services followed by Chris Hani (86.1%) and Alfred Nazo (84.4%).

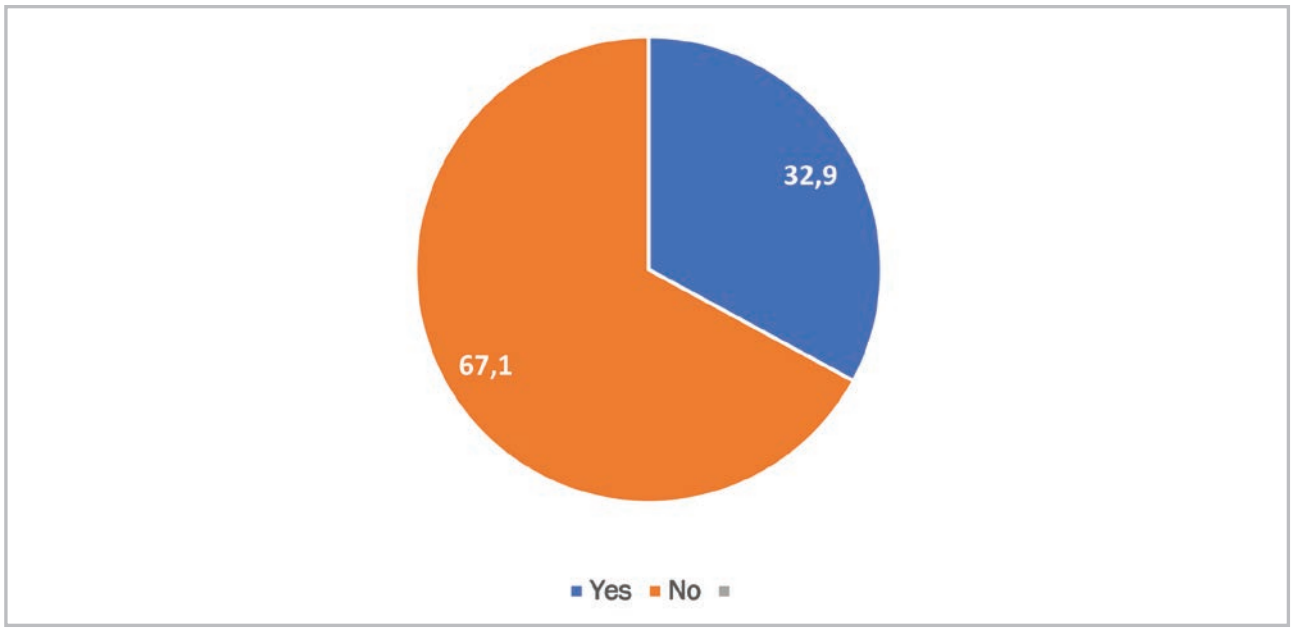


Figure 10: *Payment of water services (n=5,380) in Eastern Cape Province*

Table 25: Payment of water services disaggregated by district and household head sex in Eastern Cape Province

	Yes		No	
	%	95% CI	%	95% CI
Household head sex				
Male	37.9	[31.8-44.4]	62.1	[55.6-68.2]
Female	28.6	[23.7-34.1]	71.4	[65.9-76.3]
District				
Sarah Baartman	40.9	[31.5-51.1]	59.1	[48.9-68.5]
Amathole	16.6	[9.1-28.4]	83.4	[71.6-90.9]
Chris Hani	13.9	[6.2-28.4]	86.1	[71.6-93.8]
Joe Gqabi	8	[4.7-13.3]	92	[86.7-95.3]
O.R.Tambo	7.2	[2.1-21.6]	92.8	[78.4-97.9]
Alfred Nzo	15.6	[7.5-29.6]	84.4	[70.4-92.5]
Buffalo City	65.3	[51.4-77.1]	34.7	[22.9-48.6]
Nelson Mandela Bay	65.5	[53.3-76.0]	34.5	[24.0-46.7]

*CI: Confidence Interval: Subtotals for the province are not always equal due to non-response or missing data

5.4 Sanitation and Hygiene

Table 26 shows the types of toilet facilities used by Eastern Cape Province households. The most common toilet type in Eastern Cape was a flush toilet connected to a public sewerage (41.9%). The second most common toilet type was a pit latrine with ventilation pipe (36.4%). Pit latrine without ventilation pipe were used by around 15.6%. About 2.2% of the households in the Eastern Cape Province practise open defecation (Table 26).

Table 26: Type of toilet facility used by households in Eastern Cape Province

Toilet types (n=6030)	Number (n)	Percentage (%)
Flush toilet connected to a public sewerage system	2,646	41.9
Pit latrine/toilet with ventilation pipe	2,100	36.4
Pit latrine/toilet without ventilation pipe	928	15.6
Open defecation (e.g., no facilities, □eld, bush)	129	2.2
Flush toilet connected to a septic or conservancy tank	110	2.1
Bucket toilet (collected by municipality	52	0.7
Pour flush toilet connected to a septic tank (or septage pit)	23	0.5
Chemical toilet	18	0.4
Other	11	0.2
Bucket toilet (emptied by household)	10	0.1
Ecological Sanitation Systems (e.g., urine diversion)	3	0.0

A slightly higher proportion of male-headed (43.5%) households use flush toilets connected to a public sewerage system than female-headed households (38.2%) (Table 27). Pit latrines with ventilation were used by female-headed households (39.7%) more than by male-headed households. In terms of distribution across the districts, Nelson Mandela Bay (85.7%) had the highest proportion of households using flush toilets connected to a public sewerage system followed by Buffalo City (82.6%) while OR Tambo had the least (5.1%). O.R Tambo (25.7%) leads with the proportion of households using pit latrines without ventilation pipe followed by Alfred Nzo (24.3%) and Chris Hani (22.2%). O.R. Tambo (65.1%) District had the highest proportion of households using pit latrine with ventilation pipe followed by Alfred Nzo (57.7%) and Amathole (55.5%). Chris Hani (7%) had the highest proportion of households practicing open defecation while Nelson Mandela Bay (0.9%) had the least (Table 27).

Table 27: Type of toilet facility used by the households disaggregated by sex of the household head and district in Eastern Cape Province

		Household head sex		District							
		Male	Female	Sarah Baartman	Amathole	Chris Hani	Joe Gqabi	O.R. Tambo	Alfred Nzo	Buffalo City	Nelson Mandela Bay
Flush toilet connected to a public sewerage system	%	45.3	38.8	77.1	21.2	22	35.7	5.1	14.1	82.6	85.7
	95% CI	[38.6-52.2]	[32.3-45.8]	[65.3-85.7]	[10.4-38.4]	[10.6-39.9]	[21.1-53.7]	[1.1-20.5]	[5.6-31.6]	[68.7-91.1]	[72.9-93.0]
Flush toilet connected to a septic or conservancy tank	%	2	2.1	3.3	2.5	1	0.7	1.6	0.9	1.7	3.7
	95% CI	[1.4-2.7]	[1.5-3.1]	[1.5-7.3]	[1.3-4.5]	[0.4-2.6]	[0.3-1.9]	[0.6-3.9]	[0.3-2.7]	[0.8-3.8]	[2.1-6.4]
Pour flush toilet connected to a septic tank (or septage pit)	%	0.7	0.3	0.7	0.2	0.1	0	0.3	0.1	0.8	1.1
	95% CI	[0.3-1.5]	[0.1-1.3]	[0.2-2.2]	[0.0-1.2]	[0.0-0.9]		[0.1-1.2]	[0.0-0.8]	[0.1-5.3]	[0.2-5.9]
Chemical toilet	%	0.3	0.4	0	1.7	0	0.1	0	0.1	0	0.5
	95% CI	[0.1-1.1]	[0.2-0.8]		[0.7-3.7]		[0.0-0.9]		[0.0-0.8]		[0.1-2.2]
Pit latrine/toilet with ventilation pipe	%	32.7	39.7	7.9	55.5	46.6	41.8	65.1	57.7	7.7	2
	95% CI	[27.8-37.9]	[34.4-45.3]	[3.5-17.2]	[43.4-67.0]	[34.6-59.0]	[28.7-56.2]	[59.0-70.8]	[44.9-69.5]	[3.4-16.7]	[0.8-5.0]
Pit latrine/ toilet without ventilation pipe	%	15.4	15.8	7.3	18.5	22.2	15.5	25.7	24.3	5.3	3.7
	95% CI	[12.8-18.3]	[13.4-18.6]	[2.8-18.0]	[13.2-25.4]	[16.3-29.6]	[9.8-23.7]	[21.6-30.2]	[16.9-33.6]	[2.3-11.8]	[1.2-10.9]
Bucket toilet (collected by municipality)	%	0.7	0.7	0.5	0	0.3	3.7	0	0.1	0	2.2
	95% CI	[0.2-2.7]	[0.2-2.2]	[0.2-1.7]		[0.0-2.0]	[0.6-19.8]		[0.0-0.8]		[0.4-12.9]
Bucket toilet (emptied by household)	%	0.2	0.1	0.4	0	0.2	0.1	0	0.1	0.4	0.1
	95% CI	[0.1-0.4]	[0.0-0.3]	[0.1-1.0]		[0.0-1.2]	[0.0-0.9]		[0.0-0.8]	[0.1-1.1]	[0.0-0.8]
Ecological Sanitation Systems (e.g., urine diversion)	%	0.1	0	0.1	0.1	0	0	0	0.1	0	0
	95% CI	[0.0-0.3]		[0.0-0.8]	[0.0-1.0]				[0.0-0.8]		
Open defecation (e.g., no facilities, field, bush)	%	2.5	1.9	2.5	0.2	7	2.2	2.2	2.2	1.1	0.9
	95% CI	[1.6-3.9]	[1.1-3.3]	[0.9-6.6]	[0.1-0.9]	[2.8-16.4]	[1.0-4.9]	[1.0-4.7]	[0.6-8.0]	[0.4-3.1]	[0.3-2.9]
Other	%	0.2	0.1	0.1	0	0.5	0	0	0.2	0.4	0.1
	95% CI	[0.1-0.5]	[0.0-0.3]	[0.0-0.8]		[0.2-1.3]			[0.1-0.9]	[0.1-1.6]	[0.0-0.9]

Types of toilet facilities used by households were further divided into 'improved' and 'unimproved' based on the WHO & UNICEF Joint Monitoring Programme (JMP) definition. 'Improved' toilets include flushed or flushed to septic tanks, piped sewer systems, pit latrines, VIP latrines, and pit latrines with slabs. Meanwhile, 'unimproved' toilets consist of shared facilities or none (bush or field); flush toilets or pour-flush toilets that go elsewhere (not to septic tanks or pit latrines) (WHO and UNICEF, 2017); pit latrines without slabs; bucket systems; and hanging toilets (WHO and UNICEF, 2017). The results of this study show that 96.8% of the households in the Eastern Cape had access to improved toilet types. A higher proportion of male-headed (3.6%) households were using unimproved toilet types in female-headed (2.9%) households (Table 28). Nearly all households in the Amathole District (99.8%) were using improved toilet types. Joe Gqabi District (6.1%) had the highest proportion of households using unimproved toilet types (Table 28).

Table 28: Proportion of households using Improved and Unimproved toilet types disaggregated by the sex of the household head and district in Eastern Cape Province

	Unimproved		Improved	
	%	95% CI	%	95% CI
Household head sex				
Male	3.6	[2.4-5.5]	96.4	[94.5-97.6]
Female	2.9	[1.7-4.7]	97.1	[95.3-98.3]
District				
Sarah Baartman	3.5	[1.7-7.2]	96.5	[92.8-98.3]
Amathole	0.2	[0.1-0.9]	99.8	[99.1-99.9]
Chris Hani	8	[3.6-17.1]	92	[82.9-96.4]
Joe Gqabi	6.1	[1.6-20.0]	93.9	[80.0-98.4]
O.R.Tambo	2.2	[1.0-4.7]	97.8	[95.3-99.0]
Alfred Nzo	2.7	[0.7-9.8]	97.3	[90.2-99.3]
Buffalo City	1.9	[0.8-4.3]	98.1	[95.7-99.2]
Nelson Mandela Bay	3.3	[0.8-12.9]	96.7	[87.1-99.2]

When asked if the household was paying for public sewerage services, only 36.1% of households responded 'yes', while 62.8% said 'no' (Figure 11). Around 1.1 % of the respondents indicated that they do not know if the households were paying for public sewerage.

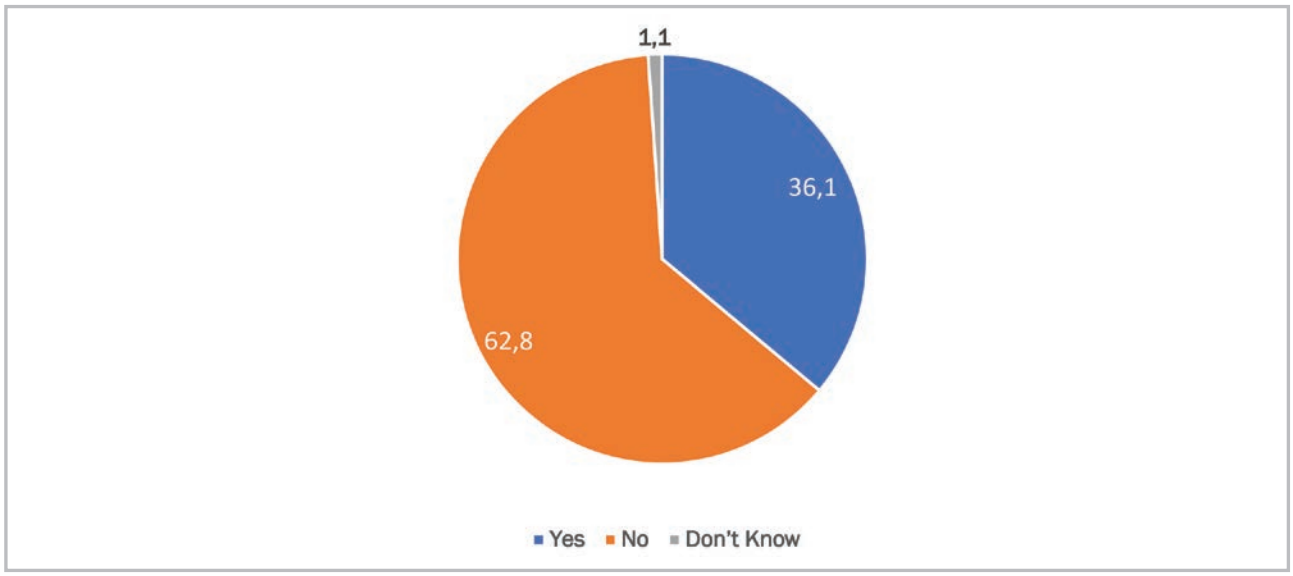


Figure 11: *Proportion of households paying for public sewerage (n=4,214) in Eastern Cape Province*

Figure 12 shows the proportion of households receiving free sanitation services. Only 31.1% of the households indicated receiving free sanitation services. The majority (67.4%) of the households do not receive free sanitation services.

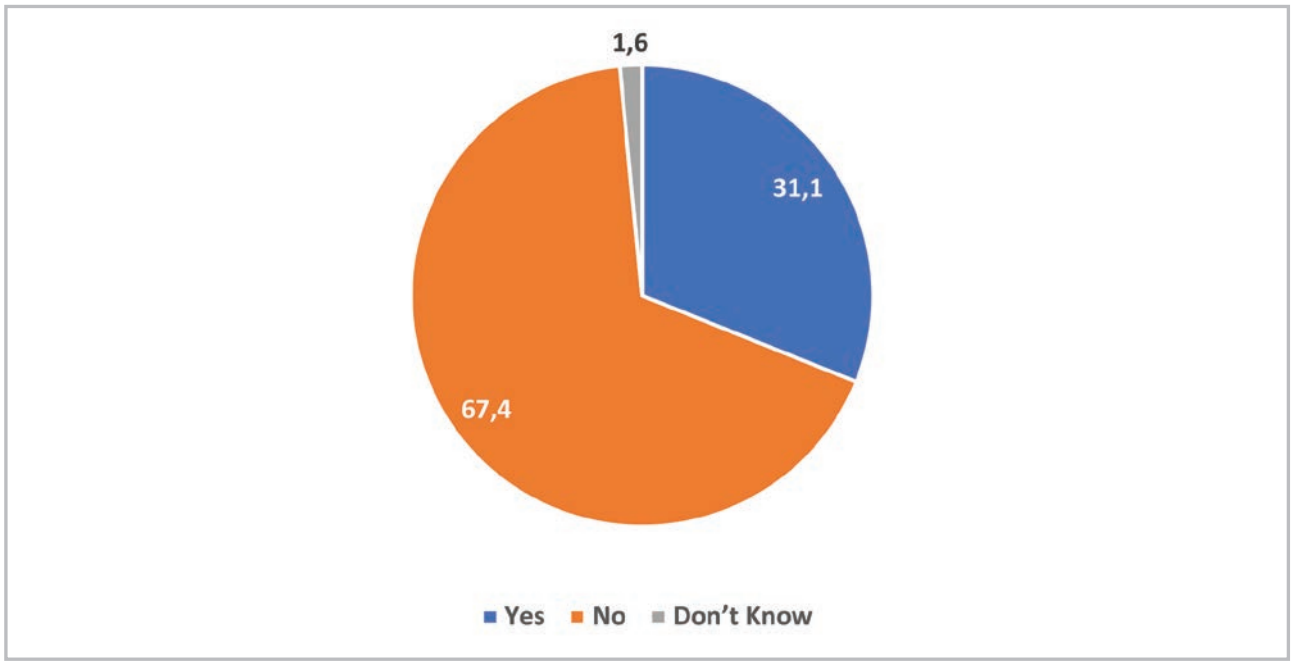


Figure 12: *Proportion of households receiving free sanitation services (n=2,637) in Eastern Cape Province*

A higher proportion of male-headed households (33.9%) receive free sanitation services than male-headed households (28.3%) (Table 29). Joe Gqabi (56.8%) had the highest proportion of households receiving free sanitation services. OR. Tambo (22.7%) had the lowest proportion of households receiving free sanitation services.

Table 29: Households receiving free sanitation disaggregated by sex of the household head and district

	Yes		No		Don't know	
	%	95% CI	%	95% CI	%	95% CI
Household head sex						
Male	28.3	[25.0-31.8]	70.2	[66.5-73.6]	1.5	[1.0-2.4]
Female	33.9	[30.4-37.6]	64.5	[60.8-68.0]	1.6	[1.0-2.4]
District						
Sarah Baartman	32.2	[26.2-38.9]	66	[59.3-72.0]	1.8	[0.8-3.9]
Amathole	36.6	[26.6-47.8]	62.3	[52.1-71.5]	1.1	[0.4-3.3]
Chris Hani	31.7	[16.1-52.8]	65.5	[44.4-81.9]	2.8	[1.0-7.6]
Joe Gqabi	56.8	[47.5-65.7]	42.4	[34.1-51.2]	0.8	[0.2-2.6]
O.R.Tambo	22.7	[15.8-31.4]	75.1	[65.3-82.9]	2.3	[1.3-3.8]
Alfred Nzo	25.4	[13.9-41.7]	69.8	[52.3-82.9]	4.9	[1.9-12.1]
Buffalo City	27.4	[23.1-32.1]	70.9	[66.1-75.3]	1.7	[0.8-3.4]
Nelson Mandela Bay	29.6	[24.9-34.7]	69.4	[64.1-74.3]	1	[0.5-2.1]

5.4.1 Refuse removal

Table 30 depicts rubbish disposal methods used by households in the Eastern Cape. Our results show that almost half (49.5%) of the households use their own refuse dump to dispose of rubbish. Around 31.9% of the household's rubbish is removed by the local authority/private company at least once a week. About 3.4 % of the households leave their rubbish anywhere (Table 30).

Table 30: Households rubbish disposal in Eastern Cape Province

Rubbish disposal (n=5964)	Number (n)	Percentage (%)
Own refuse dump	2,841	49.5
Removed by local authority/private company at least once a week	2,023	31.9
Removed by community members, contracted by municipality at least once a week	391	6.1
Other	232	4.5
Dump or leave rubbish anywhere	190	3.4
Communal refuse dump	118	1.9
Removed by local authority/private company less often than once a week	80	1.4
Removed by community members, contracted by municipality less than once a week	43	0.7
Communal container/central collection point	29	0.4
Removed by community members at least once a week	12	0.3
Removed by community members, less often than once a week	5	0.1

A higher proportion of male-headed households (34.3%) rubbish was removed by local authority/private company at least once a week than female-headed households (29.7%) (Table 31). Nelson Mandela Bay (70.7%) District had the highest proportion of households whose rubbish was removed by the local authority followed by Sarah Baartman (61.4%) and Buffalo City (58.8%). Alfred Nzo (80.6%) District had the highest proportion of households who use their own refuse dump to dispose of their rubbish closely followed by O.R. Tambo District (79.3%). Nelson Mandela Bay (10.7%) and Buffalo City (10.1%) had the lowest proportion of households using their own refuse dump to dispose of their rubbish (Table 31).

Table 31: Households rubbish disposal methods disaggregated by sex of the household head and district in Eastern Cape Province

		Household head sex		District							
		Male	Female	Sarah Baartman	Amathole	Chris Hani	Joe Gqabi	O.R. Tambo	Alfred Nzo	Buffalo City	Nelson Mandela Bay
Removed by local authority/private company at least once a week	%	34.3	29.7	61.4	10.1	16.9	30.2	4.9	8.4	58.8	70.7
	95% CI	[28.9-40.2]	[24.6-35.3]	[50.3-71.6]	[4.3-22.0]	[8.5-30.8]	[18.9-44.5]	[1.1-19.2]	[2.9-22.0]	[48.6-68.2]	[61.3-78.5]
Removed by local authority/private company less often than once a week	%	1.5	1.3	0.5	1.4	0.9	1	0	0	4	2.8
	95% CI	[0.9-2.5]	[0.8-2.1]	[0.2-1.1]	[0.5-3.8]	[0.3-2.9]	[0.3-3.1]			[1.9-8.0]	[1.6-4.7]
Removed by community members, contracted by municipality at least once a week	%	6.2	6	12.7	2.6	1.3	3.9	0	2.6	16.8	11.3
	95% CI	[4.9-7.8]	[4.7-7.6]	[9.7-16.4]	[1.1-5.8]	[0.5-3.2]	[1.7-8.7]		[1.0-6.4]	[12.8-21.7]	[8.8-14.4]
Removed by community members, contracted by municipality less than once a week	%	0.7	0.6	0	0	1.2	1.5	0	0.3	2.2	0.6
	95% CI	[0.4-1.2]	[0.3-1.2]			[0.3-3.8]	[0.5-4.1]		[0.1-1.4]	[1.2-3.9]	[0.2-1.6]
Removed by community members at least once a week	%	0.3	0.2	0	0.6	0.8	0	0	0	0.4	0
	95% CI	[0.1-1.2]	[0.1-0.6]		[0.1-4.2]	[0.3-2.4]				[0.1-2.7]	
Removed by community members, less often than once a week	%	0.1	0.1	0	0.2	0	0.1	0	0	0.1	0.3
	95% CI	[0.0-0.5]	[0.0-0.3]		[0.0-1.4]		[0.0-0.9]			[0.0-0.9]	[0.1-1.0]
Communal refuse dump	%	2	1.8	3.3	3	0.2	1.9	0.6	1.7	3.8	1.8
	95% CI	[1.3-3.0]	[1.3-2.6]	[1.4-7.3]	[1.3-6.5]	[0.0-1.7]	[0.7-5.3]	[0.2-1.4]	[0.9-3.1]	[1.7-8.2]	[0.7-4.5]
Communal container/ central collection point	%	0.4	0.3	0.7	1	0	1.3	0.2	0.5	0	0.1
	95% CI	[0.2-0.8]	[0.2-0.7]	[0.1-3.5]	[0.4-2.2]		[0.3-5.4]	[0.0-1.2]	[0.2-1.2]		[0.0-0.8]
Own refuse dump	%	46.9	51.8	21.2	72.5	64	51.3	79.3	80.6	10.1	10.7
	95% CI	[40.9-53.1]	[45.7-57.8]	[11.7-35.3]	[59.7-82.5]	[51.8-74.7]	[37.0-65.3]	[71.5-85.4]	[67.8-89.1]	[4.2-22.4]	[4.3-24.0]
Dump or leave rubbish anywhere	%	2.9	3.8	0.2	2.9	4.9	5.2	5.5	2.8	3.2	1.7
	95% CI	[2.1-4.0]	[2.8-5.0]	[0.1-0.9]	[1.2-7.0]	[3.3-7.1]	[3.2-8.3]	[3.6-8.4]	[1.7-4.7]	[1.5-6.5]	[0.5-5.7]
Other	%	4.5	4.4	0	5.6	9.8	3.7	9.5	3.2	0.7	0.1
	95% CI	[3.3-6.1]	[3.3-5.9]		[2.8-10.8]	[6.4-14.7]	[1.9-7.2]	[6.9-13.0]	[1.8-5.5]	[0.1-3.3]	[0.0-0.8]

Figure 13 shows the proportion of households receiving free refuse removal services. About 41.5% of households in the Eastern Cape had access to free refuse removal services while 58.1% indicated that were not receiving free refuse removal services.

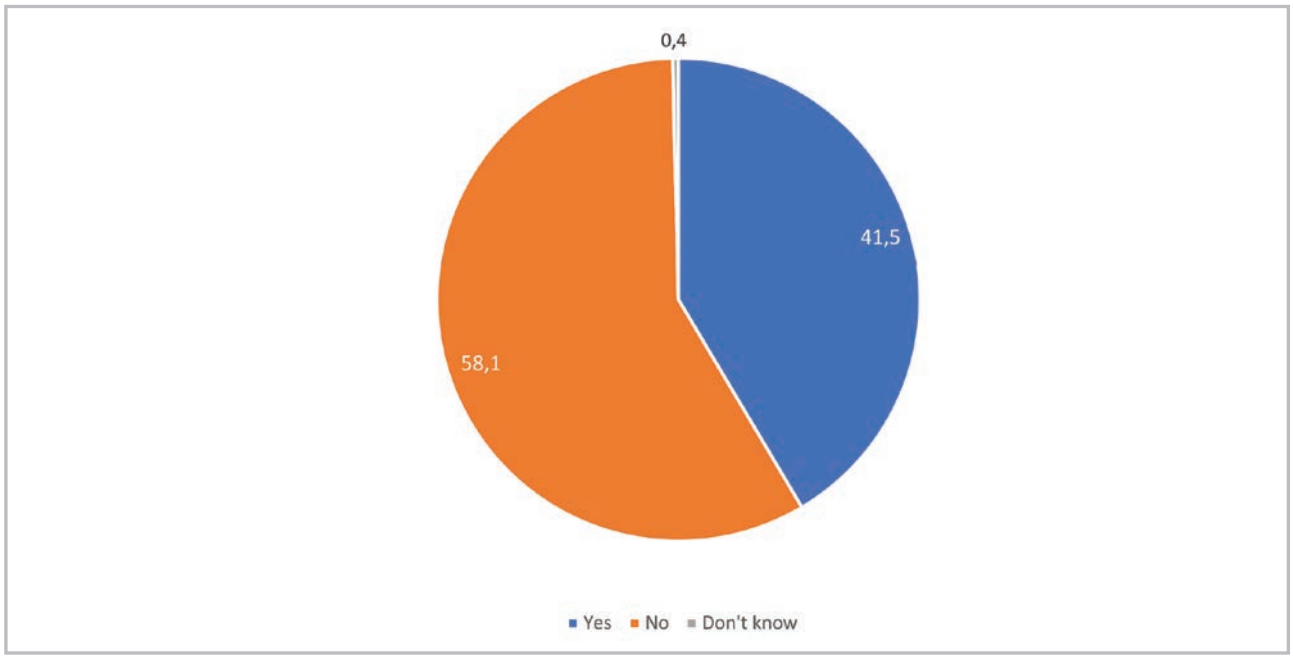


Figure 13: *Proportion of households receiving free refuse removal services (n=2,532) in Eastern Cape province*

5.5 Energy

5.5.1 Access to electricity

Overall, 94.3% of households in the Eastern Cape Province had access to electricity (Figure 14). There is almost an equal distribution between female-headed households (94.4%) than male-headed households (94%) that had access to electricity (Table 32). Nelson Mandela Bay (96.5%) and Amathole (95.8%) districts had the highest proportion of households with access to electricity, followed by Sarah Baartman (94.1%) and Chris Hani (94%). Joe Gqabi District (89.5%) had the lowest proportion of households with access to electricity.

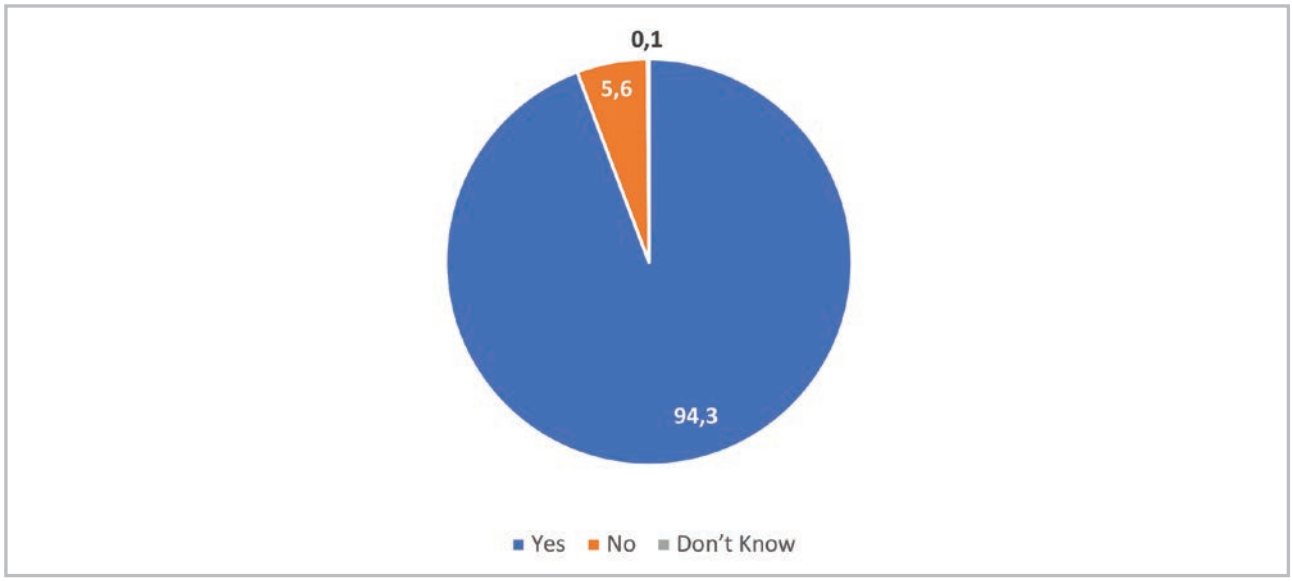


Figure 14: *Proportion of households with access to electricity (n=6,087) in Eastern Cape Province*

Table 32: Access to electricity by household head sex and district

	Yes		No		Don't know	
	%	95% CI	%	95% CI	%	95% CI
Household head sex						
Male	94	[92.6-95.2]	5.8	[4.6-7.3]	0.1	[0.0-0.5]
Female	94.4	[93.2-95.4]	5.5	[4.5-6.7]	0.1	[0.0-0.3]
District						
Sarah Baartman	94.1	[88.7-97.0]	5.9	[3.0-11.3]	0	
Amathole	95.8	[93.7-97.3]	4	[2.7-6.1]	0.1	[0.0-0.9]
Chris Hani	94	[90.9-96.1]	5.9	[3.8-8.9]	0.1	[0.0-0.9]
Joe Gqabi	89.5	[78.3-95.3]	10.5	[4.7-21.7]	0	
O.R.Tambo	93.5	[91.4-95.1]	6.5	[4.9-8.6]	0	
Alfred Nzo	93.3	[88.9-96.0]	6.7	[4.0-11.1]	0	
Buffalo City	93.5	[90.0-95.8]	6	[3.8-9.3]	0.5	[0.2-1.6]
Nelson Mandela Bay	96.5	[94.2-97.9]	3.4	[2.1-5.4]	0.1	[0.0-0.8]

Figure 15 shows that only 20.2 % of the households in the Eastern Cape Province indicated that they were receiving free electricity as part of the Free Basic Electricity Programme (FBE). Under this programme, qualifying households receive 50 kWh per month.

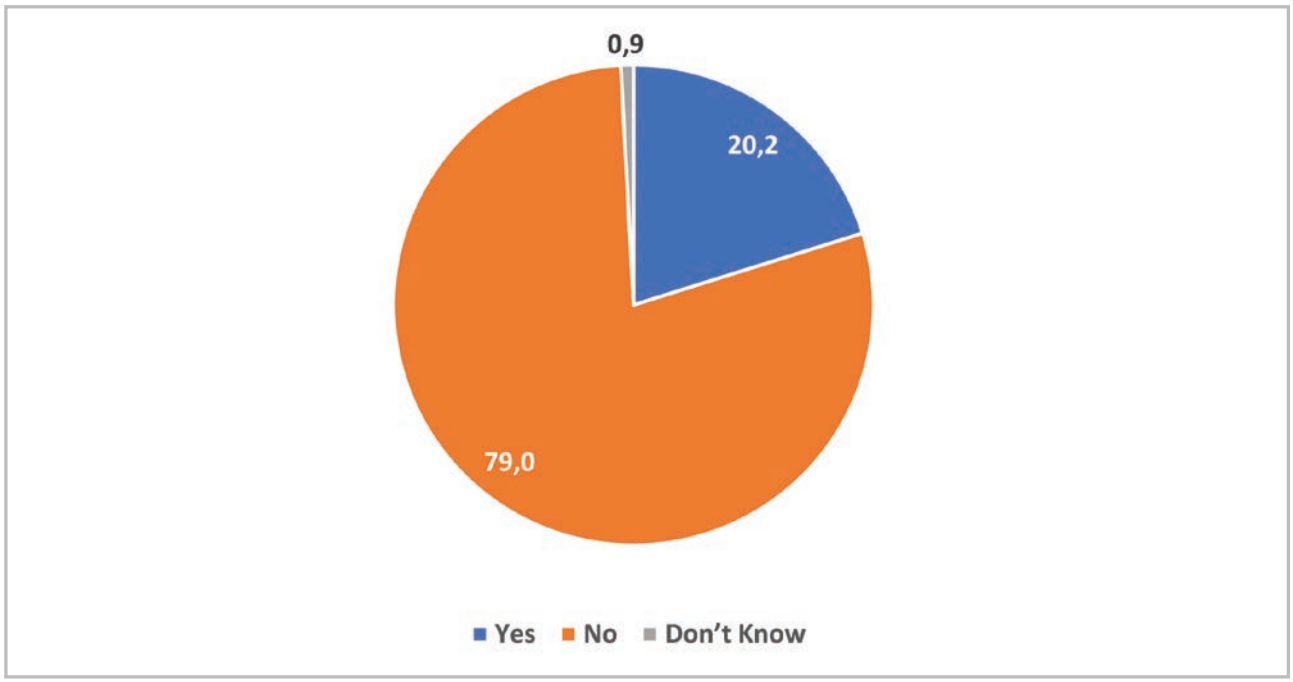


Figure 15: *Proportion of households receiving free electricity (n=5,723) in Eastern Cape Province*

In terms of distribution across the district, Joe Gqabi District (33.1%) had the highest proportion of households receiving free electricity followed by Buffalo City (31.9%) (Table 33). Alfred Nzo District (7.1%) had the lowest proportion of households receiving free electricity.

Table 33: Households receiving free electricity disaggregated by sex of the household head and district in Eastern Cape Province

	Yes		No		Don't know	
	%	95% CI	%	95% CI	%	95% CI
Household head sex						
Male	19	[16.6-21.6]	80.1	[77.3-82.6]	1	[0.4-2.2]
Female	21.2	[18.7-24.0]	78	[75.3-80.6]	0.7	[0.5-1.2]
District						
Sarah Baartman	27.1	[20.8-34.6]	72.3	[65.0-78.6]	0.6	[0.2-1.4]
Amathole	26.3	[20.7-32.7]	73.3	[67.0-78.8]	0.4	[0.1-1.6]
Chris Hani	18	[12.5-25.3]	80.4	[73.0-86.2]	1.5	[0.3-8.7]
Joe Gqabi	33.1	[24.3-43.3]	66.4	[56.5-75.1]	0.5	[0.1-1.8]
O.R.Tambo	9	[6.4-12.6]	90.9	[87.4-93.5]	0.1	[0.0-0.9]
Alfred Nzo	7.1	[5.2-9.5]	89.5	[86.0-92.2]	3.4	[2.2-5.3]
Buffalo City	31.9	[25.5-39.0]	67.5	[60.2-74.1]	0.6	[0.2-1.8]
Nelson Mandela Bay	20.7	[15.9-26.5]	78.9	[73.0-83.8]	0.4	[0.1-1.1]

5.5.2 Energy sources for cooking, lighting, water heating, and space heating

Energy sources were categorized into cooking lighting, water heating, and space heating (Table 34). The majority of the household's main source of energy for cooking was electricity from mains (80.1%). The second most common energy source for cooking was wood (9.9 %) followed by Gas (7.7%) (Table 34).

Table 34: Household's main source of energy for cooking, lighting, water heating and space heating in Eastern Cape Province

	Cooking	Lighting	Water heating	Space heating
	%	%	%	%
Electricity from mains	80.1	98.2	85.3	40.9
Other source of electricity (e.g., Generator)	0.5	0.6	0.6	0.4
Gas	7.7	0.1	2.1	3.1
Paraffin	1.2	0.1	1.2	10.2
Wood	9.9	0.1	8.2	11.8
Coal	0.1		0.1	0.3
Animal dung	0.0		0.1	0.0
Solar energy	0.1	0.3	0.5	0.0
Other, specify	0.4	0.4	0.5	0.2
None	0.0		1.5	33.0
Candles		0.41		

In comparison, slightly more male-headed households (81%) used electricity from the mains as the main source of energy for cooking than female-headed households (79.3%) (Table 35). A higher proportion of female-headed households (11.7%) used wood as the main source of energy for cooking than male-headed households (7.8%) (Table 35). More male-headed households (9%) used gas as a source of energy for cooking than female-headed households (6.6%). In terms of the distribution of the source of energy for cooking across the districts, Nelson Mandela (92%) had the highest proportion of households whose main source of energy was electricity from the main, while Alfred Nzo (66.2%) had the least (Table 35). Alfred Nzo (23.3%) had the highest proportion of households using wood as the main source of energy for cooking, followed by O.R. Tambo (19.7%). Regarding gas, Buffalo City takes the lead closely followed by Amathole (9.7%), Sarah Baartman (8.7%), and Alfred Nzo (8.7%).

Table 35: Source of energy for cooking disaggregated by sex of the household head and district in Eastern Cape Province

		Household head sex		District							
		Male	Female	Sarah Baartman	Amathole	Chris Hani	Joe Gqabi	O.R. Tambo	Alfred Nzo	Buffalo City	Nelson Mandela Bay
Electricity from mains	%	81	79.3	88	76.5	80.8	87.1	74.3	66.2	78	92
	95% CI	[78.3-83.5]	[76.4-81.9]	[81.6-92.4]	[70.0-82.0]	[74.2-86.0]	[80.3-91.9]	[66.9-80.6]	[58.3-73.3]	[73.8-81.6]	[89.5-93.9]
Other source of electricity (e.g., generator, etc.)	%	0.4	0.6	0.1	0.6	1	0.5	0.1	0	0.9	0.5
	95% CI	[0.2-0.7]	[0.3-1.0]	[0.0-0.8]	[0.2-1.9]	[0.5-2.0]	[0.2-1.3]	[0.0-0.9]		[0.4-2.0]	[0.2-1.6]
Gas	%	9	6.6	8.7	9.7	5.8	3	4.7	8.7	14.4	6.3
	95% CI	[7.6-10.6]	[5.5-7.8]	[5.9-12.6]	[7.7-12.1]	[3.8-8.7]	[1.7-5.3]	[2.8-7.9]	[6.0-12.7]	[10.9-18.7]	[4.2-9.4]
Paraffin	%	1.1	1.3	0.5	1.9	1.2	1.3	0.7	1.2	2.4	0.8
	95% CI	[0.8-1.7]	[0.9-1.9]	[0.2-1.7]	[1.0-3.5]	[0.6-2.8]	[0.6-2.9]	[0.2-1.8]	[0.6-2.3]	[1.5-3.8]	[0.2-2.4]
Wood	%	7.8	11.7	1.8	10.9	11.2	7.5	19.7	23.3	1.9	0.3
	95% CI	[6.0-10.2]	[9.2-14.7]	[0.8-4.4]	[6.7-17.2]	[7.2-17.0]	[3.9-13.7]	[13.5-27.7]	[16.3-32.1]	[0.4-7.9]	[0.1-1.0]
Coal	%	0	0.1	0	0.3	0	0.1	0	0.1	0	0
	95% CI	[0.0-0.3]	[0.0-0.3]		[0.1-1.1]		[0.0-1.0]		[0.0-0.9]		
Animal dung	%	0	0.1	0	0	0	0.2	0.2	0	0	0
	95% CI	[0.0-0.1]	[0.0-0.4]				[0.0-1.1]	[0.0-1.1]			
Solar energy	%	0.1	0	0.7	0	0	0.1	0	0	0	0
	95% CI	[0.0-0.7]		[0.1-4.9]			[0.0-1.0]				
Other, specify	%	0.4	0.4	0.1	0.1	0	0.1	0.3	0.4	2.2	0.1
	95% CI	[0.2-1.0]	[0.2-1.0]	[0.0-0.8]	[0.0-0.8]		[0.0-1.0]	[0.0-2.4]	[0.1-2.6]	[0.8-6.5]	[0.0-0.9]
None	%	0	0.1	0	0	0	0	0	0	0.3	0
	95% CI		[0.0-0.5]							[0.0-1.9]	

Most of the households in the Eastern Cape Province (85,3 %) indicated using electricity from the mains as the main source of energy for water heating. The second most common source of energy for water heating is wood (8.2%) (Table 36). A higher proportion of male-headed households (87.3%) used electricity from the mains as the main source of energy for water heating than female-headed households (83.5%) (Table 36). Nelson Mandela Bay (92.6%) had the highest proportion of households using electricity from the mains as the main source of energy for water heating, followed by Sarah Baartman (91.8%) and Joe Gqabi (90.9%) (Table 36). Alfred Nzo (72.9%) had the lowest proportion of households which indicated using electricity as the main source of energy for water heating. Alfred Nzo District (21.2%) had the highest proportion of households that indicated using wood as the main source of energy for water heating followed by O.R. Tambo (14.4%).

Table 36: Source of energy for water heating disaggregated by sex of the household head and district in Eastern Cape Province

		Household head sex		District							
		Male	Female	Sarah Baartman	Amathole	Chris Hani	Joe Gqabi	O.R. Tambo	Alfred Nzo	Buffalo City	Nelson Mandela Bay
Electricity from mains	%	87.3	83.5	91.8	81.4	87.1	90.9	82.6	72.9	85.2	92.6
	95% CI	[85.1-89.2]	[80.9-85.8]	[87.1-94.8]	[76.0-85.8]	[81.3-91.3]	[85.3-94.4]	[76.4-87.4]	[64.4-80.0]	[79.5-89.5]	[89.8-94.7]
Other source of electricity (e.g., Generator)	%	0.6	0.7	0.2	0.6	0.7	0.9	0.2	0.4	1.9	0.4
	95% CI	[0.3-1.1]	[0.4-1.1]	[0.1-0.9]	[0.3-1.6]	[0.3-1.9]	[0.4-2.2]	[0.0-1.1]	[0.1-1.1]	[0.9-3.9]	[0.1-1.6]
Gas	%	1.9	2.2	1.9	2.1	2.5	0.7	1.6	2.5	3.5	1.5
	95% CI	[1.3-2.9]	[1.6-3.0]	[0.8-4.3]	[1.3-3.5]	[1.3-4.7]	[0.2-2.0]	[0.6-4.2]	[1.3-4.6]	[2.3-5.5]	[0.7-3.2]
Paraffin	%	1.1	1.3	0.1	1.9	0.7	1.2	0.8	1	3.2	0.5
	95% CI	[0.7-1.6]	[0.9-1.8]	[0.0-0.9]	[1.0-3.6]	[0.3-1.7]	[0.6-2.5]	[0.3-2.0]	[0.5-1.9]	[1.9-5.1]	[0.2-1.6]
Wood	%	6.6	9.7	1.3	11.4	8.6	5.8	14.4	21.2	1.5	0.1
	95% CI	[5.1-8.5]	[7.7-12.1]	[0.5-3.0]	[8.0-15.9]	[5.5-13.1]	[2.7-12.0]	[9.8-20.5]	[14.8-29.5]	[0.4-4.6]	[0.0-1.0]
Coal	%	0	0.1	0	0.2	0.2	0.2	0	0.1	0	0
	95% CI	[0.0-0.3]	[0.0-0.3]		[0.0-1.1]	[0.0-1.1]	[0.0-1.1]		[0.0-0.9]		
Animal dung	%	0	0.1	0	0.3	0	0	0.2	0	0	0
	95% CI		[0.0-0.4]		[0.1-1.1]			[0.0-1.1]			
Solar energy	%	0.7	0.3	2	0	0	0.1	0	0.2	0.3	1.5
	95% CI	[0.4-1.3]	[0.1-0.8]	[0.8-4.6]			[0.0-1.0]		[0.1-1.0]	[0.1-1.3]	[0.6-3.7]
Other	%	0.5	0.5	0.1	0.2	0.2	0.1	0.3	0.4	2.4	0.1
	95% CI	[0.2-1.2]	[0.2-1.1]	[0.0-0.8]	[0.0-1.1]	[0.0-1.1]	[0.0-1.0]	[0.0-2.4]	[0.1-2.6]	[0.8-7.0]	[0.0-0.9]
None	%	1.2	1.7	2.6	2	0	0.1	0	1.3	2	3.2
	95% CI	[0.8-1.9]	[1.1-2.6]	[1.2-5.6]	[1.0-4.0]		[0.0-1.0]		[0.5-3.5]	[0.9-4.7]	[1.7-5.9]

*CI: Confidence Interval: Subtotals for the province are not always equal due to non-response or missing data

Almost 40.9% of the households indicated using electricity from the mains as the main source of energy for space heating (Table 37). Nearly one-third (33.0%) indicated that they do not use anything for space heating. The second most common source of energy for space heating was wood (11.8%). The third most common source of energy for space heating was paraffin (10.2%). Female-headed households (11.8%) had a higher proportion of households whose main source of energy for space heating is paraffin when compared to male-headed (8.3%) (Table 37). Buffalo City District (54.4%) had the highest proportion of households whose main source of energy for space heating was electricity, followed by Nelson Mandela Bay (49.3%). Alfred Nzo (26.8%) had the highest proportion of the households using wood as the main source for space heating, followed by O.R Tambo (18.5%). Sarah Baartman (41.8%) had the highest proportion of households which indicated that they use nothing for space heating, while Buffalo City (23.2%) had the least.

Table 37: Main source of energy for space heating disaggregated by sex of the household head and district in Eastern Cape Province

		Household head sex		District							
		Male	Female	Sarah Baartman	Amathole	Chris Hani	Joe Gqabi	O.R. Tambo	Alfred Nzo	Buffalo City	Nelson Mandela Bay
Electricity from mains	%	41.70	40.20	38.80	32.20	43.50	41.70	38.20	24.90	54.40	49.30
	95% CI	[38.5-44.9]	[37.4-43.1]	[33.1-44.8]	[27.7-37.1]	[35.4-52.1]	[36.6-47.0]	[32.9-43.7]	[19.9-30.8]	[47.6-61.1]	[42.4-56.3]
Other source of electricity (e.g., Generator)	%	0.40	0.30	0.10	0.20	0.40	0.30	0.60	0.10	1.20	0.10
	95% CI	[0.2-0.8]	[0.2-0.7]	[0.0-0.9]	[0.0-1.1]	[0.1-1.2]	[0.1-1.1]	[0.2-1.7]	[0.0-0.8]	[0.4-3.3]	[0.0-0.9]
Gas	%	3.80	2.60	4.00	1.90	1.80	1.60	2.20	3.50	5.40	4.50
	95% CI	[2.9-4.9]	[1.9-3.5]	[2.0-7.8]	[1.1-3.3]	[0.9-3.4]	[0.9-2.7]	[1.0-4.8]	[2.0-6.0]	[3.6-8.0]	[2.5-7.8]
Paraffin	%	8.30	11.80	5.60	15.80	10.90	16.80	10.60	6.30	14.20	4.40
	95% CI	[6.9-9.9]	[10.1-13.9]	[2.8-10.8]	[11.8-20.7]	[8.3-14.1]	[13.5-20.6]	[7.9-14.1]	[4.5-8.7]	[9.2-21.3]	[2.2-8.6]
Wood	%	11.80	11.80	9.10	13.70	14.40	14.80	18.50	26.80	0.70	1.20
	95% CI	[9.8-14.2]	[9.6-14.5]	[5.5-14.5]	[10.0-18.4]	[10.8-18.9]	[9.5-22.3]	[13.0-25.6]	[19.9-35.0]	[0.3-1.9]	[0.6-2.1]
Coal	%	0.40	0.20	0.10	0.70	0.50	1.00	0.10	0.10	0.00	0.00
	95% CI	[0.2-0.7]	[0.1-0.5]	[0.0-0.9]	[0.3-1.6]	[0.2-1.6]	[0.5-2.2]	[0.0-1.0]	[0.0-1.0]		
Animal dung	%	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00
	95% CI		[0.0-0.3]					[0.0-1.0]			
Solar energy	%	0.10	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	95% CI	[0.0-0.4]		[0.1-2.5]							
Other	%	0.30	0.20	0.10	0.10	0.00	0.00	0.00	0.20	1.00	0.30
	95% CI	[0.1-0.7]	[0.1-0.5]	[0.0-0.8]	[0.0-1.0]				[0.1-0.9]	[0.2-3.8]	[0.1-1.0]
None	%	33.30	32.70	41.80	35.40	28.50	23.80	29.70	38.00	23.20	40.30
	95% CI	[30.7-36.0]	[30.2-35.4]	[35.3-48.6]	[32.2-38.8]	[23.0-34.8]	[19.7-28.6]	[26.4-33.2]	[33.4-42.8]	[18.3-28.8]	[33.2-47.8]

*CI: Confidence Interval: Subtotals for the province are not always equal due to non-response or missing data

5.6 Indigent households

When asked if the household is registered as indigent, only one-third (33.7%) of the households responded 'yes' while 63.2% responded otherwise (Figure 16). About 3.2% of the household did not know whether they were registered as indigent.

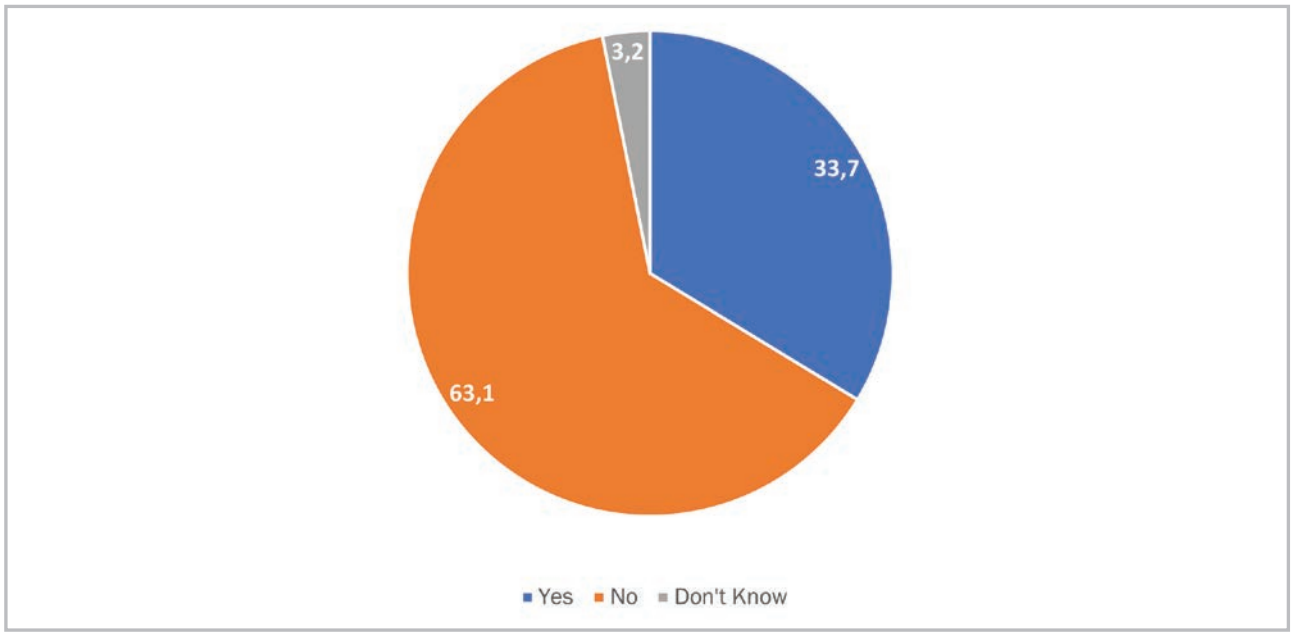


Figure 16: *Proportion of the household registered as indigent (n=6,086)*

A higher proportion of male-headed (35.0%) than female-headed (32.6%) households were registered as indigent in the Eastern Cape Province (Table 38). Sarah Baartman (47.5%) and Buffalo City (47.5%) had the highest proportion of households registered as indigent, followed by Nelson Mandela Bay District (46.7%) and Joe Gqabi (46.1%). O.R. Tambo (21.1%) had the least proportion of households registered as indigent (Table 38).

Table 38: Households registered as indigent disaggregated by sex of the household head and district in Eastern Cape Province

	Yes		No		Don't Know	
	%	95% CI	%	95% CI	%	95% CI
Household head sex						
Male	35.0	[31.5-38.6]	61.7	[58.2-65.0]	3.3	[2.5-4.4]
Female	32.6	[29.2-36.1]	64.4	[60.8-67.9]	3.0	[2.2-4.0]
District						
Sarah Baartman	47.5	[40.9-54.2]	51.3	[44.6-57.9]	1.2	[0.6-2.4]
Amathole	28.4	[22.2-35.6]	67.7	[60.7-73.9]	3.9	[2.3-6.5]
Chris Hani	22.3	[14.7-32.4]	72.8	[62.0-81.5]	4.9	[2.8-8.2]
Joe Gqabi	46.1	[36.3-56.2]	50.2	[39.9-60.5]	3.7	[2.1-6.5]
O.R.Tambo	21.1	[16.2-26.9]	74.6	[68.2-80.0]	4.3	[2.6-7.2]
Alfred Nzo	21.8	[16.1-28.7]	74.4	[66.6-80.9]	3.9	[2.3-6.5]
Buffalo City	47.5	[40.2-55.0]	49.3	[42.5-56.1]	3.2	[1.8-5.6]
Nelson Mandela Bay	46.7	[38.8-54.8]	53.0	[44.9-60.9]	0.4	[0.1-1.0]

6 Agriculture

6.1 Agriculture and Production Systems

This section focuses on the food availability dimension of food security and explores food production within the province by various households. Most households in the African context rely on agriculture as the primary source of food hence they engage in crop and livestock production to provide food for their households. Therefore, this section will characterize land ownership and access, and agriculture production trends across the different districts in the Eastern Cape Province.

Activity	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar
Land preparation (maize)												
Planting (maize)												
Weeding												
Harvesting												
Land preparation (Beans)												
Planting												
Weeding												
Harvesting												
Land preparation (vegetables)												
Planting												
Weeding												
Harvesting												
Off-Farm Employment (CWP)												
Fishing												

Figure 17: *Seasonal calendar (Source: HEA, Qualitative Output)*

Findings from the HEA focus group discussions indicate that agricultural production and value chains have a critical role in household food and nutrition security. Figure 17 depicts a seasonal calendar in the Eastern Cape Province. The rain season (September to February) is characterised by land preparation, planting, and weeding. Much of the rural life in the zone is still determined by agricultural seasons, although this has been ameliorated by employment, fishing, and social grants, which are year-round contributors to people's livelihoods. Livelihood information is organised temporally by consumption year, which begins with the start of the main dry harvest and runs through to just before the next year's main dry harvest. the main dry harvest begins in May, so the consumption year begins that month and runs up until the end of the following April. The livelihood strategies presented in this document apply to a particular year, one that is neither very good nor bad but is 'typical', or occurs frequently.

The main season for farming begins with land preparation in spring, followed by ploughing and planting, depending on the timing of the rains. Weeding (a period of intense activity and one in which work opportunities increase) takes place from December to April, with the dry harvest (another period for employment) beginning in April. The main crops grown during this period are maize, beans, and vegetables. Fishing is done throughout the year and contributes significantly to the livelihood of most households in the province.

6.1.1 Household access to land

In South Africa, there are dual systems when it comes to land rights i.e., statutory law vested in the Constitution and customary law vested mostly in patrilineal tribal traditions and customs (Toulmin, 2008).

Overall, access to land by households in the Eastern Cape Province is high (See Fig 18) with at least 60% of households in five out of the eight district municipalities reporting having access to land. The district with the least number of households with access to land is Cacadu District municipality, sitting at 46%.

It should be noted that most of the land in the Eastern Cape Province is owned through a dual land tenure system. Within O.R. Tambo District, most of the land is either owned by the government or falls under a tribal authority. Legal land tenure in the district includes freehold (in the urban centres and townships), permission to occupy (in rural areas), leasehold, and grazing rights on commonage.

The district with the highest percentage (89%) of access to the land is Alfred Nzo District Municipality. The district is predominately rural, with very few commercial farmlands around Matatiele and Umzimvubu municipal areas. Most of the land in the entire district is state land serving as villages.

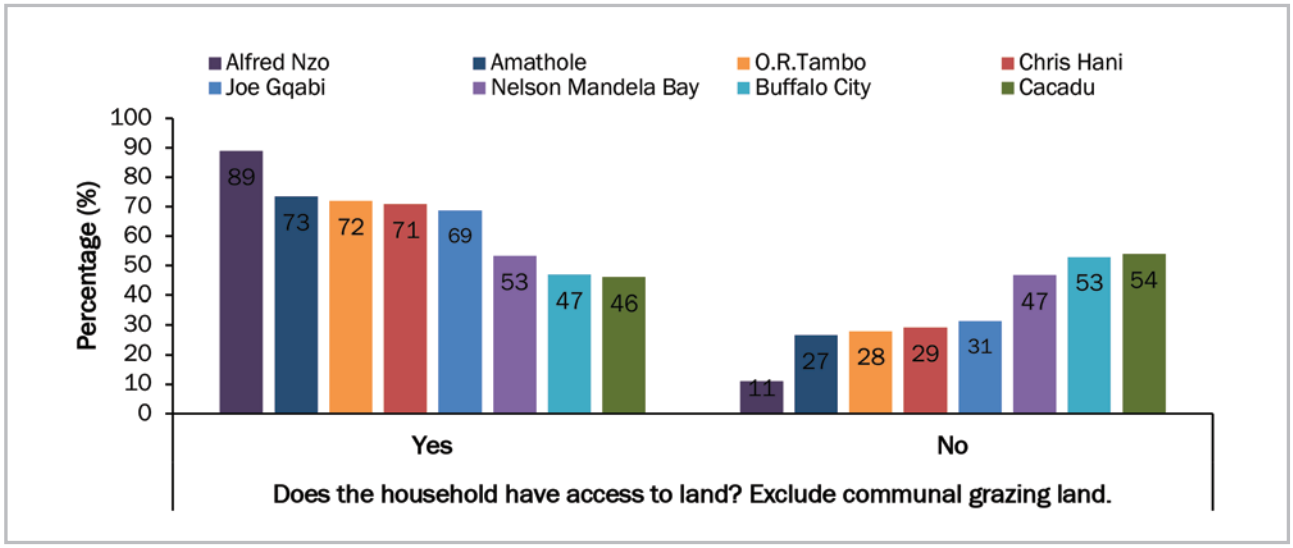


Figure18: *Household access to land in Eastern Cape Province*

Disaggregated by gender, female-headed households were on average having better access to land. This is more pronounced among females in Alfred Nzo with 63%. Cacadu is the only district municipality in the province with the highest percentage where male-headed households have more access to land (63%) in the Eastern Cape province.

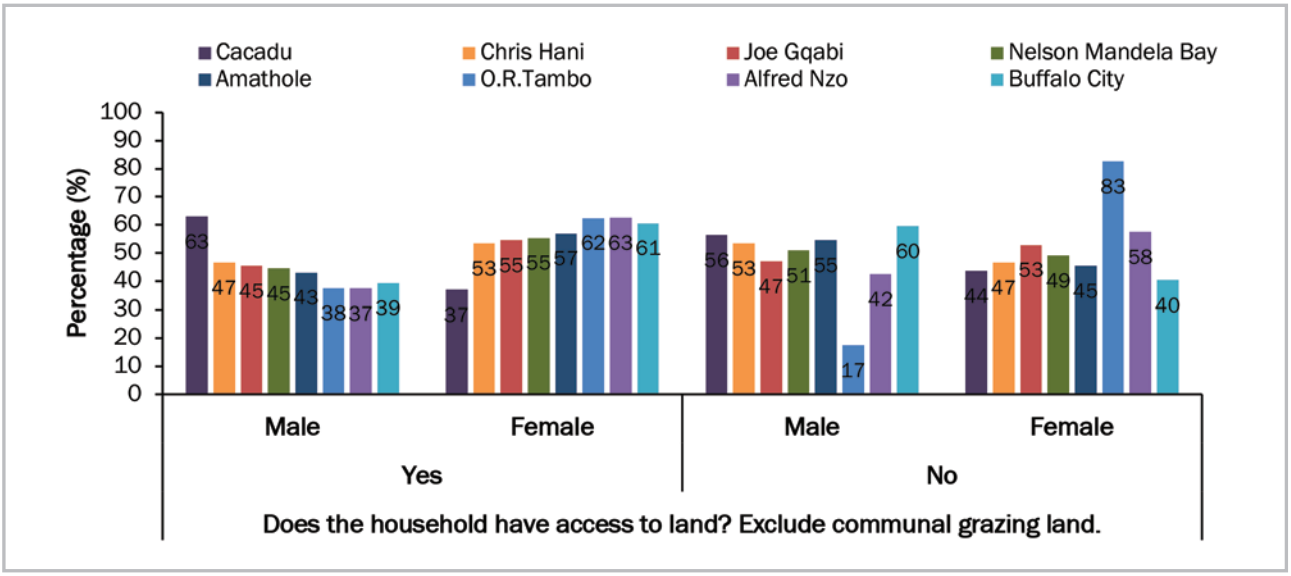


Figure 19: *Land access disaggregated according to household head sex in Eastern Cape Province*

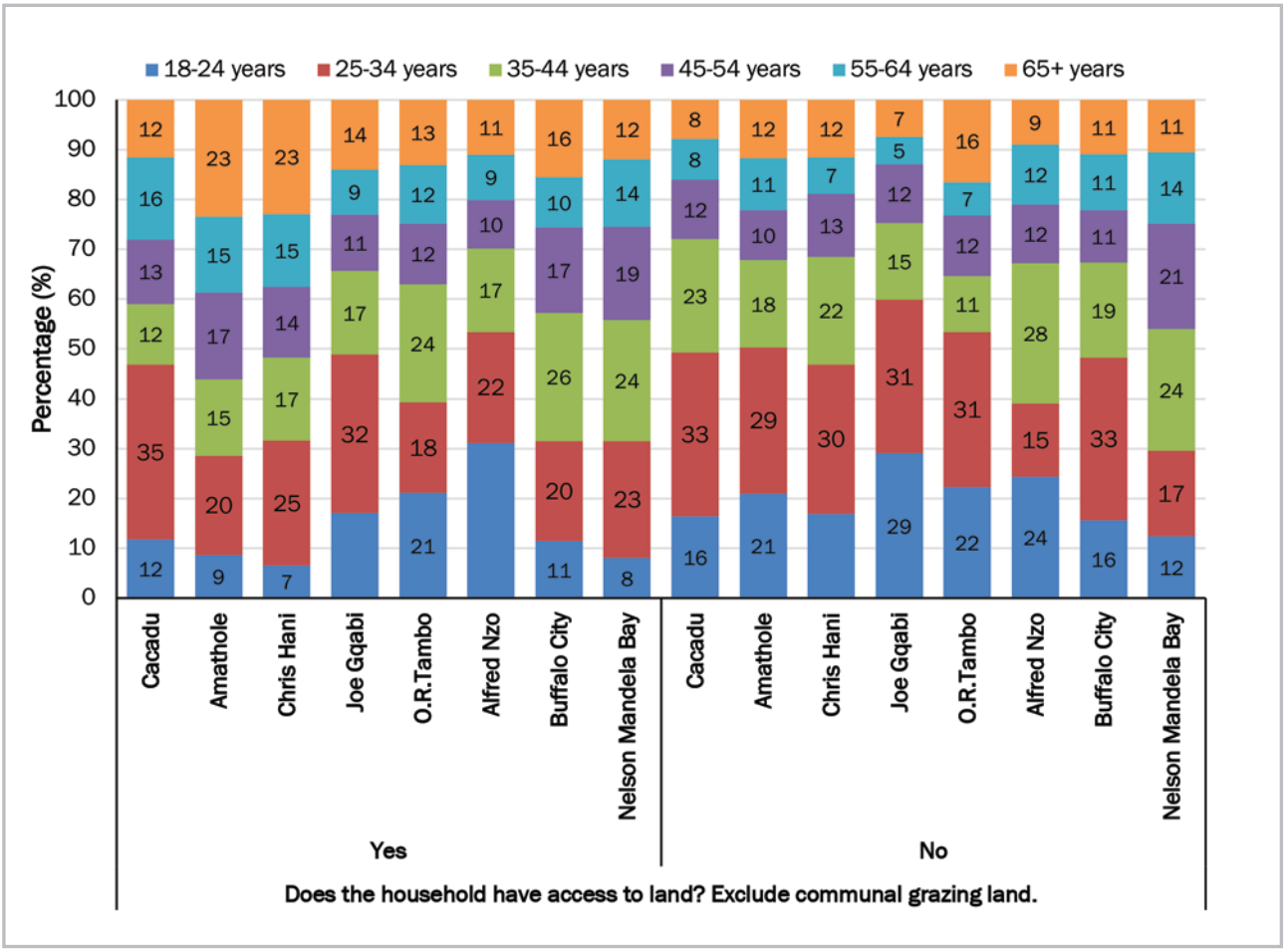


Figure 20: *Access to land disaggregated according to age in Eastern Cape Province*

Land access varied disproportionately according to the different age categories as shown in Figure 20. Entirely, all the respondents in the 18-24 years age category have extremely limited access to land and across the eight districts, except for Alfred Nzo and O.R. Tambo district municipalities, wherein 31% and 21% of the 18-24 age group have access to the land, respectively (Figure 20). It should be noted that as is expected in a well-functioning society, we expected low levels of child-youth headed households are common, hence the extremely low levels of the youth with access to land. As expected, access to land increased with increase in age, that is why in all the districts the age group between 25-44 has the highest percentage of access to land.

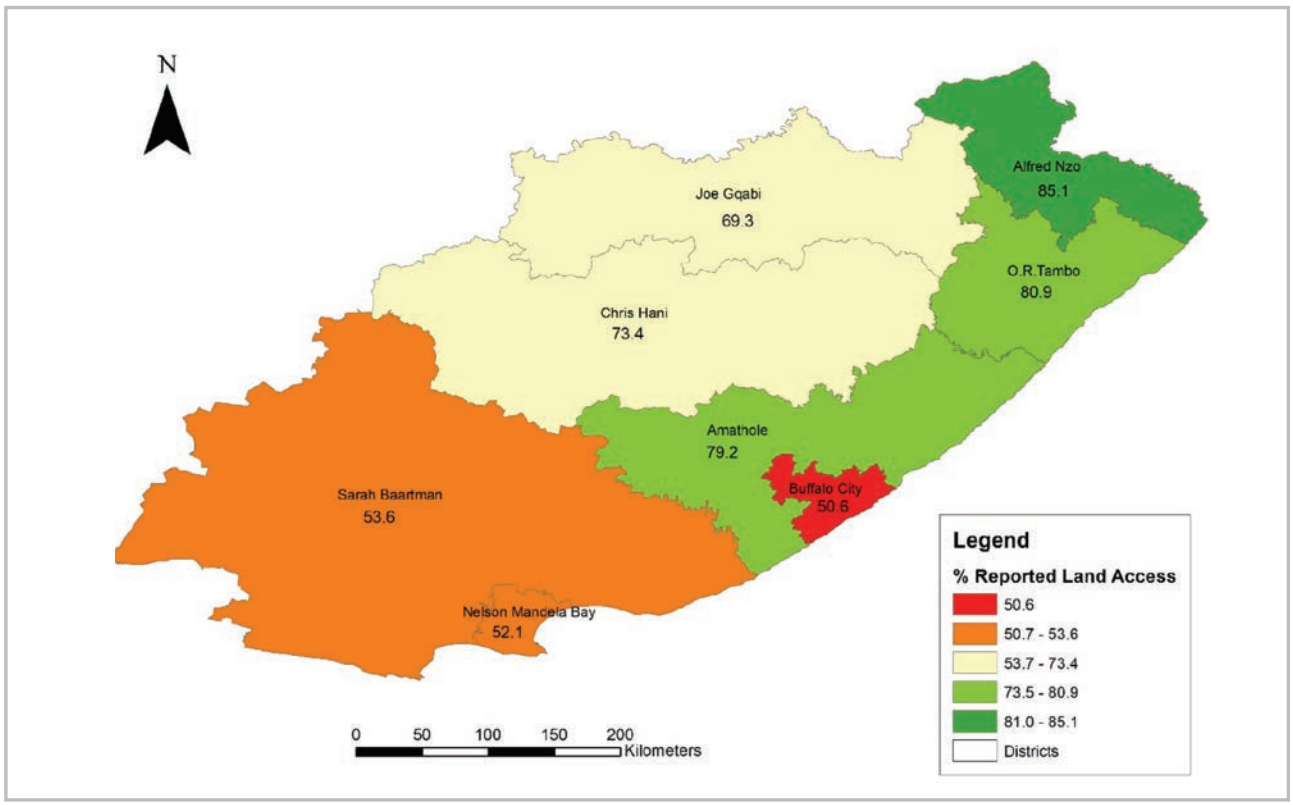


Figure 21: *Land access disaggregated by districts in Eastern Cape Province*

6.1.2 Land tenure system among households in Eastern Cape Province

Results from the household survey show that of the land that they have access to, most of it is owned by the households (Figure 22), with Chris Hani households at the forefront with 99%, followed by OR Tambo with 98% of the households owning the land they have access to. There is, however, a small percentage of households who reside on land which is owned by the state i.e., in Nelson Mandela Bay Metro Municipality, only 12% of the surveyed households reported to be having access to state-owned land, followed by both Joe Ggabi and Buffalo City with 2%. In all the districts, a higher percentage of all the households have access to land which is less than 500m2. This result indicates that the majority of the reported land owned is merely for residential purposes and is not enough for agriculture production purposes (Figure 23). Ownership of the land in this context refers to a small area for dwelling with extremely limited backyard farming or gardening. Alfred Nzo (38%) and Chris Hani (34%) district municipalities have the largest percentage of households with yards bigger than 500 m2 but less than 1000 m^2.

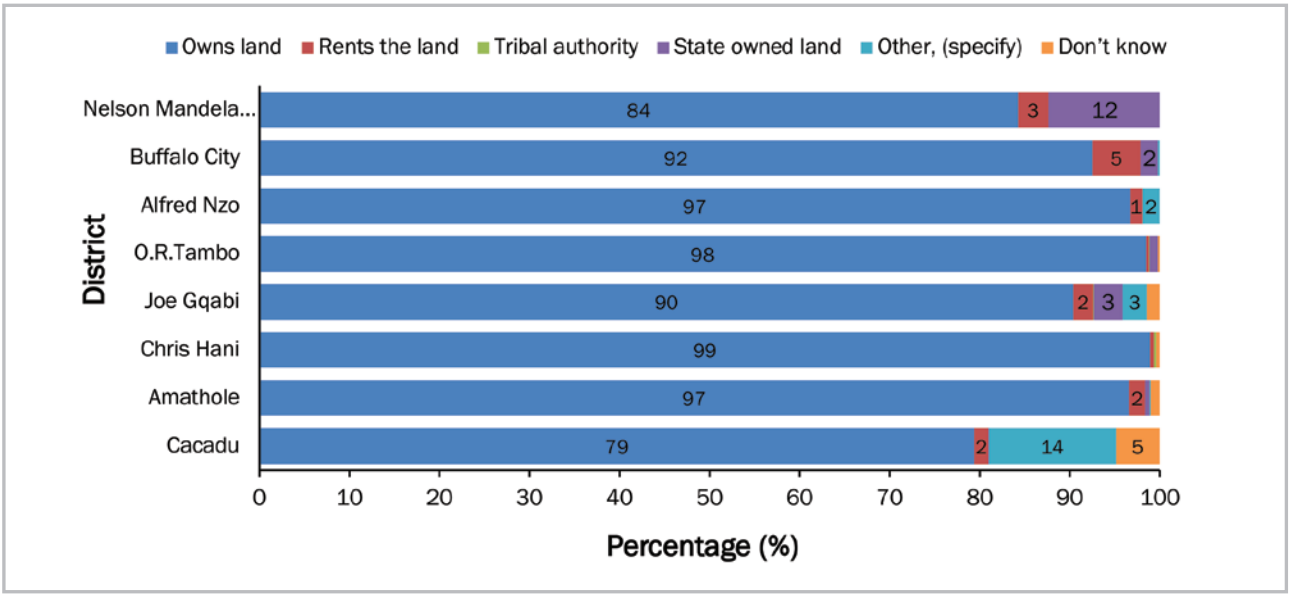


Figure 22: *Land tenure system among households in Eastern Cape Province*

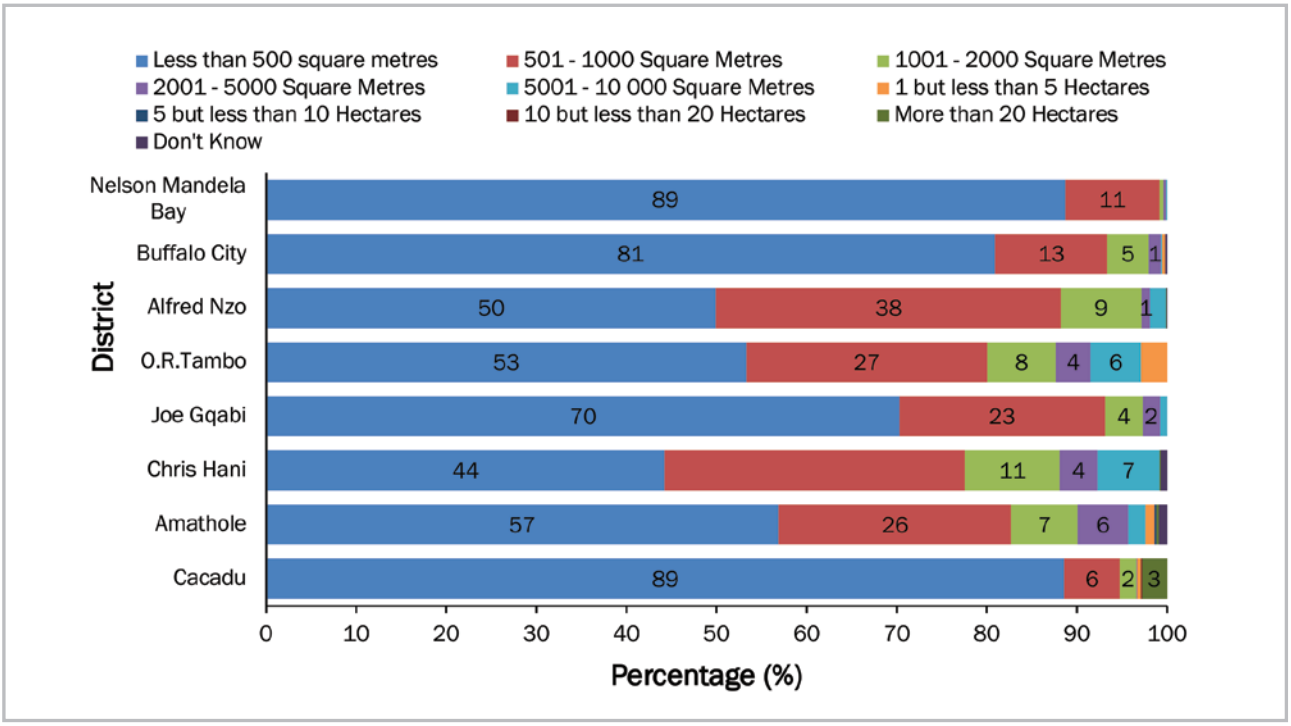


Figure 23: *The approximated agricultural land size accessed by households in Eastern Cape Province*

6.1.3 Use of land for food production or other agricultural products

Within the province, the number of households using their land for food and agricultural production is moderate (Figure 24). OR Tambo has the highest percentage (47%) of households who have access to land which they use for agricultural purposes (Figure 24), followed by Amathole with 41%. Nelson Mandela Bay has the lowest number of households (19%) practising agriculture on their land; the low level of involvement of Nelson Mandela Bay Metro Municipality might be ascribed to the fact that it is highly urbanised, with much of the land being privately owned and used for logistics, aviation, and the services sector.

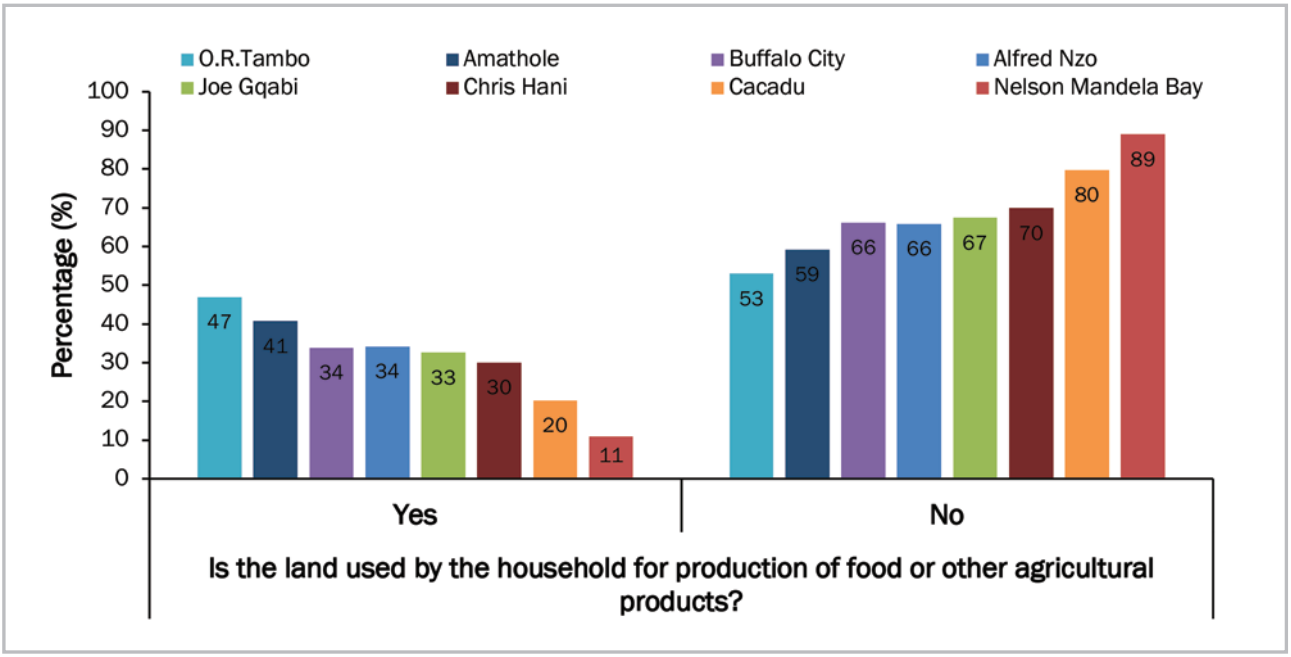


Figure 24: *Land use for food and other agricultural production in Eastern Cape Province*

6.1.4 Crop and livestock production

Households in the Eastern Cape Province are practising livestock production at a slightly lower rate. Chris Hani, Amathole, and OR Tambo district municipalities are the only districts with a slightly higher percentage of livestock production at 86%, 78%, and 64%, respectively (Figure 25). The three municipalities are mainly rural, hence they are at the forefront of livestock production.

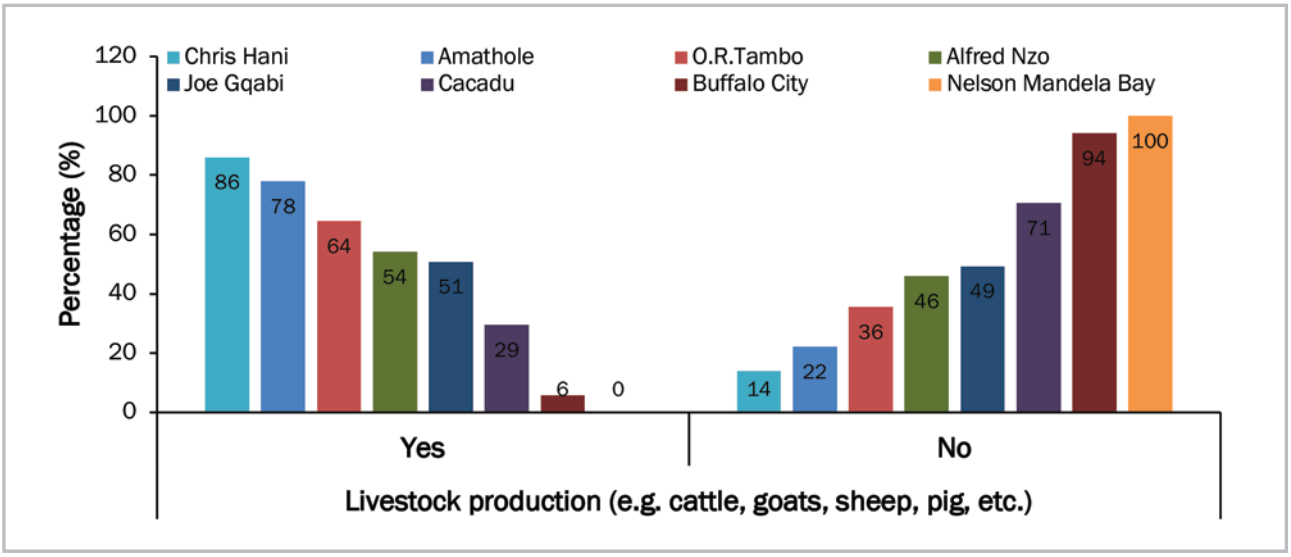


Figure 25: *Livestock production disaggregated by district in Eastern Cape Province.*

Poultry production is practised by a lower number of households in the Eastern Cape Province. The results showed that Alfred Nzo and Chris Hani households are the ones with the highest level of poultry production within the province, with 70% and 60%, respectively (Figure 26).

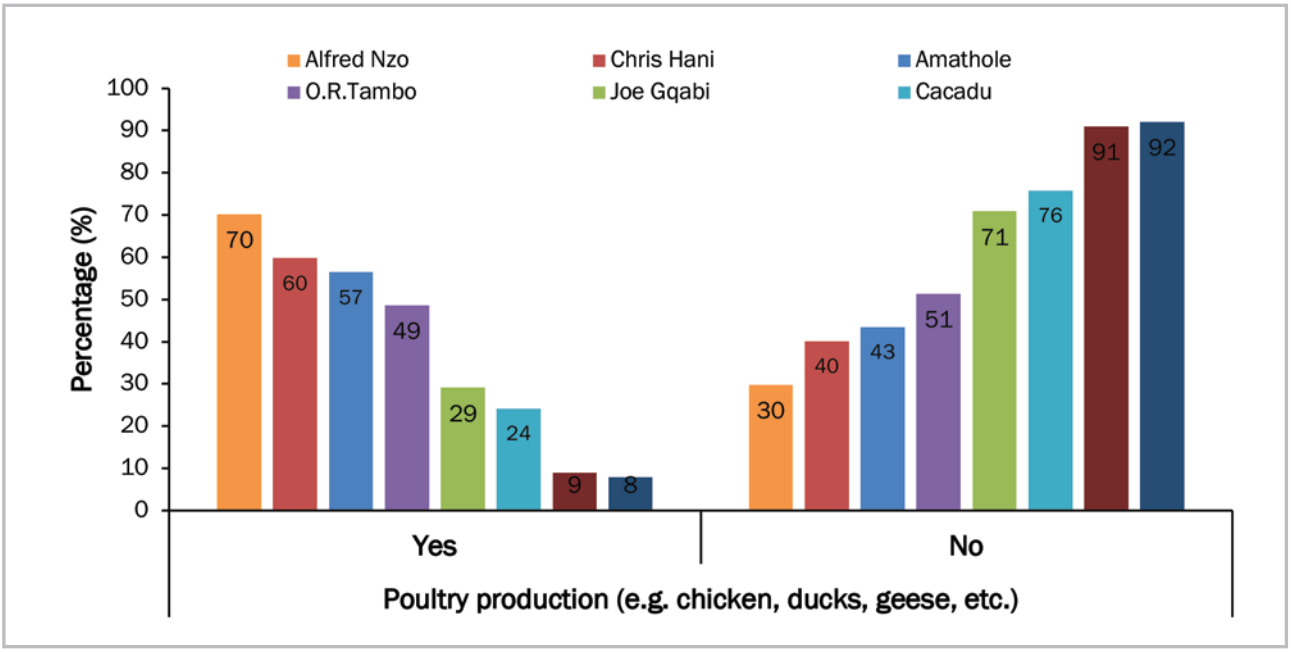


Figure 26: *Poultry production disaggregated by district in Eastern Cape Province.*

Households in the Eastern Cape Province reported an extremely low percentage of engagement in grain crop production, with OR Tambo and Alfred Nzo, reporting to have some fairly moderate level of engagement in crop production at 30% and 29%, respectively (Figure 27).

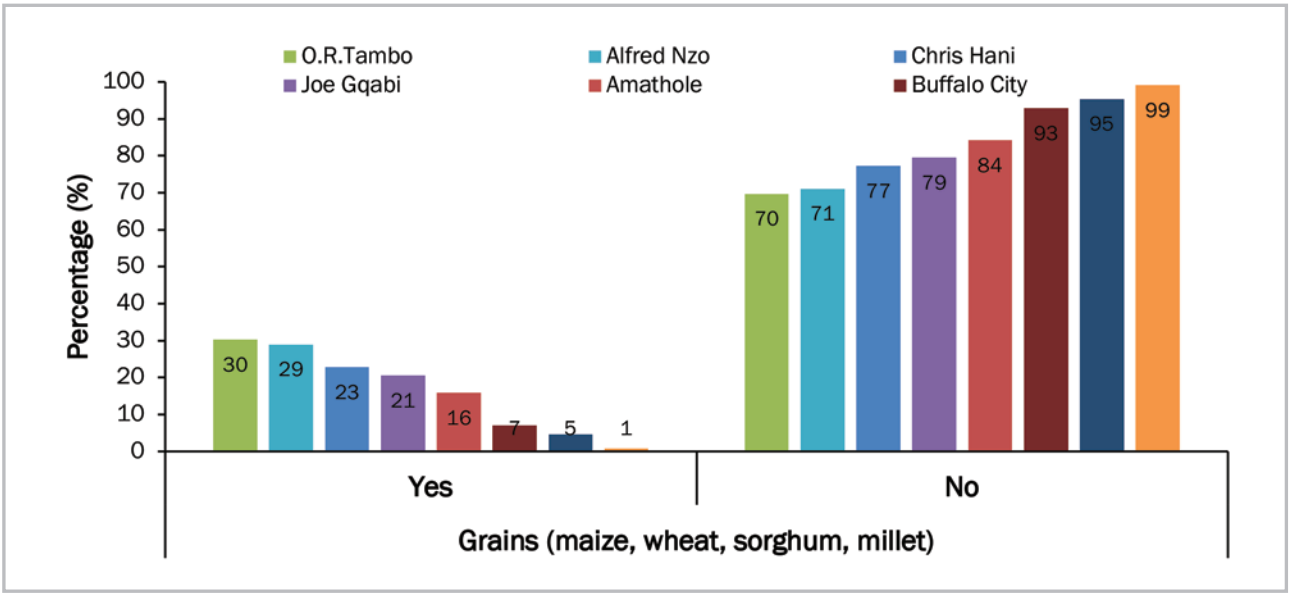


Figure 27: *Household involvement in crop production in Eastern Cape Province*

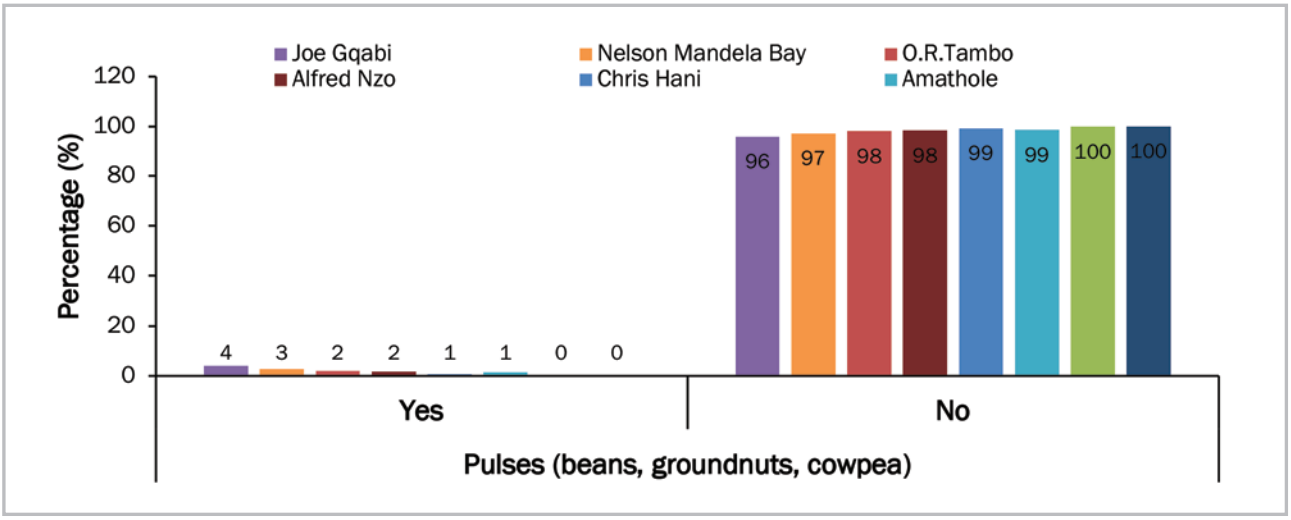


Figure 28: *Pulses Production disaggregated by district in Eastern Cape Province*

The production of pulses was reported to be extremely low to almost non-existent in in almost all the households in the Eastern Cape Province within all eight districts (Figure 28). Joe Gqabi and Nelson Mandela Bay municipalities have been reported to be at the forefront of practising pulse production within the province at 4% and 3%, respectively.

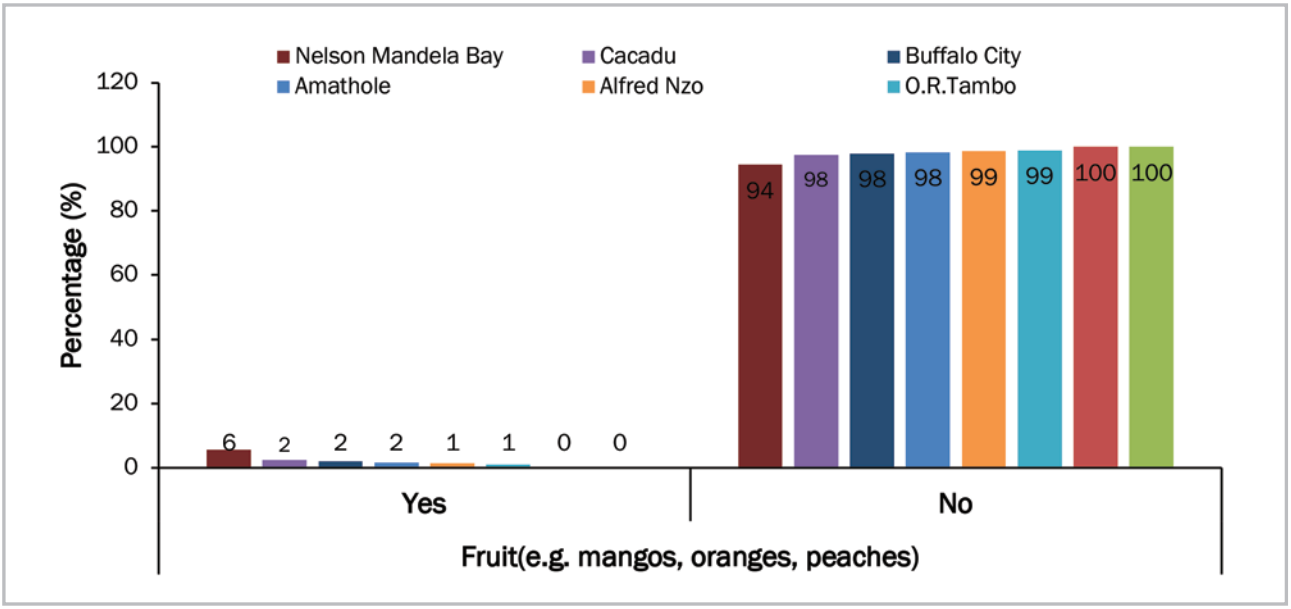


Figure 29: *Household fruit production disaggregated by district in Eastern Cape Province*

Fruit production was reported to be low in all the districts in the Eastern Cape Province. The district with highest fruit production of 6% was Nelson Mandela Bay. It should be noted that the province is known to be producing oranges and prickly pears.

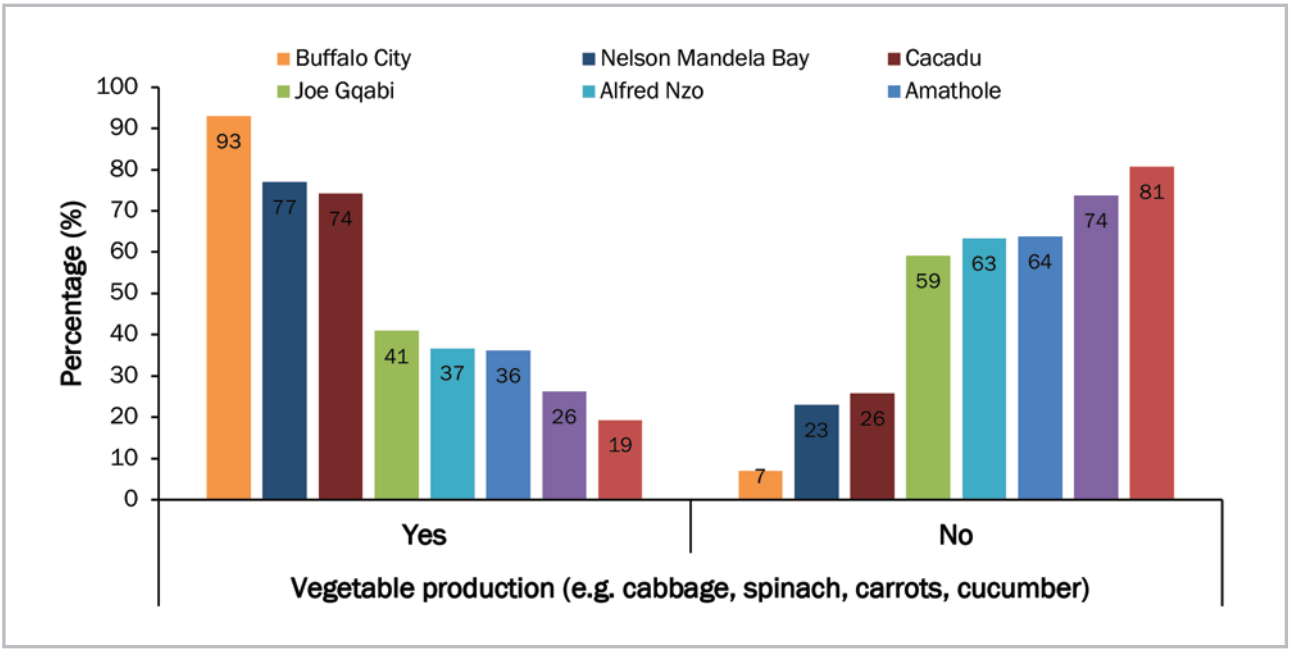


Figure 30: *Household vegetable production in Eastern Cape Province*

Common across all districts is vegetable production with Buffalo City recording 93% households producing vegetable production, followed by Nelson Mandela Bay with 77% and the least being OR Tambo with 19% (Figure 30).

6.1.5 Major crops grown

Results indicate that crop production does not play plays a major role in supplementing food availability among the rural households in the Eastern Cape Province. Household survey results show that only maize is grown by an insignificant percentage of households in this province. Both qualitative and quantitative data show that maize, beans, potatoes, and vegetables are the major crops grown in the open access livelihood zones of the province. Hence agricultural extension services for both livestock and crops are needed by most of the households.

6.2 Wealth Breakdown, Food, and Income Sources

Wealth breakdown is the process by which people within a livelihood zone are grouped together using local definitions of wealth and the quantification of their assets. The wealth breakdowns are used to identify the poorest households or those that are most vulnerable to projected shocks. Criteria was generated by communities thus provide locally relevant sources of information on vulnerability. The level of division depended on how the community viewed their society, and the purpose of the analysis. The wealth group in this case is a group of households within the same community who share similar capacities to exploit the different food and income options within a particular livelihood zone. It disaggregated the population into common 'access' groups, which allowed researchers to see important differences in households' vulnerabilities to different shocks and to estimate numbers of people who will be affected by different changes.

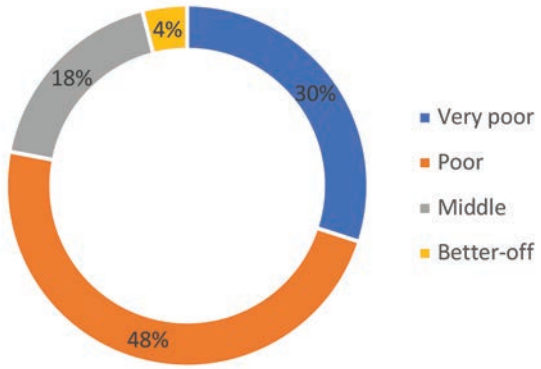
The analysis showed that geography plays a critical role in determining household's options for obtaining food and income in a society. However, it is not the only factor that determines the pattern of livelihood. While geography tends to define a household's options for obtaining food and income, the ability to exploit those options and to survive in a crisis is determined largely by wealth. In other words, what people have by way of land, capital, and livestock, together with their educational status and access to political and social networks determines the ways in which they are able to get food and cash, as well as the ways in which they will respond to sudden or long-term change.

This section provides the analysis of wealth, food, and income sources in the three livelihood zones in the province. The analysis focused on factors that determine how well-off community members might be based on prevailing livelihood assets. The wealth breakdown is the analysis which entails grouping households based on wealth and assets. The investigation of differences between households is central to building a meaningful analysis of food security and vulnerability to different hazards. Results emerging from the HEA focus group discussions indicate that the majority of the households in open access livelihood zones of the province are poor and very poor. This result is a cause for concern with regards to government interventions that need to be tailor-made for the province.

6.2.1 Cold highlands open access livestock (ZACHO) of Alfred Nzo District

Wealth in this area is determined by four factors:

1. Employment, a product of education and good social connections;
2. Ownership of a business, such as a spaza shop or bakkie or taxi;
3. Land holding; and
4. Household livestock ownership.



Category	Item	Wealth Group (typical value in brackets)			
		'Very poor'	'Poor'	'Middle'	'Better off'
Hh Size		8-12 (10)	6-9 (8)	5-7 (6)	4-6 (5)
Land (Ha)	Owned	0-1 (¼)	¼-1 (0.7)	1-3 (1½)	1-3 (2)
	Cultivated	0-1 (0.2)	¼-1 (½)	1-3 (1.3)	1-3 (2)
Livestock (head)	Cattle	(4-6)5	6-8 (7)	8-12 (10)	10-20 (15)
	Goats	6-10 (8)	10-18(14)	15-25 (20)	20-40 (30)
Income	Main	Grants	Grants	Formal employ	Formal employ
	Annual (R)	95,211	103,319	311,957	353,066

Figure 31: *Wealth breakdown in the ZACHO Livelihood Zone*

Land holdings increase with wealth, but not as exponentially as the factors listed above (0.1ha for the poorest against 2ha for the wealthiest). The wealthiest households, described as the 'better-off', are those with permanent work, a salary, and have business opportunities. They have an average annual income of R353,066 compared to the R95,211 of the 'very poor' households. Households that have lower-paying or less permanent formal employment and some business opportunities with average annual income of R311,957 are referred to as the 'middle' (Figure 31). Those who depend primarily on income from grants and informal labour are described as the 'poor' and 'very poor'; collectively, they are about 78% of households. These 'very poor' and 'poor' supplement their grant income with casual labour, self-employment and, in very small quantities, crops and livestock products.

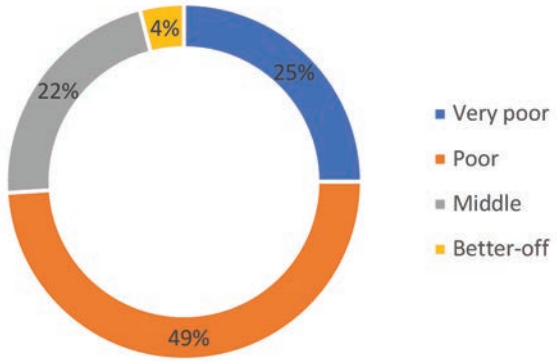
'Better-off' households can develop slightly more land and real livestock for sale, using savings from their other income sources to afford inputs and better livestock management (including labour). Similarly, they derive cash benefits from their animals. Middle households also sell livestock or livestock products. During the Covid-19 lockdown restrictions, the 'poor' and 'very poor' households are the ones who suffer the most impacts of food insecurity.

Livestock holdings also increase substantially with wealth. Cattle are considered more as determinants of wealth; wealthier households do keep them, while they may not keep any small stock - although on average, they do keep more goats than poorer households.

6.2.2 Upper Senqu and Harrismith cereal and cattle (ZAHWC) of Joe Nqabi District

Wealth in this area is determined by four factors:

1. Employment, a product of education and good social connections;
2. Ownership of a business, such as a spaza shop or bakkie or taxi;
3. Land holding; and
4. Household livestock ownership.



Category	Item	Wealth Group (typical value in brackets)			
		'Very poor'	'Poor'	'Middle'	'Better off'
Hh Size		8-10 (9)	7-9 (8)	5-7 (6)	3-5 (4)
Land (Ha)	Owned	0-1 (¼)	¼-1 (0.7)	1-3 (1½)	1-3 (2)
	Cultivated	0-1 (0.2)	¼-1 (½)	1-3 (1.3)	1-3 (2)
Livestock (head)	Cattle	(0-3)2	4-10 (7)	10-15 (10)	10-20 (15)
	Goats	2-12 (7)	11-15(8)	5-15 (10)	20-50 (25)
Income	Main	Grants	Grants	Formal employ	Formal employ
	Annual (R)	75,955	111,081	278,513	402,644

Figure 32: *Wealth breakdown in the ZAHWC Livelihood Zone*

Land holdings increase with wealth, but not as exponentially as the factors listed above (0.1ha for the poorest against 2ha for the wealthiest). The wealthiest households, described as the 'better-off', are those with permanent work, a salary, and have business opportunities. They have an average annual income of R402,644 compared to the R75,955 of the 'very poor' households. Households that have lower-paying or less permanent formal employment and some business opportunities with average annual income of R278,513 are referred

to as the 'middle' (Figure 32). Those who depend primarily on income from grants and informal labour are described as the 'poor' and 'very poor'; collectively, they are about 74% of households. These 'very poor' and 'poor' supplement their grant income with casual labour, self-employment and, in very small quantities, crops and livestock products.

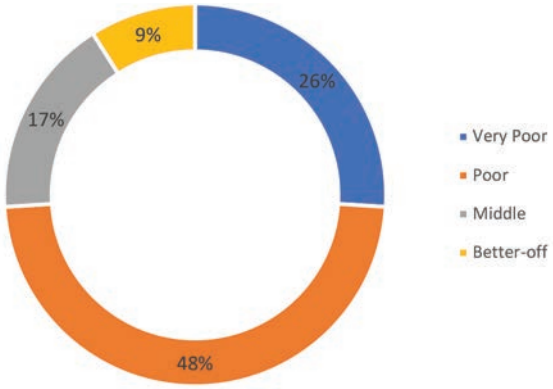
'Better-off' households can develop slightly more land and real livestock for sale, using savings from their other income sources to afford inputs and better livestock management (including labour). Similarly, they derive cash benefit from their animals. 'Middle' households also sell livestock or livestock products. During the Covid-19 lockdown restrictions, the 'poor' and 'very poor' households are the ones who suffer the most impacts of food insecurity.

Livestock holdings also increase substantially with wealth. Cattle are considered more as determinants of wealth; wealthier households do keep them, while they may not keep any small stock - although on average, they do keep more goats than poorer households.

6.2.3 Midlands and coastal open access mixed livestock and crops (ZAMIO) of Alfred Nzo, OR Tambo, Chris Hani, Joe Gqabi and Amathole districts

Wealth in this area is determined by four factors:

1. Employment, a product of education and good social connections;
2. Ownership of a business, such as a spaza shop or bakkie or taxi;
3. Land holding; and
4. Household livestock ownership.



Category	Item	Wealth Group (typical value in brackets)			
		'Very poor'	'Poor'	'Middle'	'Better off'
Hh Size		8-10 (9)	7-9 (8)	5-7 (6)	3-5 (4)
Land (Ha)	Owned	0-1 (¼)	¼-1 (0.7)	1-3 (1½)	2-4 (3)
	Cultivated	0-1 (0.2)	¼-1 (½)	1-3 (1.3)	1-3 (2)
Livestock (head)	Cattle	(0-8)4	10-16 (13)	15-25 (20)	25-35 (30)
	Goats	3-7 (5)	14-15(12)	15-25 (20)	20-40 (30)
Income	Main	Grants	Grants	Formal employ	Formal employ
	Annual (R)	65,5554	94,673	316,544	412,250

Figure 33: *Wealth breakdown in the ZAMIO Livelihood Zone*

Land holdings increase with wealth, but not as exponentially as the factors listed above (0.1ha for the poorest against 3ha for the wealthiest). The wealthiest households, described as the 'better-off', are those with permanent work, a salary, and have business opportunities. They have an average annual income of R412,250 compared to the R65,554 of the 'very poor' households. Households that have lower-paying or less permanent formal employment and some business opportunities with average annual income of R316,544 are referred to as the 'middle' (Figure 33). Those who depend primarily on income from grants and informal labour are described as the 'poor' and 'very poor'; collectively, they are about 74% of households. These 'very poor' and 'poor' supplement their grant income with casual labour, self-employment and, in very small quantities, crops and livestock products.

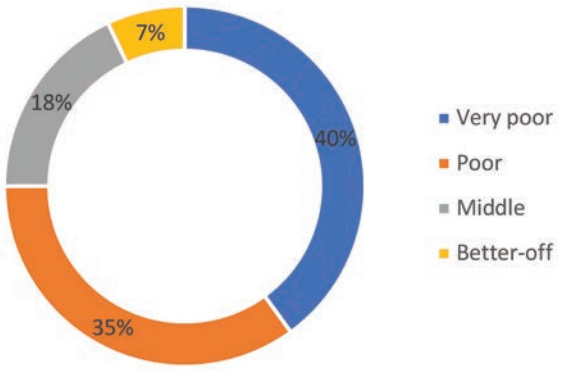
'Better-off' households can develop slightly more land and real livestock for sale, using savings from their other income sources to afford inputs and better livestock management (including labour). Similarly, they derive cash benefit from their animals. Middle households also sell livestock or livestock products. During the Covid-19 lockdown restrictions, the 'poor' and 'very poor' households are the ones who suffer the most impacts of food insecurity.

Livestock holdings also increase substantially with wealth. Cattle are considered more as determinants of wealth; wealthier households do keep them, while they may not keep any small stock - although on average, they do keep more goats than poorer households.

6.2.4 Kou-KammaLangkloof valley crops and livestock (ZALAN) of OR Tambo District

Wealth in this area is determined by four factors:

1. Employment, a product of education and good social connections;
2. Ownership of a business, such as a spaza shop or bakkie or taxi;
3. Land holding; and
4. Household livestock ownership.



Category	Item	Wealth Group (typical value in brackets)			
		'Very poor'	'Poor'	'Middle'	'Better off'
Hh Size		8-10 (9)	7-9 (8)	5-7 (6)	4-6 (5)
Land (Ha)	Owned	0-1 (¼)	¼-1 (0.7)	1-3 (1½)	2-4 (3)
	Cultivated	0-1 (0.2)	¼-1 (½)	1-3 (1.3)	1-3 (2)
Livestock (head)	Cattle	(0-2)1	1-3 (2)	4-6 (5)	5-15 (10)
	Goats	0-2 (1)	2-4(3)	5-15 (10)	10-20 (15)
Income	Main	Grants	Grants	Formal employ	Formal employ
	Annual (R)	103,660	125,969	178,176	346,134

Figure 34: *Wealth breakdown in the ZALAN Livelihood Zone*

Land holdings increase with wealth, but not as exponentially as the factors listed above (0.1ha for the poorest against 3ha for the wealthiest). The wealthiest households, described as the 'better-off', are those with permanent work, a salary, and have business opportunities. They have an average annual income of R412,250 compared to the R65,554 of the 'very poor' households. Households that have lower-paying or less permanent formal employment and some business opportunities with average annual income of R316,544 are referred to as the 'middle' (Figure 34). Those who depend primarily on income from grants and informal labour are described as the 'poor' and 'very poor'; collectively, they are about 75% of households. These 'very poor' and 'poor' supplement their grant income with casual labour, self-employment and, in very small quantities, crops and livestock products.

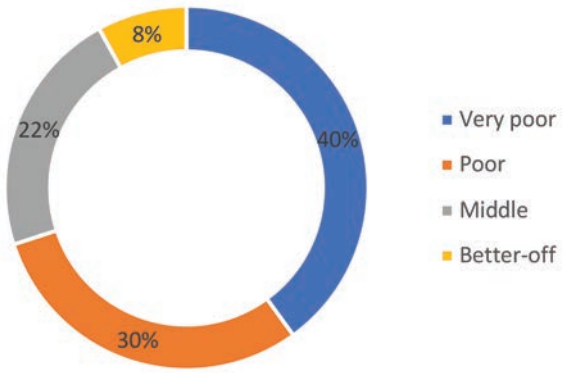
'Better-off' households can develop slightly more land and real livestock for sale, using savings from their other income sources to afford inputs and better livestock management (including labour). Similarly, they derive cash benefit from their animals. Middle households also sell livestock or livestock products. During the Covid-19 lockdown restrictions, the 'poor' and 'very poor' households are the ones who suffer the most impacts of food insecurity.

Livestock holdings also increase substantially with wealth. Cattle are considered more as determinants of wealth; wealthier households do keep them, while they may not keep any small stock - although on average, they do keep more goats than poorer households.

6.2.5 Baviaans Karoo Mountains livestock (ZAKUK) of Buffalo City and Nelson Mandela Bay districts

Wealth in this area is determined by four factors:

1. Employment, a product of education and good social connections;
2. Ownership of a business, such as a spaza shop or bakkie or taxi;
3. Land holding; and
4. Household livestock ownership.



Category	Item	Wealth Group (typical value in brackets)			
		'Very poor'	'Poor'	'Middle'	'Better off'
Hh Size		8-14 (11)	7-13 (10)	6-8 (7)	4-6 (5)
Land (Ha)	Owned	0-1 (¼)	¼-1 (0.7)	1-2 (1.5)	1-2 (1.5)
	Cultivated	0-1 (0.2)	¼-1 (½)	1-2 (1.5)	1-2 (1.5)
Livestock (head)	Cattle	(0-2)1	1-3 (2)	5-13 (9)	10-20 (15)
	Goats	0-2 (1)	2-4(3)	5-15 (10)	8-20 (14)
Income	Main	Grants	Grants	Formal employ	Formal employ
	Annual (R)	103,660	125,969	198,460	387,062

Figure 35: *Wealth breakdown in the ZAKUK Livelihood Zone*

Land holdings increase with wealth, but not as exponentially as the factors listed above (0.1ha for the poorest against 1.5ha for the wealthiest). The wealthiest households, described as the 'better-off', are those with permanent work, a salary, and have business opportunities. They have an average annual income of R387 062 compared to the R103 660 of the 'very poor' households. Households that have lower-paying or less permanent formal employment and some business opportunities with average annual income of R198 460 are referred to as the 'middle' (Figure 35). Those who depend primarily on income from grants and informal labour are described as the 'poor' and 'very poor'; collectively, they are about 70% of households. These 'very poor' and 'poor' supplement their grant income with casual labour, self-employment and, in very small quantities, crops and livestock products.

'Better-off' households can develop slightly more land and real livestock for sale, using savings from their other income sources to afford inputs and better livestock management (including labour). Similarly, they derive cash benefit from their animals. Middle households also sell livestock or livestock products. During the COVID-19 lockdown restrictions, the 'poor' and 'very poor' households are the ones who suffer the most impacts of food insecurity.

Livestock holdings also increase substantially with wealth. Cattle are considered more as determinants of wealth; wealthier households do keep them, while they may not keep any small stock - although on average, they do keep more goats than poorer households.

6.2.6 Sources of food (ZALAN) of O.R. Tambo District

Sources of food are expressed in terms of contribution to the minimum human food energy needs, which is 8,800 kJ/person/day. Wealthier households may consume considerably more than this, for example 12,144 kJ/person/day, which is 138% of minimum food needs. Some of this consumption may be wasted, for example when food is thrown away or incompletely eaten. Even the poorest households may consume slightly more than the minimum requirement, for example 111%, or 9,768 kJ/person/day. Figure 36 was generated from HEA focus group discussions spread sheet data depicting sources of food for households within the ZALAN livelihood zone in Eastern Cape Province. Crop production contributed about 14% and 15% of the food sources for the 'very poor' and 'poor' wealth groups respectively. Food purchases contributed about 52% and 69% of the food needs for the middle and better-off households respectively. Despite the rainfall and some fertile soils, purchases still made up a significant portion of people's sources of food. The contribution to food energy from non-staple food purchase increased steadily from 21% to 32% across the wealth groups. The 'very poor' and 'poor' households also accessed food from food aid from both state and non-state actors implementing various safety net programmes. The 'very poor' and 'poor' households could hardly cover their basic food and livelihoods needs in normal times, leaving little financial ability to invest in their children's needs such as education. About 73% and 65% of the 'very poor' and 'poor' households' food needs were drastically affected by Covid-19 restrictions, leaving them vulnerable to food insecurity.

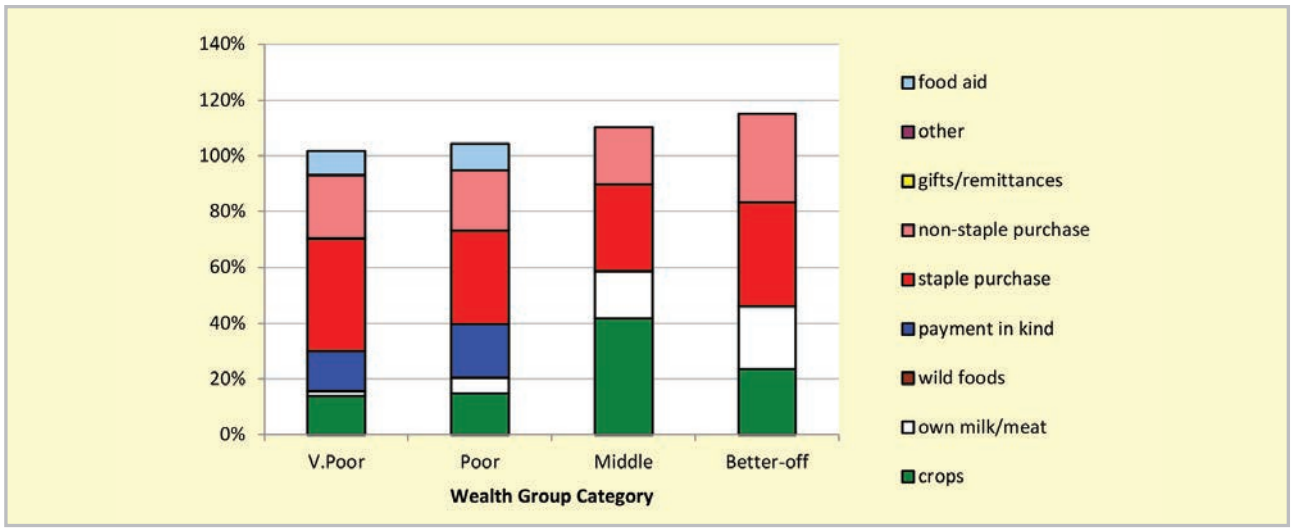


Figure 36: *Sources of food in ZALAN (expressed as percentage of minimum average food energy needs) for each wealth group (Source: HEA, Qualitative Output)*

Wealthier households have capital for inputs and hired labour, ensuring their crops are planted and weeded in time as well as being protected from pests. 'Middle' and 'better-off' households obtained a tiny proportion of their food needs from their livestock (17% to 23%); this was usually from cow milk and occasional slaughter for meat. Dairy production in this zone is not commensurate with herd sizes and livestock ownership. In general, a fraction of lactating cows (about 1 in 8) is milked for consumption.

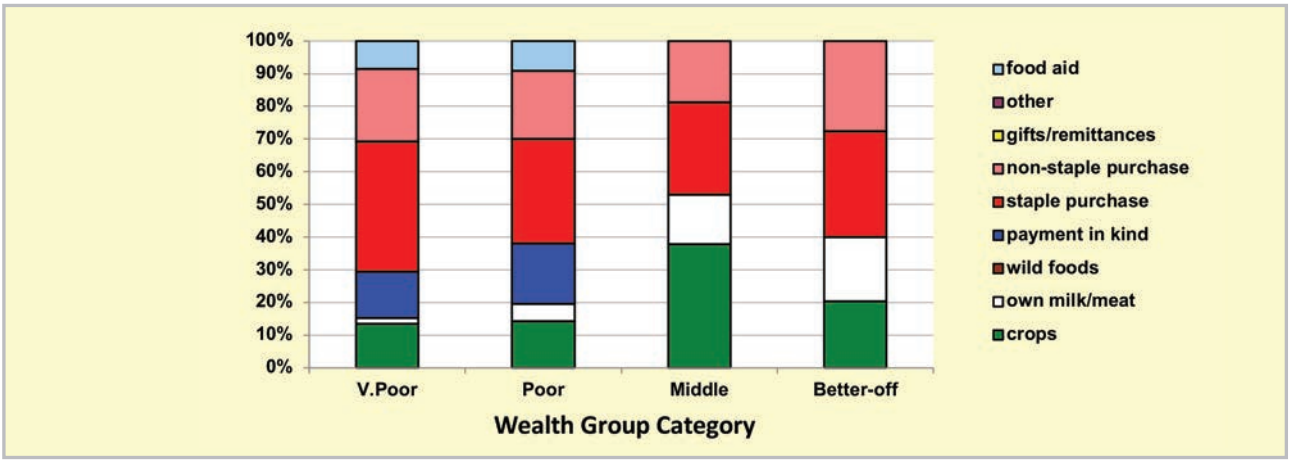


Figure 37: *Sources of food in ZALAN (expressed as percentage of overall total food energy needs) for each wealth group (Source: HEA, Qualitative Output)*

The poorest households' children received additional food from school lunches, which is the official food assistance. Some wealthier households tend to send their children to fee-paying schools that do not offer meals.

6.2.6.1 Gender analysis of who produces food in ZALAN of OR Tambo district

Policy makers recognize that youths and women represent a vast human resource potential in development, with their own specific problems, concerns, needs, and aspirations. They need to be promoted to ensure their participation, equity, and equality in all development programmes. Gender and social status play an important role in determining access to food and cash, and responses to shocks and change. 'Poor' female-headed households with little land may work for 'better-off' households to get money to buy food; the 'better-off' may use profits from agriculture and employment as capital to engage in trade and business enterprises. In the event of a crisis, such as the Covid-19 lockdowns, 'poor' and 'better-off' households are affected differently. The lockdowns meant that 'poor' households lost opportunities to hire out their labour and obtain income for their daily needs, whereas the 'better-off' households managed to use their savings to cushion their households from food insecurity. Therefore, different wealth groups warrant separate examination for relevant policy options to improve their household welfare.

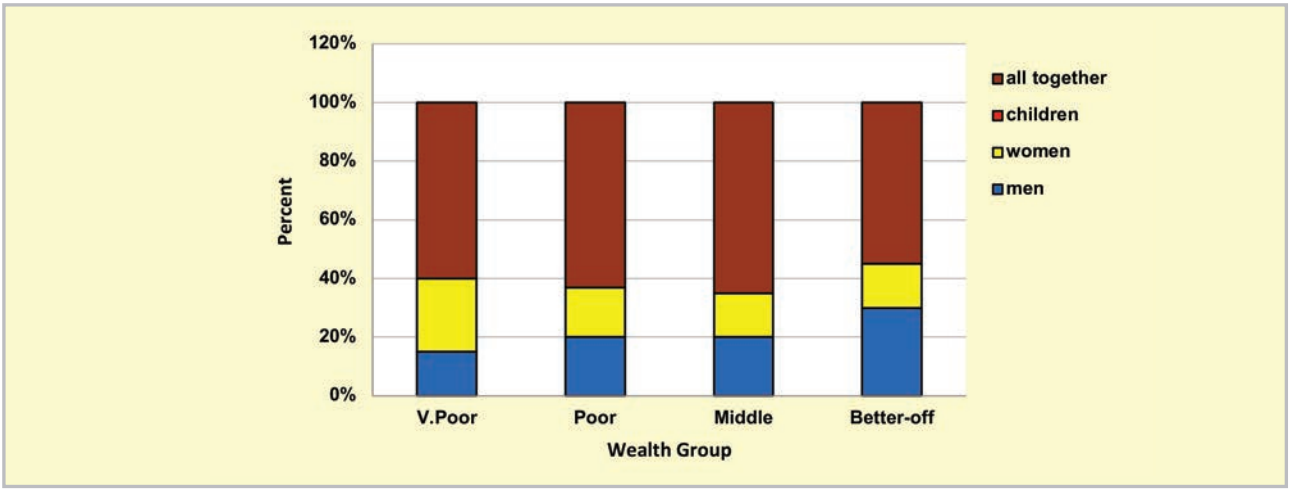


Figure 38: *Gender breakdown of who produces food in the zone for each wealth group (Source: HEA, Qualitative Output)*

The results indicated that men and women altogether contributed significantly to generate food. This was about 60% across all wealth groups. Women appear to contribute significantly to production of food among all wealth groups, ranging from 15% among 'better-off' and 25% among very poor households (Figure 38). However, there are still challenges and emerging issues relating to gender mainstreaming and youth participation in development. These include HIV and AIDS, poor youth participation in the development agenda, gender-based violence (GBV), increased environmental degradation, climate change and high levels of poverty. Women still face many challenges, including the burden of care which takes away much of their time for productive work. They also have poor access to extension services, information, inputs, and markets. As a result, addressing the gender gap in development including agriculture could raise the scale of economic activities, crop production, boost agricultural yield, overall GDP, and a significant proportion of people out of poverty. Further, there has been a general inadequacy among all the gender structures at all levels to maintain a collective and sustained response to gender and youth empowerment issues.

6.2.6.2 Sources of cash income in ZALAN of OR Tambo District

Cash incomes varied considerably across wealth groups, with the 'better-off' earning R387 062 per annum, three to six times as much as the 'very poor', who earned only R104 920 per annum. Figure 39 shows this distribution - it must be noted that the bars in the figure are not quartiles, they represent wealth groups and wealth groups are not distributed evenly.

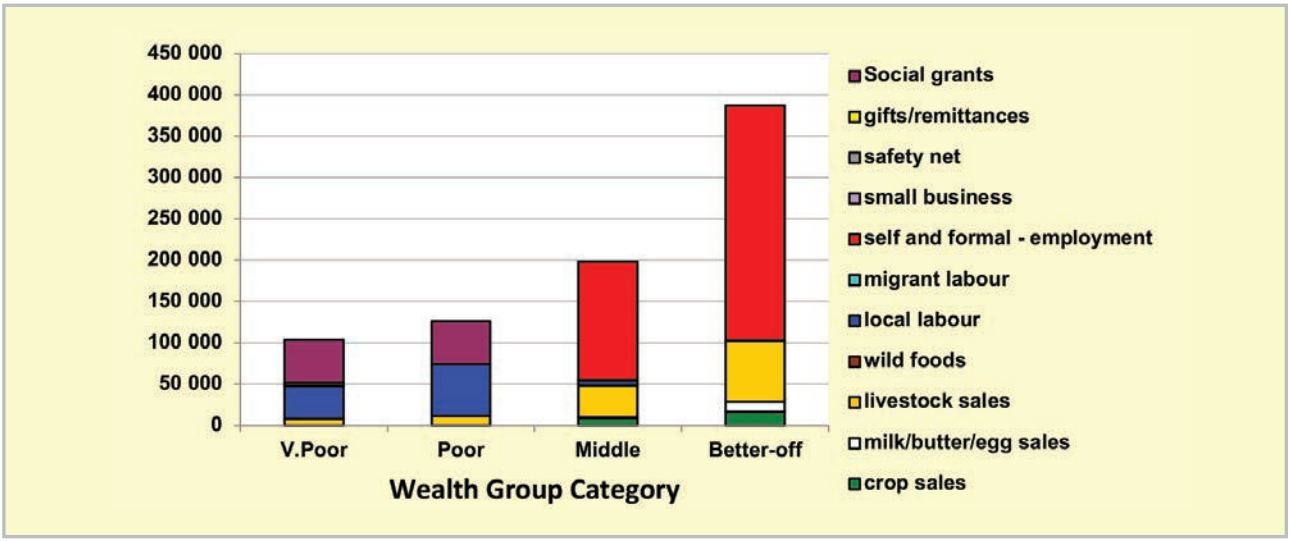


Figure 39: *Sources of annual cash income by wealth group in ZALAN (Source: HEA, Qualitative Output)*

The main sources of cash incomes in the zone are livestock sales and employment - for the 'middle' and 'better-off' - and cash grants and hiring out of local labour, for the 'poor' and 'very poor'. This is in keeping with most surveys that ask for the main livelihood source.

However, the point of this enquiry was to gain an understanding of how all livelihood sources come together to make up an income. This is essential because it enables practitioners to link a hazard (such as a price change) to outcomes, and it enables other users to see potential areas of intervention. By dividing the value of each source by the total income, we can see these proportions, and this is presented in the graph in Figure 40.

For the 'very poor' and 'poor', grants made up 50% and 40% of total cash income, respectively; the remainder was from casual labour (mostly domestic work, agricultural piece work, construction jobs) and self-employment (collecting natural products for sale, weaving, making bricks, etc.). The 'poor' earn small amounts of income through livestock sales (usually goats), gifts/ remittances, and employment. This, coupled with a small income from the formal sector, was what distinguishes their livelihoods from that of the 'very poor'. The analysis showed that poor households would lose up to half of their income sources due to COVID-19 lockdowns and any movement restrictions in the area. Income from casual labour would not be available during the pandemic lockdowns, leading to a worsening food security situation for the 'very poor' and 'poor' households who comprise of the majority of the population in this area.

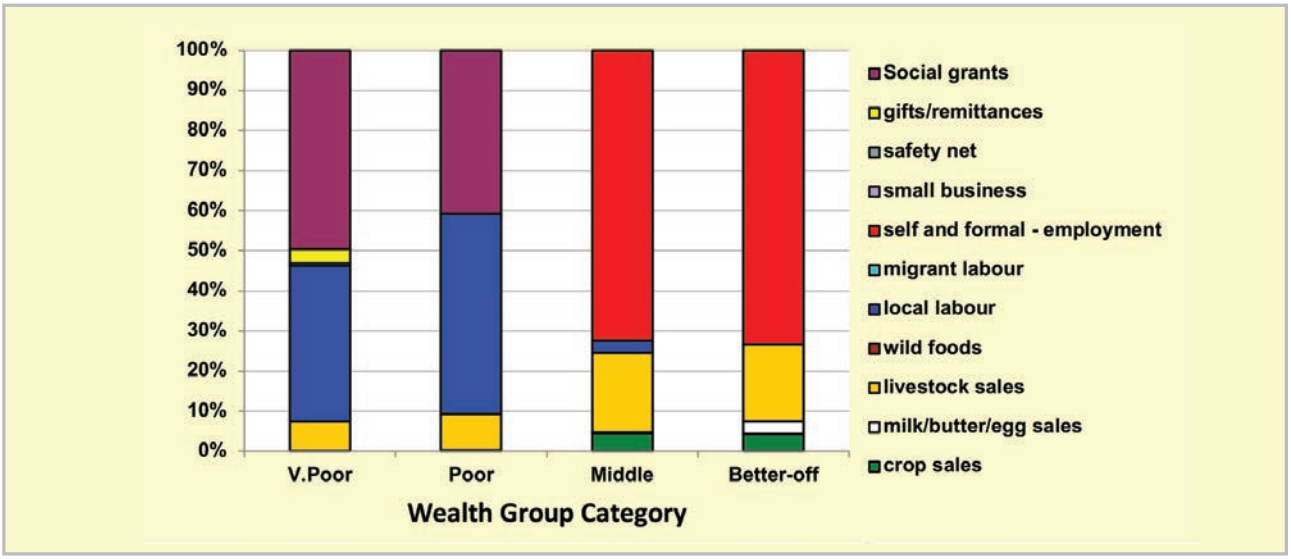


Figure 40: *Sources of annual cash income as a percentage of total, by wealth group in ZALAN (Source: HEA, Qualitative Output)*

The 'middle' and 'better-off' gain their cash from a formal wage or salary for the better part of their income. Some 'middle' households may have a member that works seasonally on the commercial farms, but earnings typically amount to almost R126 000 per annum, while the 'better-off' earn around R168 000 per annum. 'Middle' and 'better-off' households also gain a little cash from grants (for example, pensions and fostering are not means-tested and the probability of a household having a pensioner in it is about one in two). The 'middle' and 'better-off' wealth groups also have employment opportunities and businesses which contribute to their improved livelihood and welfare. These well-off households were able to cushion their food availability and access even during lockdowns as they can buy in bulk and store during any unforeseen event or crisis.
The earnings from livestock products are very low for the 'very poor' and 'poor' households, which is lost productivity. This is very significant among 'middle' and 'better-off' households (R39 421 and R74 029, respectively) (Figure 40). The number of cows that are milked compared with those likely to be lactating is low and this is due to a few factors: lack of economic incentives for milking, lack of time by the cattle-owners (because they are full-time employed), and minimal herd management.

6.2.6.3 Sources of food and income in ZACHO of Alfred Ndzo District

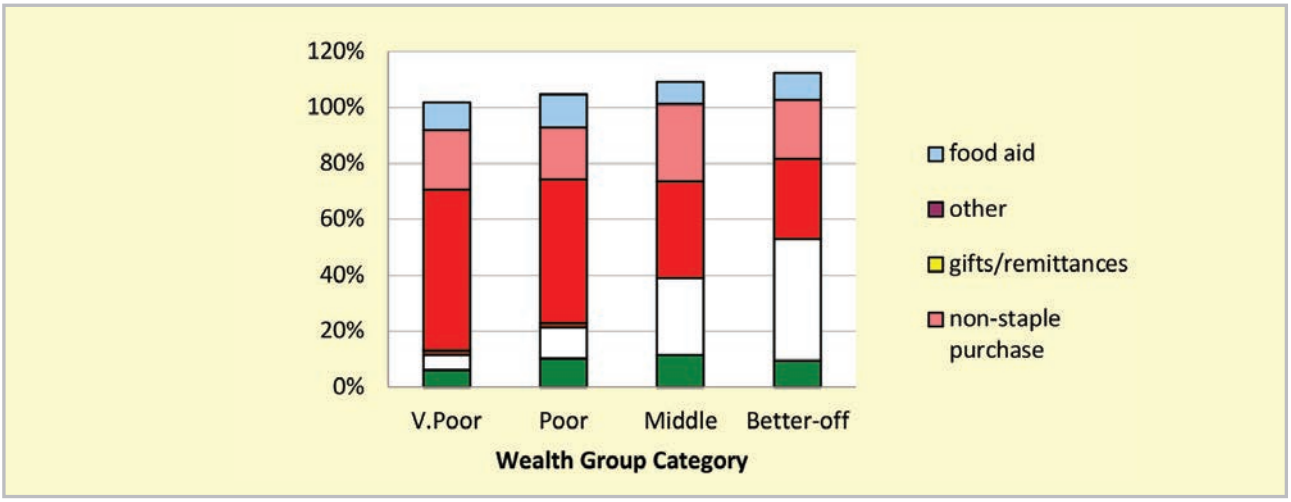


Figure 41: *Sources of food in ZACHO (expressed as percentage of minimum average food energy needs) for each wealth group (Source: HEA, Qualitative Output)*

Purchases were the largest source of people's food, contributing about 50% to 79% of minimum food energy needs (Figure 41). The contribution from staple food purchases decreased steadily as households get wealthier. Conversely, the contribution from non-staple food purchases increased with increasing wealth. Most households and all wealth groups also consume food from their own crop production, although this was only about 4% for the 'very poor' because they lack the labour and capital to produce any significant quantities of their own food. The 'better-off' and 'middle' have the highest contribution to their food energy from both staple and non-staple crops, at about 12% to 9% of their minimum needs, respectively. The analysis showed that about 85% and 80% of the food purchases which needed to be obtained on almost a daily basis from local markets were affected for the 'very poor' and 'poor' households in this area during Covid-19 lockdowns. This exacerbated the food insecurity level of the 'poor' and 'very poor' households in Waterberg and Capricorn districts.

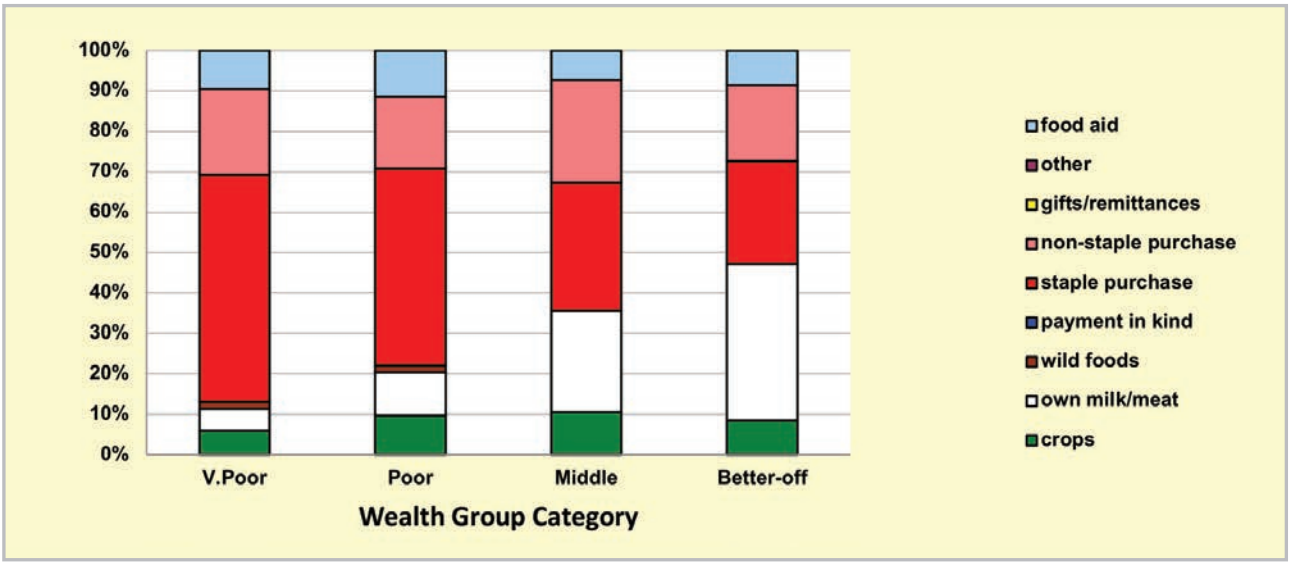


Figure 42: *Food source as a contribution to the total in ZACHO Livelihood Zone (Source: HEA, Qualitative Output)*

Only the 'middle' and 'better-off' households obtain substantial food from their livestock products; this is usually from cow's milk and occasional slaughter for meat (the 'poor' obtain a small contribution from the meat of an occasional slaughter). Dairy production in this zone is not commensurate with herd sizes and livestock ownership. In general, a fraction of lactating cows (about 1:3 to 1:6) is milked for consumption.

The poorest households' children receive additional food from school lunches, which is the official food assistance. This food source for the 'poor' households was also affected as schools were closed during the Covid-19 lockdowns. Wealthier households tend to send their children to fee-paying schools that do not offer meals. All households may collect wild foods for consumption (e.g., mushrooms or wild fruits) but the quantities involved do not merit a significant contribution to food energy.

6.2.6.4 Gender breakdown of who produces food

Policy makers recognize the need for a participatory and inclusive approach to improving access to food and income in the communities. There is a need to promote and ensure inclusion of the youths and women in food production. This is very critical to promote and ensure participation, equity, and equality in all development programmes.

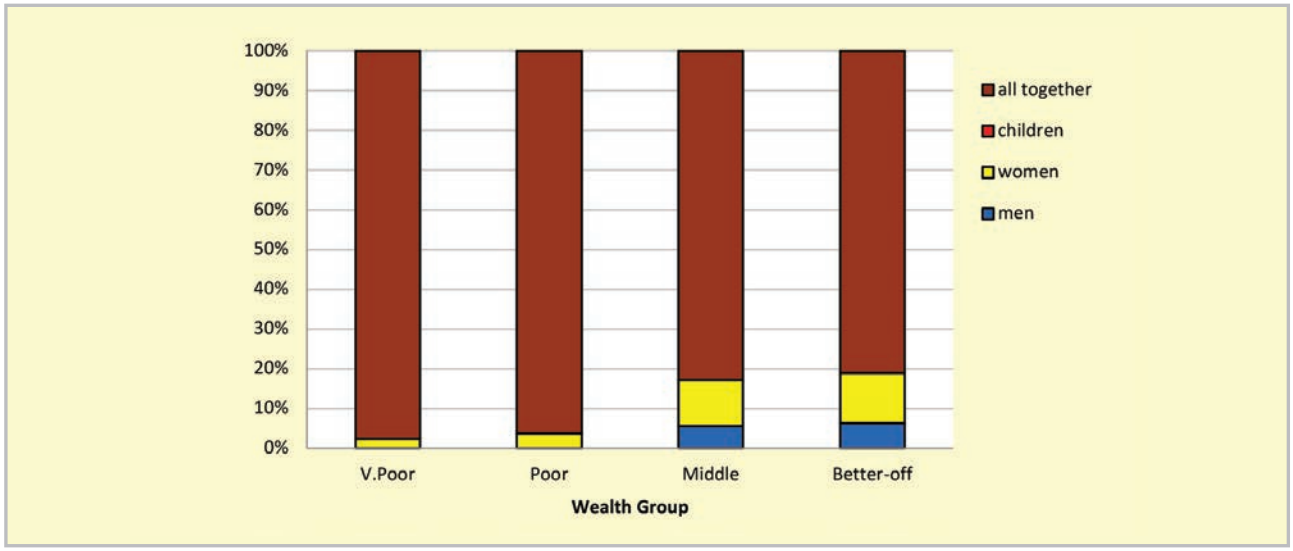


Figure 43: *Gender breakdown of who produces food in the zone for each wealth group in ZACHO (Source: HEA, Qualitative Output)*

The results indicated that young adults, men, and women altogether contribute significantly to generate food among the 'poor' and 'very poor' households in most districts and municipalities in this livelihood zone. Women appeared to contribute significantly to production of food among 'middle' and 'better-off' households. However, there are still challenges and emerging issues relating to gender mainstreaming and youth participation in development. These include HIV and AIDS, poor youth participation in the development agenda, gender-based violence (GBV), increased environmental degradation, climate change, and high levels of poverty. Women still face many challenges, including the burden of care, which takes away much of their time for productive work. They also have poor access to extension services, information, inputs, and markets. Addressing the gap in development including agriculture could raise the scale of economic activities, crop production, boost agricultural yield, overall GDP, and a significant proportion of people out of poverty.

6.2.6.5 Sources of cash in ZACHO of Alfred Ndzo District

Cash incomes vary considerably across wealth groups, with the 'better-off' earning R353 066 per annum, more than three times as much as the 'very poor', who earn R95 211 per annum. Figure 44 shows this distribution as the bars represent wealth groups.

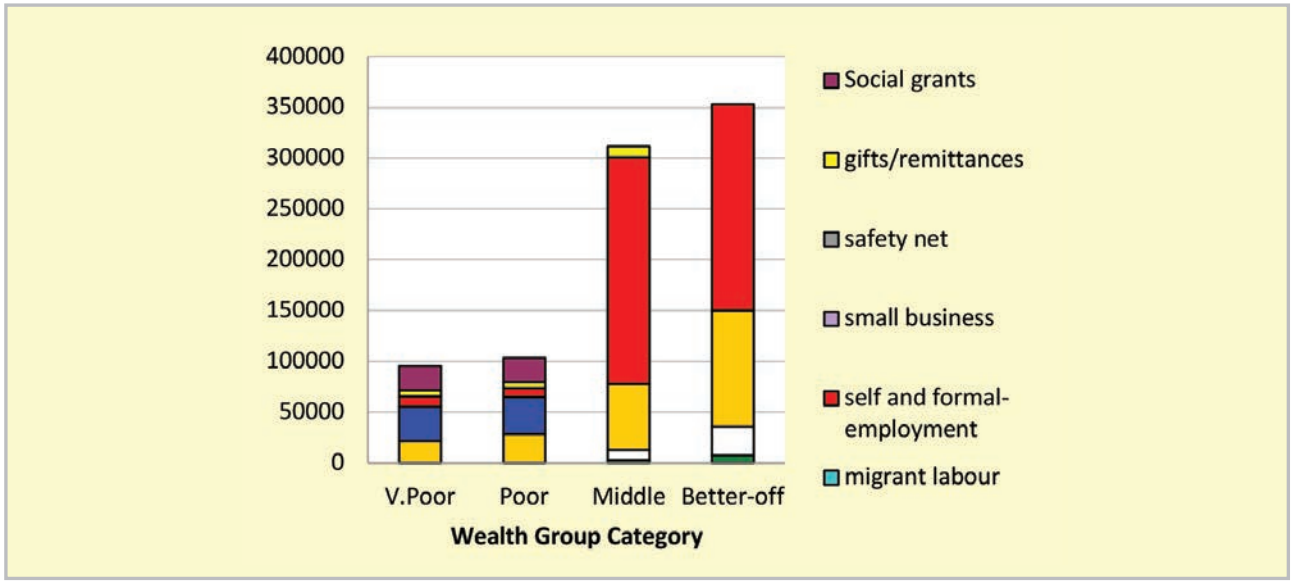


Figure 44: *Sources of annual cash income by wealth group in ZACHO (Source: HEA, Qualitative Output)*

The main sources of cash incomes in the zone are: formal and self-employment - for the 'middle' and 'better-off' - and cash grants for the 'poor' and 'very poor'. This is consistent with most surveys that assess livelihood strategies and their contribution to the main livelihood income source.

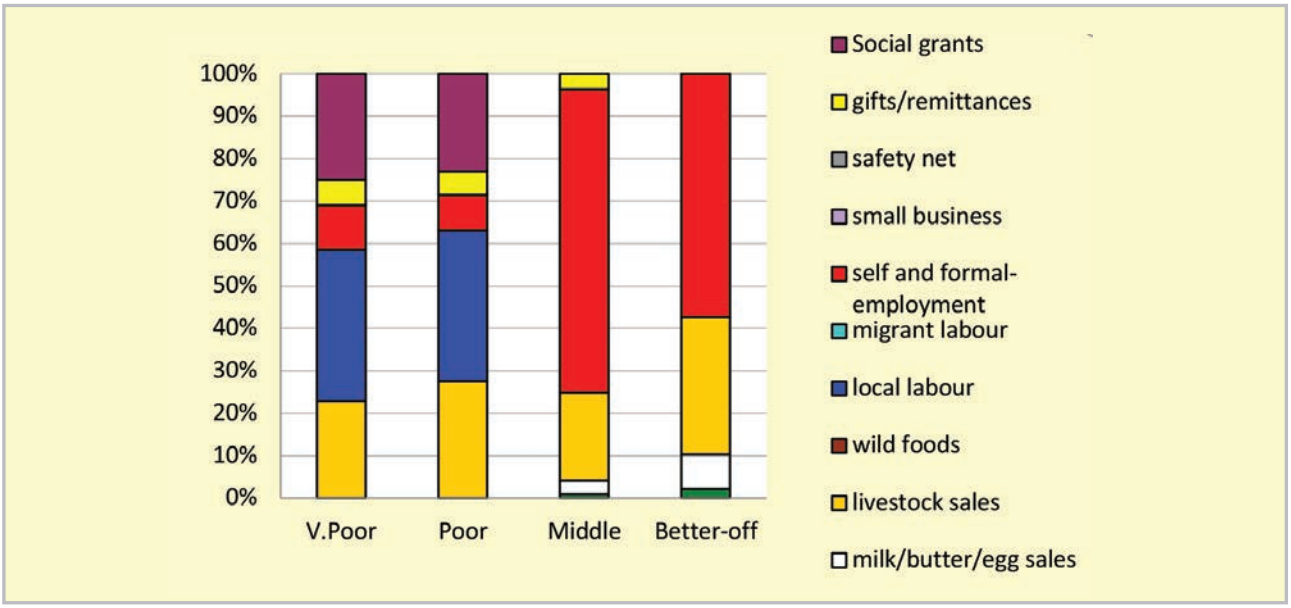


Figure 45: *Sources of annual cash income as a percentage of total, by wealth group in ZACHO (Source: HEA, Qualitative Output)*

However, the point of this enquiry was to gain an understanding of how all livelihood sources contribute to the main income of each wealth group in the sampled communities. This is important because it enables practitioners to link a hazard (such as a price change) to an income and it enables other users to see potential areas of intervention. By dividing the value of each source by the total income, we can see these proportions, and this is presented in the graph in Figure 45.

For the 'very poor' and 'poor', grants make up 30% and 25% of total cash income, respectively; the remainder coming from casual labour (mostly domestic work, agricultural piece work, construction jobs, etc.) and formal and self-employment (collecting natural products for sale, weaving, making bricks, etc.). The 'poor', 'middle', and 'better-off' earn some of their cash from animal sales and from petty trading or a small business.

The 'middle' and 'better-off' gain their wealth from a formal wage or salary for the better part of their income. Some 'middle' households may have a member that works seasonally on the commercial farms, but earnings typically amount to almost R79 000 per annum, while the 'better-off' earn around R386 284 per annum. 'Middle' and 'better-off' households also gain a little cash from grants. The earnings from livestock products are low, which is lost productivity. The number of cows that are milked compared with those likely to be lactating is low and this is due to a number of factors: lack of economic incentives for milking, lack of time by the cattle-owners (because they are full-time employed), and minimal herd management.

6.2.6.6 Sources of food and income in ZAHWC of Joe Nqabi District

Despite the good rainfall and fertile soils, purchases still make up the largest portion of people's sources of food. Food purchases contribute 56% to 77% of food energy needs. Conversely, the contribution to food energy of non-staple food purchases increased with increasing wealth, from 22% for the 'very poor', to 23% for the 'better-off' (Figure 46).

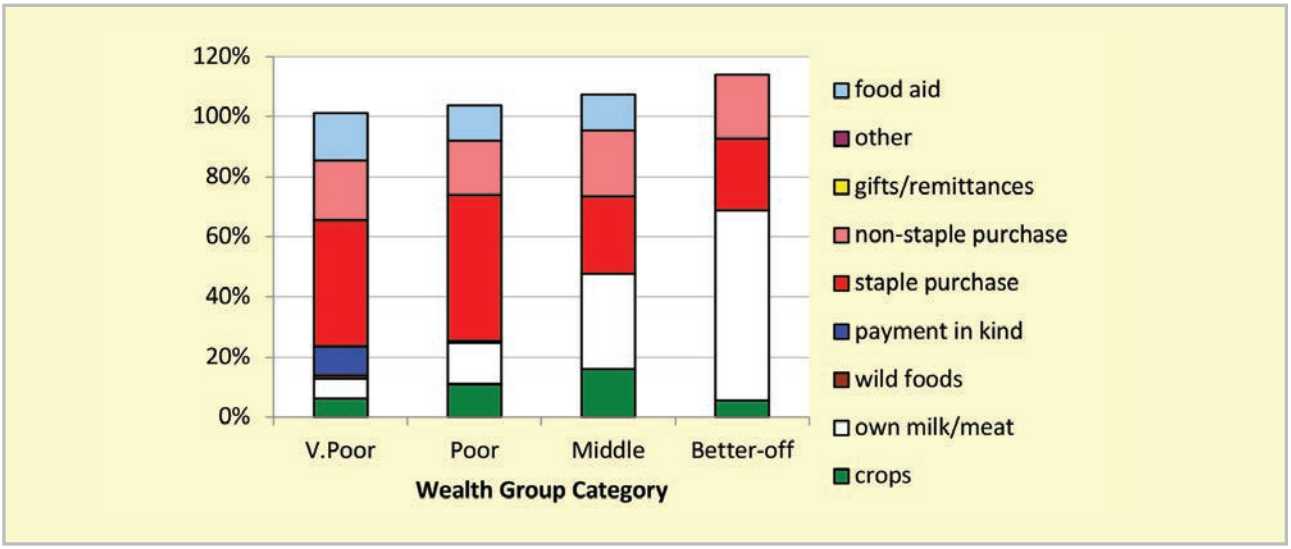


Figure 46: *Sources of food in ZAHWC (expressed as percentage of minimum average food energy needs) for each wealth group (Source: HEA, Qualitative Output)*

The contribution to food energy needs from own crop production increased with increasing wealth, from 8% for the 'very poor' to 31% for the 'better-off' in the zone. The breakdown into staple and non-staple did not follow any pattern with wealth; the contribution from non-staple crops being about 22% to 30%. Yields in the zone were low, given the fertility and land capability - 'very poor' and 'poor' households obtain only 800kg/Ha, this rose to 1,200kg/Ha for the 'middle', and 1,800kg/Ha for the 'better-off'. Wealthier households had capital for inputs and hired labour, ensuring their crops were planted and weeded in time, as well as being protected from pests.'Middle' and 'better-off' households obtained a tiny proportion of their needs from their livestock (11% and 24%, respectively); this was usually from cow's milk and occasional slaughter for meat (Figure 47). Dairy production in this zone was not commensurate with herd sizes and livestock ownership. In general, a fraction of lactating cows (about 1 in 8) was milked for consumption.

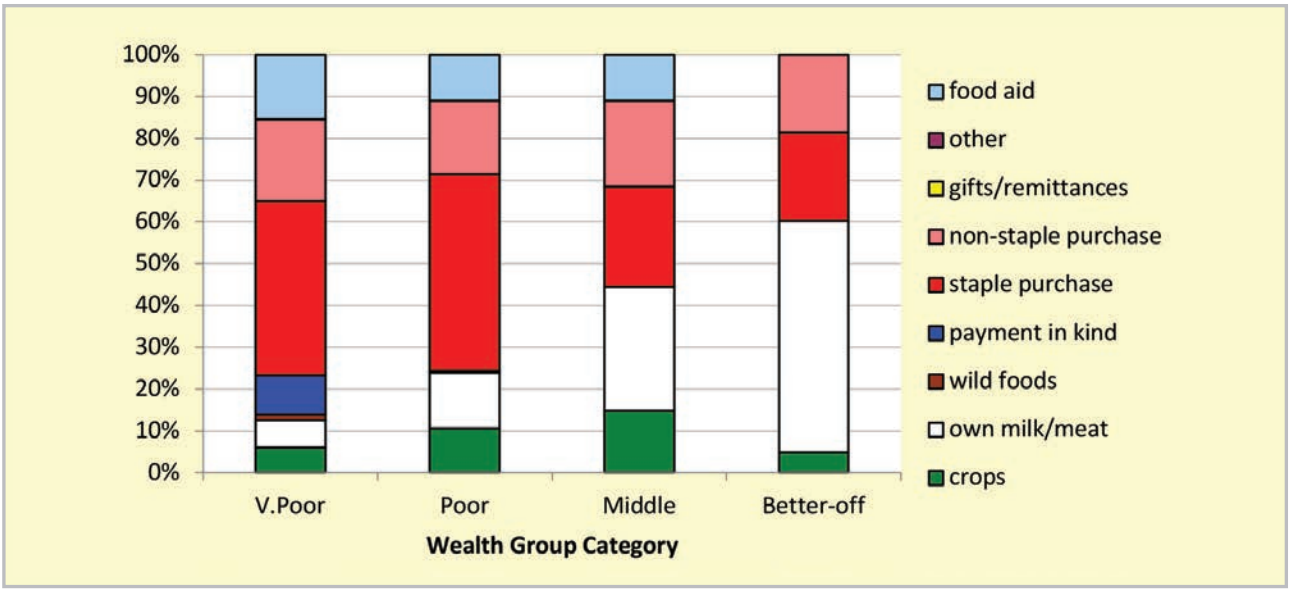


Figure 47: *Sources of food as overall to the total by Wealth Breakdown in ZAHWC (Source: HEA, Qualitative Output)*

The poorest households' children received additional food from school lunches, which was the official food assistance. Wealthier households tend to send their children to fee-paying schools that do not offer meals.

6.2.6.7 Sources of cash in ZAHWC of Joe Nqabi District

Cash incomes varied considerably across wealth groups, with the 'better-off' earning R402 644 per annum, more than four times as much as the 'very poor', who earn only R75,955 per annum. Figure 48 shows this distribution.

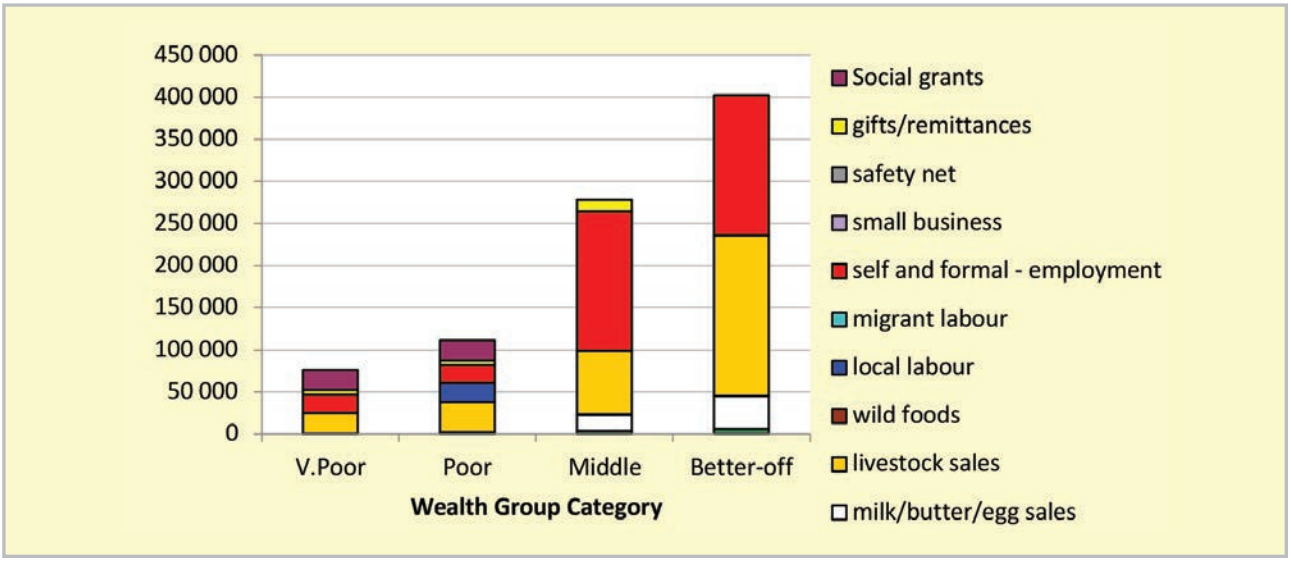


Figure 48: *Sources of annual cash income by wealth group in ZAHWC (Source: HEA, Qualitative Output)*

The main sources of cash incomes in the zone were: formal employment - for the 'middle' and 'better-off' - and cash grants for the 'poor' and 'very poor'. This is in keeping with most surveys that ask for the main livelihood source.

By dividing the value of each source by the total income, we can see these proportions, and this is presented in the graph in Figure 48 above.

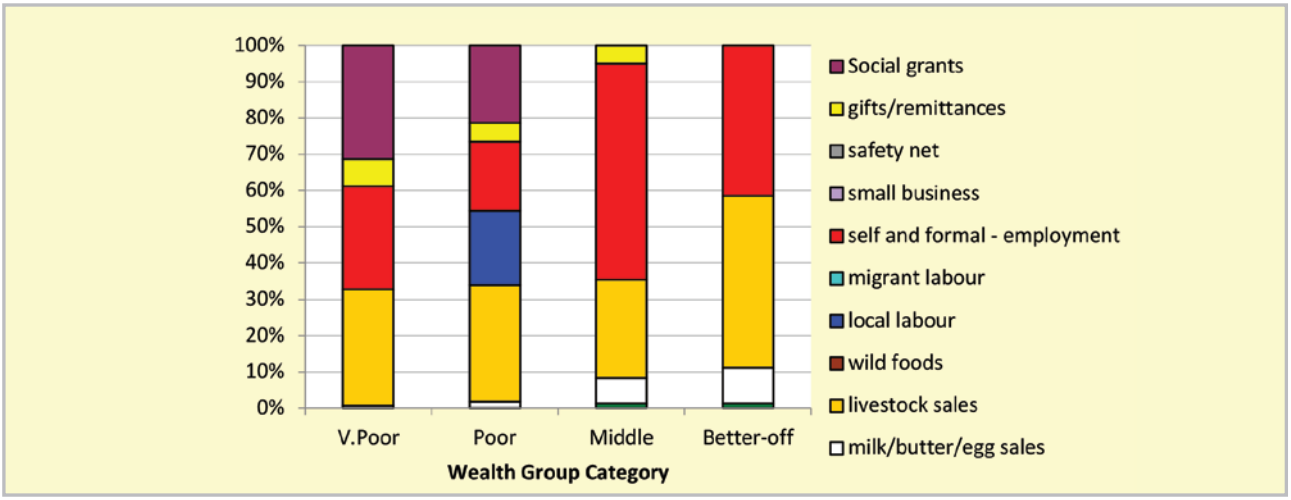


Figure 49: *Sources of annual cash income as a percentage of total, by wealth group in ZAHWC (Source: HEA, Qualitative Output)*

For the 'very poor' and 'poor', grants make up 32% and 22% of total cash income, respectively; the remainder comes from casual labour (mostly domestic work, agricultural piece work, construction, and mining related jobs) and self-employment (collecting natural products for sale, weaving, making bricks, trading in mineral related products, etc.). This income was mostly affected during Covid-19 lockdowns, leaving the 'poor' and 'very poor' hopeless and food insecure. The 'poor' earn small amounts of income through livestock sales (usually goats) and local labour (20%) and remittances (Figure 49). This, coupled with a small income from the formal sector annually and self-employment, is what distinguishes their livelihoods from that of the 'very poor'.

The 'middle' and 'better-off' gain their cash from formal and self-employment (R165 912 and R166,800 annually, respectively) and a formal wage or salary for the better part of their income. Some 'middle' households may have a member that works seasonally on the commercial farms, but earnings typically amount to almost R126 000 per annum, while the 'better-off' earn around R168,000 per annum. 'Middle' and 'better-off' households also gain a little cash from grants (for example, pensions and fostering are not means-tested and the probability of a household having a pensioner in it is about one in two).

6.2.6.8 Sources of food and income in ZAKUK of Buffalo City and Nelson Mandela Bay districts

Despite the good rainfall and fertile soils, purchases still make up the largest portion of people's sources of food. Food purchases contribute 57% to 76% of food energy needs. Conversely, the contribution to food energy of non-staple food purchases increased with increasing wealth, from 22% to 27% across the wealth groups.

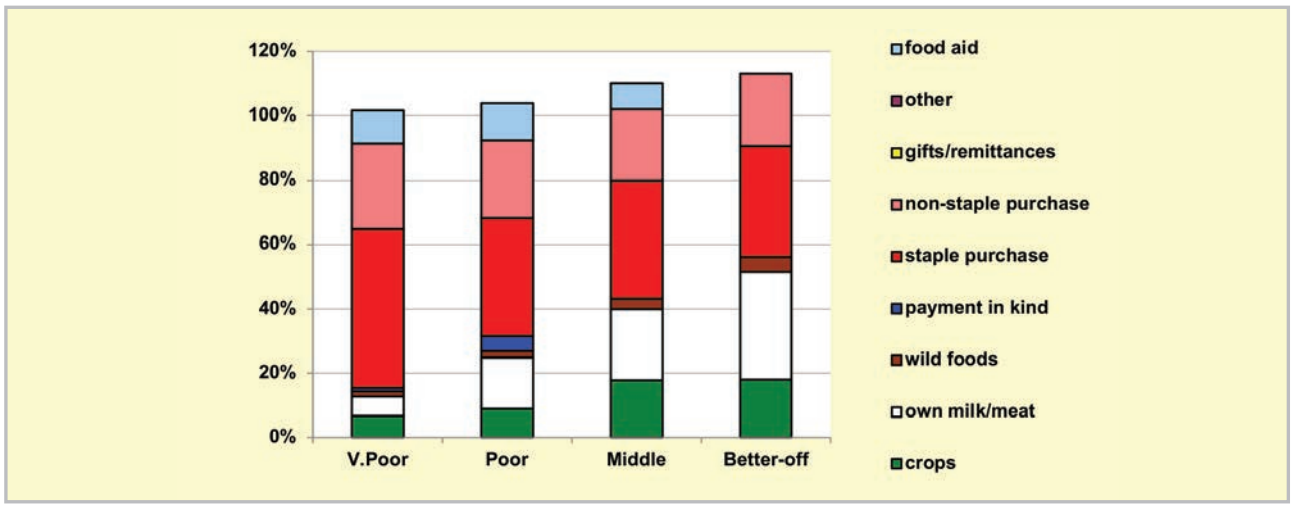


Figure 50: *Sources of food in ZAKUK (expressed as percentage of minimum average food energy needs) for each wealth group (Source: HEA, Qualitative Output)*

The contribution to food energy needs from own crop production increased with increasing wealth, from 7% for the 'very poor' to 18% for the 'better-off' in the zone. The breakdown into staple and non-staple did not follow any pattern with wealth; the contribution from staple crops being about 49% to 35% (Figure 50). Yields in the zone were low, given the fertility and land capability - 'very poor' and 'poor' households obtain only 800kg/Ha, this rose to 1,200kg/Ha for the 'middle', and 1,800kg/Ha for the 'better-off'. Wealthier households had capital for inputs and hired labour, ensuring their crops were planted and weeded in time, as well as being protected from pests.

'Middle' and 'better-off' households obtained a tiny proportion of their needs from their livestock (6% and 34%, respectively); this was usually from cow's milk and occasional slaughter for meat. Dairy production in this zone was not commensurate with herd sizes and livestock ownership. In general, a fraction of lactating cows (about 1 in 8) was milked for consumption.

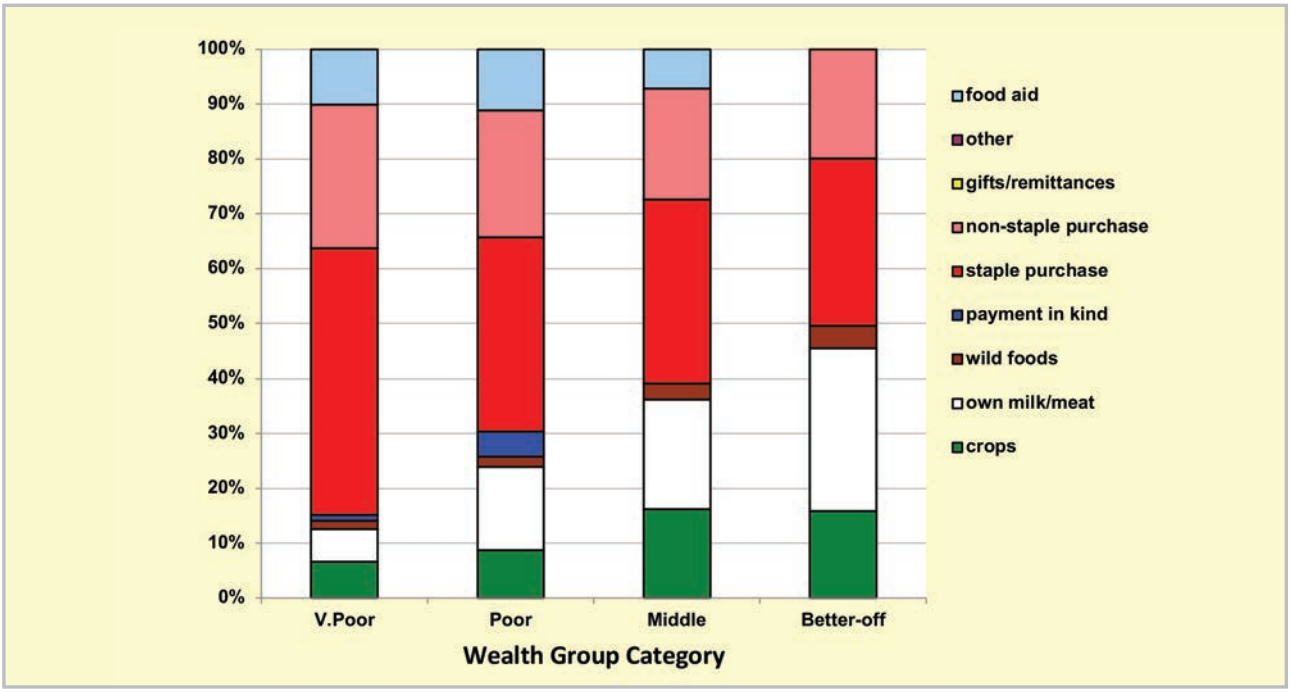


Figure 51: *Sources of food as overall to the total by Wealth Breakdown in ZAKUK (Source: HEA, Qualitative Output)*

The poorest households' children received additional food from school lunches, which was the official food assistance. Wealthier households tend to send their children to fee-paying schools that do not offer meals.

6.2.15 Sources of cash in ZAKUK of Buffalo City and Nelson Mandela Bay districts

Cash incomes varied considerably across wealth groups, with the 'better-off' earning R350,066 per annum, more than four times as much as the 'very poor', who earn only R95 204 per annum. Figure 52 shows this distribution.

The main sources of cash incomes in the zone were: formal employment - for the 'middle' and 'better-off' - and cash grants for the 'poor' and 'very poor'. This is in keeping with most surveys that ask for the main livelihood source.

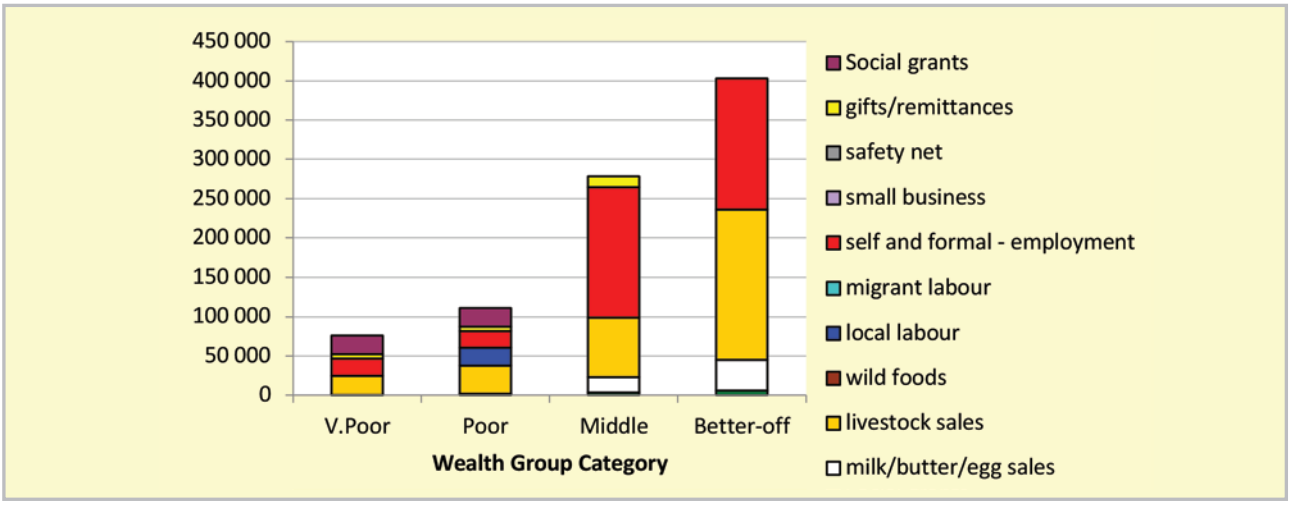


Figure 52: *Sources of annual cash income by wealth group in ZAKUK (Source: HEA, Qualitative Output)*

By dividing the value of each source by the total income, we can see these proportions, and this is presented in the graph in Figure 52 above.

For the 'very poor' and 'poor', grants make up 42% and 30% of total cash income, respectively; the remainder comes from casual labour (mostly domestic work, agricultural piece work, construction, and mining related jobs) and self-employment (collecting natural products for sale, weaving, making bricks, trading in mineral related products, etc.). This income was mostly affected during COVID-19 lockdowns, leaving the 'poor' and 'very poor' hopeless and food insecure. The 'poor' earn small amounts of income through livestock sales (usually goats) and local labour (45%) and remittances. This, coupled with a small income from the formal sector annually and self-employment, is what distinguishes their livelihoods from that of the 'very poor'.

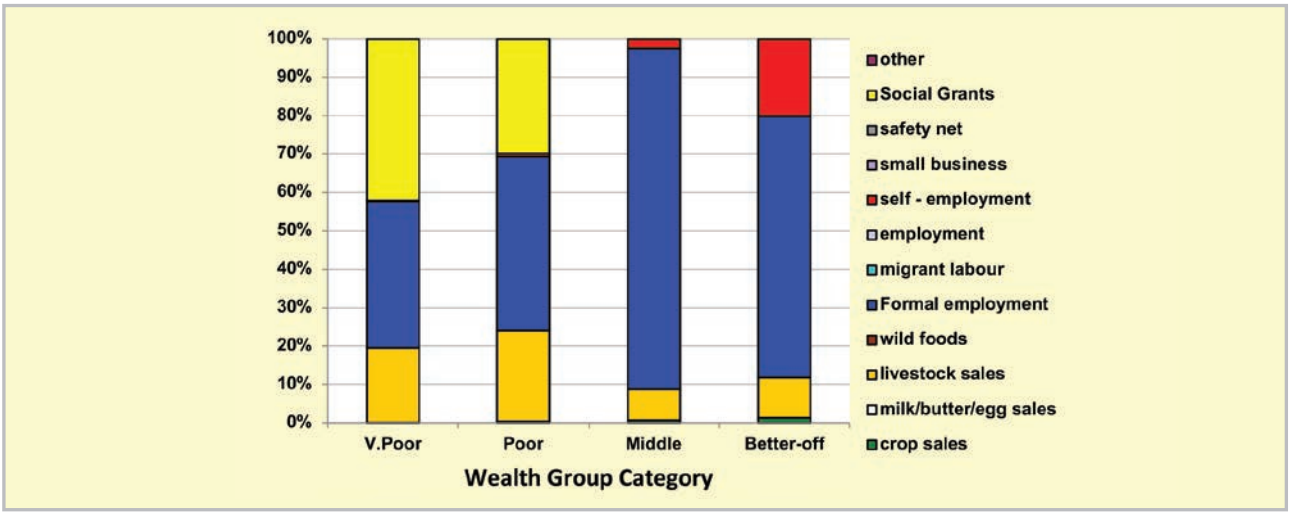


Figure 53: *Sources of annual cash income as a percentage of total, by wealth group in ZAKUK (Source: HEA, Qualitative Output)*

The 'middle' and 'better-off' gain their cash from formal and self-employment (R165 912 and R166 800 annually, respectively) and a formal wage or salary for the better part of their income. Some 'middle' households may have a member that works seasonally on the commercial farms, but earnings typically amount to almost R126 000 per annum, while the 'better-off' earn around R168 000 per annum. 'Middle' and 'better-off' households also gain a little cash from grants (for example, pensions and fostering are not means-tested and the probability of a household having a pensioner in it is about one in two).

6.2.16 Sources of food and income in ZAMIO of Alfred Nzo, OR Tambo, Chris Hani, Joe Gqabi and Amathole

Despite the good rainfall and some fertile soils, purchases still make up the largest portion of people's sources of food. Food purchases contribute 45% to 60% of food energy needs. Conversely, the contribution to food energy of non-staple food purchases increased with increasing wealth, from 18% for the 'poor', to 22% for the 'better-off' (Figure 54).

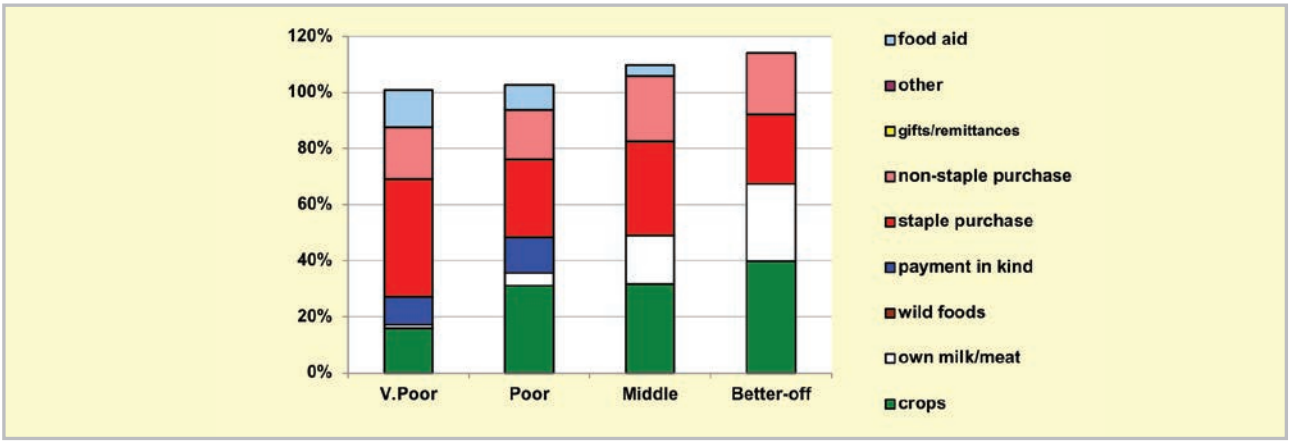


Figure 54: *Sources of food in ZAMIO (expressed as percentage of minimum average food energy needs) for each wealth group (Source: HEA, Qualitative Output)*

The contribution to food energy needs from own crop production increased with increasing wealth, from 16% for the 'very poor' to 40% for the 'better-off' in the zone. The breakdown into staple and non-staple did not follow any pattern with wealth; the contribution from staple crops being about 25% to 42%. Yields in the zone were low, given the fertility and land capability - 'very poor' and 'poor' households obtain only 800kg/Ha, this rose to 1,200kg/Ha for the 'middle', and 1,800kg/Ha for the 'better-off'. Wealthier households had capital for inputs and hired labour, ensuring their crops were planted and weeded in time, as well as being protected from pests.'Middle' and 'better-off' households obtained a tiny proportion of their needs from their livestock (17% and 25%, respectively); this was usually from cow's milk and occasional slaughter for meat. Dairy production in this zone was not commensurate with herd sizes and livestock ownership. In general, a fraction of lactating cows (about 1 in 8) was milked for consumption.

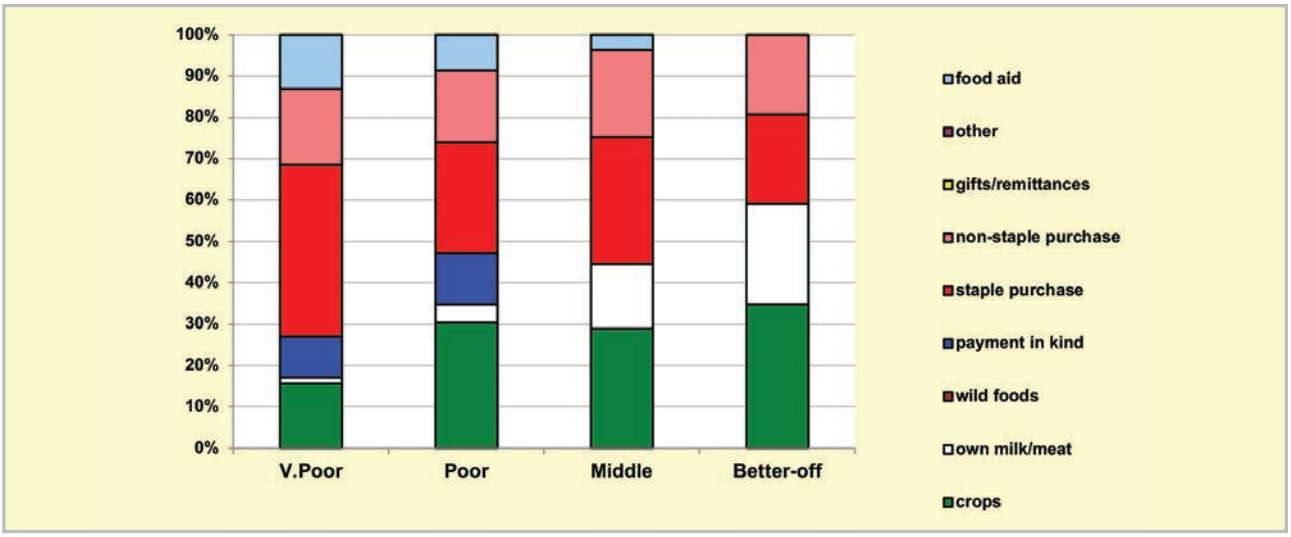


Figure 55: *Sources of food as overall to the total by Wealth Breakdown in ZAMIO (Source: HEA, Qualitative Output)*

The poorest households' children received additional food from school lunches, which was the official food assistance. Wealthier households tend to send their children to fee-paying schools that do not offer meals.

6.2.17 Sources of cash in ZAMIO of Alfred Nzo, OR Tambo, Chris Hani, Joe Gqabi and Amathole

Cash incomes varied considerably across wealth groups, with the 'better-off' earning R412 250 per annum, more than four times as much as the 'very poor', who earn only R65 554 per annum. Figure 56 shows this distribution (Figure 56).

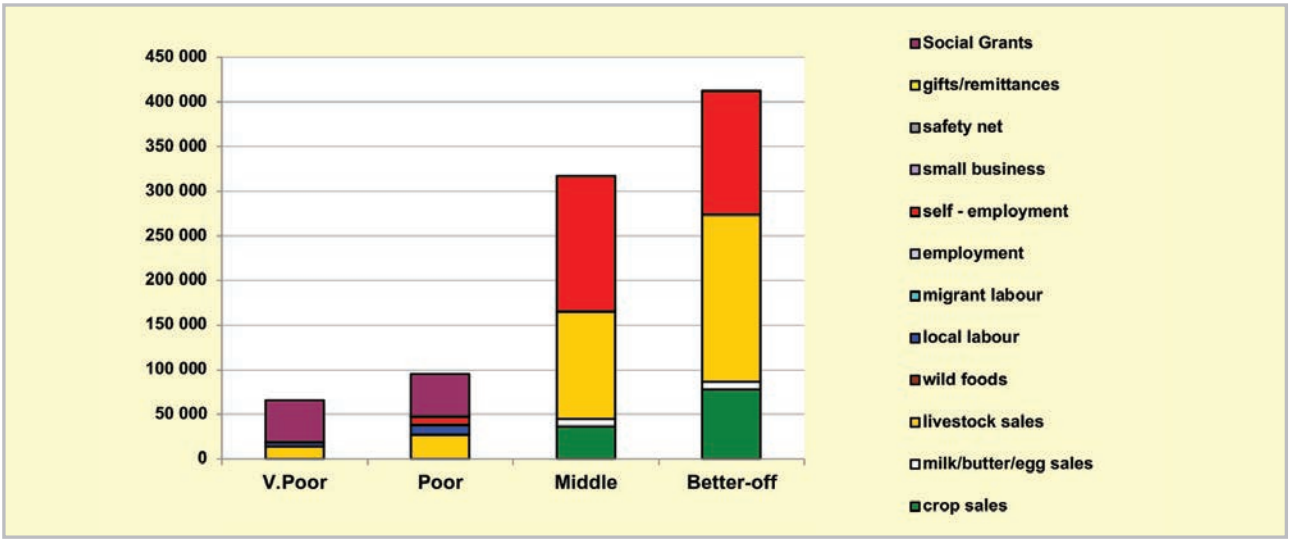


Figure 56: *Sources of annual cash income by wealth group in ZAMIO (Source: HEA, Qualitative Output)*

The main sources of cash incomes in the zone were: formal employment - for the 'middle' and 'better-off' - and cash grants for the 'poor' and 'very poor'. This is in keeping with most surveys that ask for the main livelihood source.

By dividing the value of each source by the total income, we can see these proportions, and this is presented in the graph in Figure 57.

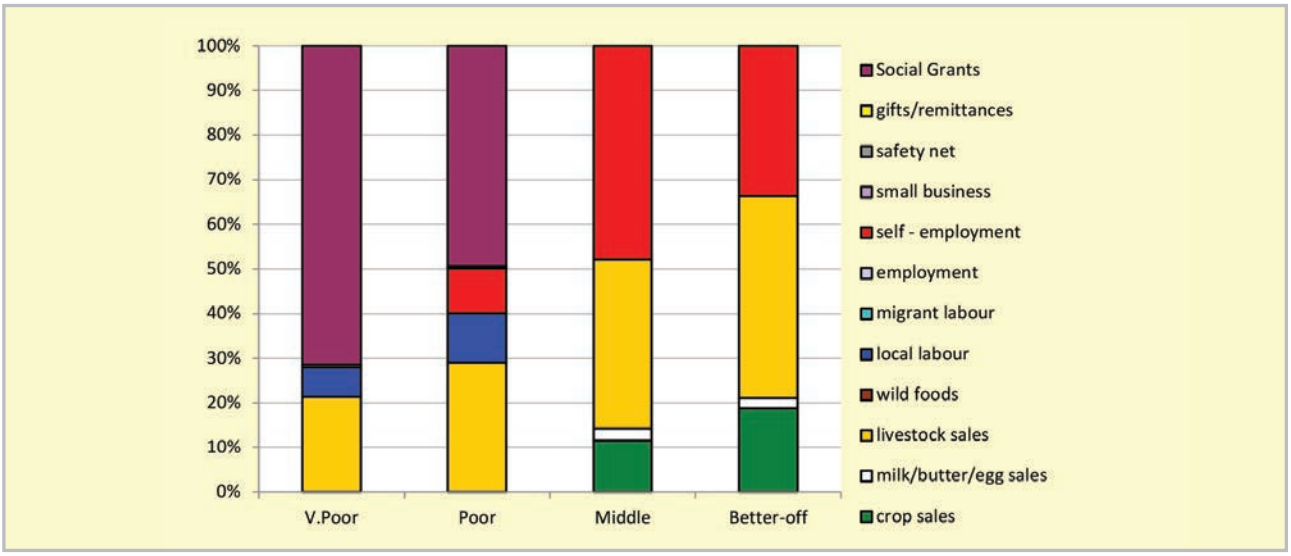


Figure 57: *Sources of annual cash income as a percentage of total, by wealth group in ZAMIO (Source: HEA, Qualitative Output)*

For the 'very poor' and 'poor', grants make up 70% and 50% of total cash income, respectively; the remainder comes from casual labour (mostly domestic work, agricultural piece work, construction, and mining related jobs) and formal and self-employment (collecting natural products for sale, weaving, making bricks, trading in mineral related products, etc.). This income was mostly affected during Covid-19 lockdowns, leaving the 'poor' and 'very poor' hopeless and food insecure. The 'poor' earn small amounts of income through livestock sales (usually goats) and local labour (10%) and remittances. This, coupled with a small income from the formal sector annually and self-employment, is what distinguishes their livelihoods from that of the 'very poor'.

The 'middle' and 'better-off' gain their cash from formal and self-employment (R165 912 and R166,800 annually, respectively) and a formal wage or salary for the better part of their income. Some 'middle' households may have a member that works seasonally on the commercial farms, but earnings typically amount to almost R126 000 per annum, while the 'better-off' earn around R168 000 per annum (Figure 57). 'Middle' and 'better-off' households also gain a little cash from grants (for example, pensions and fostering are not means-tested and the probability of a household having a pensioner in it is about one in two).

6.2.18 Hazards, vulnerabilities, and response strategies

Since households are dependent on markets for most of their food they are, therefore, most vulnerable to market shocks. These 'market shocks' may consist of escalating food prices, eroded grants (for example, when they are not adjusted to match consumer inflation), and job losses.

Droughts are frequent and have an impact on food production by reducing crops. However, unless food prices also rise simultaneously, households will manage crop losses by prioritising more cash for their food purchases. A severe drought can badly affect animal conditions and production, but the current low productivity means that it would only have an impact on 'better-off' households' asset bases.

Additional response strategies households may engage in under stress are switching expenditure, seeking more casual work (usually outside of the village), or selling off assets or belongings.

6.3 Access to agriculture extension services, road infrastructure and markets

Access to agricultural extension services, road infrastructure, and markets has potential to improve household food security in the study area. This section highlights access to these services in the province.

6.3.1 Access to road infrastructure

Access to infrastructure such as roads is critical in enhancing food and nutrition security. Both females and males reported prominent levels of access to good roads with the 25-34 age category having 75% of the respondents indicating that the roads are in good condition. (Table 39) Across the eight districts, good road access was high with the highest (98%) being recorded in Nelson Mandela Bay whilst the least was reported in both Amathole and OR Tambo District (71%).

Table 39: Access to road infrastructure by households in Eastern Cape province

		Poor Road Infrastructure			
		Yes		No	
		N	Row N %	N	Row N %
Sex of household head	Male	180	25	583	75
	Female	207	24	698	76
Household head age	18 - 24	10	38	20	62
	25 - 34	14	17	69	83
	35 - 44	45	26	136	74
	45 - 54	69	23	235	77
	55 - 64	104	25	325	75
	65+	145	24	496	76
District	Cacadu	19	18	96	82
	Amathole	80	29	200	71
	Chris Hani	66	26	189	74
	Joe Gqabi	38	21	144	79
	O.R.Tambo	89	29	225	71
	Alfred Nzo	84	23	279	77
	Buffalo City	10	10	97	90
	Nelson Mandela Bay	1	2	51	98

6.3.2 Access to markets by households

Within the province, the households have indicated that they have access to the market (Table 40). Disaggregated by district, household members in Cacadu and OR. Tambo districts have the lowest access to the market with 86% and 89%, respectively. Buffalo City District had the highest percentage (96%) of household members who reported to having access to markets.

Table 40: Access to market by households in Eastern Cape Province

		Lack of market access			
		Yes		No	
		N	Row N %	N	Row N %
Sex of household head	Male	74	11	690	89
	Female	65	7	840	93
Household head age	18 - 24	3	7	27	93
	25 - 34	6	9	78	91
	35 - 44	17	10	165	90
	45 - 54	22	7	281	93
	55 - 64	40	10	391	90
	65+	51	8	588	92
District	Cacadu	16	14	100	86
	Amathole	29	10	253	90
	Chris Hani	11	5	241	95
	Joe Gqabi	9	5	175	95
	O.R.Tambo	31	11	283	89
	Alfred Nzo	36	10	327	90
	Buffalo City	4	4	104	96
	Nelson Mandela Bay	3	6	47	94

6.3.3. Access to extension services by households

Access to agricultural extensions services has been reported to be extremely low in the entire Eastern Cape Province (Figure 58). Crop production was reported to be extremely low in the earlier sections and there is an extremely low percentage (1%) of households reporting to have receiving seedlings and fertilizers for free and it does influence the low level of households' involvement in crop production. Only about 3.8 % of the households (Figure 24) have reported to have received support when it comes to dipping and vaccination services. Aggregated by district, Alfred Nzo has the highest percentage (10%) of households with access to agricultural extension services (Table 40).

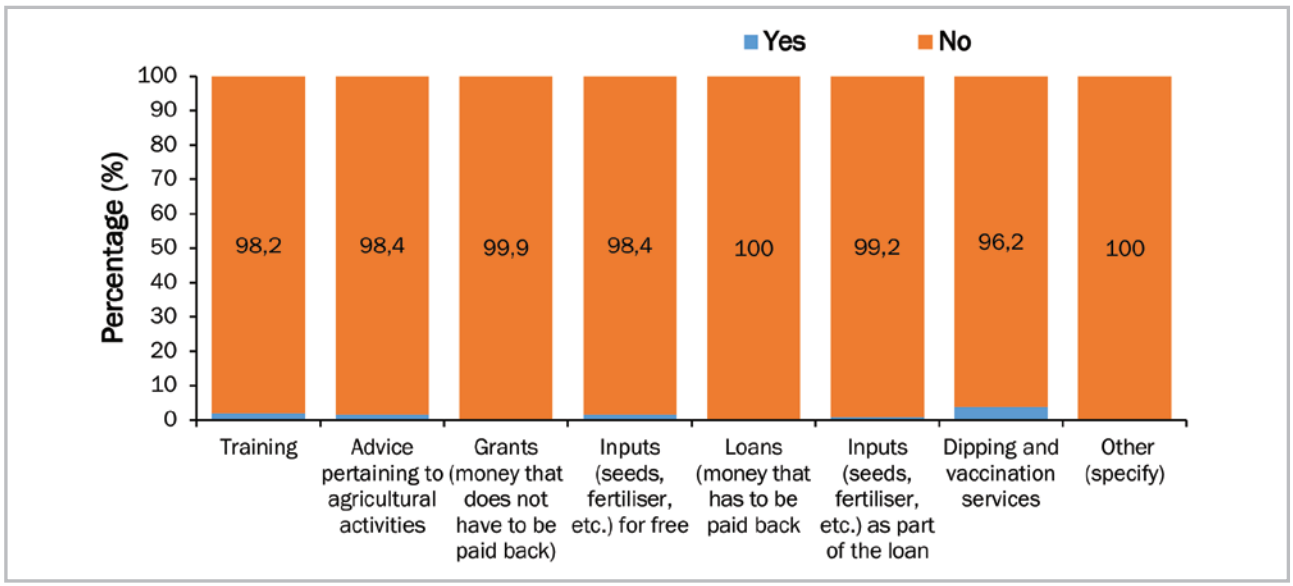


Figure 58: *Type of extension services accessed by households in Eastern Cape Province*

Table 41: Household access to agricultural extension services in Eastern Cape Province

		Extension services			
		No access		Access	
		N	Row N %	N	Row N %
Sex of household head	Male	684	93	53	7
	Female	833	94	48	6
Household head age	18 - 24	29	95	1	5
	25 - 34	79	96	3	4
	35 - 44	166	94	12	6
	45 - 54	278	94	20	6
	55 - 64	394	94	25	6
	65+	571	93	40	7
District	Cacadu	108	97	4	3
	Amathole	243	92	20	8
	Chris Hani	227	91	22	9
	Joe Gqabi	177	98	4	2
	O.R.Tambo	291	95	14	5
	Alfred Nzo	322	90	36	10
	Buffalo City	99	99	1	1
	Nelson Mandela Bay	50	100	0	0

Discussion

Seasonal variation

The results depicted by the seasonal calendar developed from HEA focus group discussions in Eastern Cape Province indicate that the rain season starts from September stretching over to February with pronounced farming activities of land preparation, planting, and weeding. However, the changing climatic conditions are shifting the planting dates as well as onset of rains within the province. Harvesting of crops and other activities such as gardening starts in March up to around June. Similar season characterisation has been reported in other studies such as Phokele and Sylvester (2012). Previous studies in the Eastern Cape Province have reported that rainfall is highly seasonal with 95% occurring between October and March (M'marete, 2003), often with a mid-season dry spell during critical periods of growth (FAO, 2009). Midsummer drought often leads to crop failure and low yields (Beukes et al., 1999). Average rainfall is about 800mm, but it often varies temporarily.

Access and land ownership

Generally, households in the Eastern Cape Province reported having access to land (above 63%). However, results point to limited agriculture production of food crops in most of the districts. Most households reported that they own land, yet this land is between 0-500m^2 which is primarily used for residential purposes and limited backyard agriculture production. This is buttressed by Nieuwoudt and Groenewald (2003) who noted that land holdings in these former homelands of the Eastern Cape Province are generally very small and are mainly used for residential and, to some extent, subsistence farming. There is also a significant proportion of households who own land size of between 500 m2-1000m2, especially in rural areas where agriculture is practised. Research has shown that securing land rights for communities has been shown to improve production and household food security (Prosterman, 2013). In South Africa, there is a dual system when it comes to land rights i.e., statutory law vested in the Constitution and customary law vested mostly in patrilineal tribal traditions and customs (Toulmin, 2008). This land tenure system also applies to the Eastern

Cape Province. In the Eastern Cape Province, which is mostly rural, most of the land is held under customary law and this has eased access to land for most households since the land held by traditional authorities is cheaper and easily accessible (Figures 14 -16). Within OR Tambo District, most of the land is either owned by the government or falls under a tribal authority. Legal land tenure in the district includes freehold (in the urban centres and townships), permission to occupy (in rural areas), leasehold and grazing rights on commonage. The 18-24 years age group in the Eastern Cape Province reported the least land access across the five districts, which calls for a need to empower the youths with land ownership since it is the category currently plagued by high levels of unemployment. This would result in increased participation by youths in agriculture income-generating projects and improved food availability at the household level. Land access is also relatively better among female-headed households. Of those households that reported having access to land, females had the highest proportion across all the seven districts except for Cacadu District where 63% of males reported the highest land access. This result is in sharp contrast to those reported by Murugani et al. (2014) who argued that in South Africa in general, land access by females is mediated by patrilineal customary law where women have mostly secondary property rights as wives. Consequently, their land use security is traditionally derived from the family and other means of fostering accountability (Murugani et al., 2014). These cultural practices have led to women having limited access and user rights to land for agricultural purposes particularly in rural communities. However, this was not the case in most of the districts in the Eastern Cape Province. One of the plausible explanations for this could be the reliance on casual and formal labour provision by mostly males, hence land access for agriculture production is limited among males. The climatic conditions in most of the Eastern Cape Province is not conducive for large scale and intensive crop production, especially among smallholder households. As a result, males would consider migrating or relying on causal labour.

Agriculture production systems

Results from the household survey indicate that livestock production is limited across the Eastern Cape Province. This result is very strange given the tradition of sheep and goat production in this province. Hence this finding needed to be triangulated with results from the HEA focus group discussions. There is also extremely limited to non-existent crop and fruit production in most districts of the Eastern Cape Province. The most prominent agriculture production involves vegetables and horticultural crops or non-traditional crops, which are grown for food, nutrition, human health, and wellbeing as similarly reported by Materechera and Scholes (2021). Contrary to results from the survey, HEA results indicate that in some livelihood zones such as ZAHWC and ZAMIO, livestock sales and crop sales contribute significantly to household food provisioning. For example, in ZAKUKU livelihood zone, covering Baffalo City and Nelson Mandela Bay districts, livestock sales were a common source of income among households across all the wealth groups. This was similarly observed in the ZAMIO livelihood zone which cuts across Alfred Nzo, O.R. Tambo, Chris Hani, Joe Gquabi, and Amathole districts. In this livelihood zone, there is significant cropping as one of the major sources of food among households as reported from the discussions across all wealth groups. In ZAMIO as well, livestock sales emerged as a major source of income for food among households. This gives an indication that crop and livestock production is significantly practised in some of the districts in the Eastern Cape Province.

7 Household Food and Nutrition Security Indicators

This section reports FNS as captured by the HFIAS, HHS, HDDS, and the FCS. These indicators are presented according to districts, sex, age, and other important variables. Correlation analyses are done to investigate the extent to which food security levels, as captured by the various indicators, vary across districts, demographics, and socio-economic characteristics of households.

7.1 Household Food Insecurity Access Scale

The Household Food Insecurity Access Scale (HFIAS) score measures the degree of food access challenges at the household level. It is calculated by adding the households' responses to nine questions asking about the frequency of certain behaviours that signify rising challenges in accessing food in a particular household (Coates et al., 2007). The higher scores indicate more food access challenges, while low scores indicate less food access challenges. The lower bound of the score is 0, while the upper bound is 27. The average HFIAS score for the Eastern Cape Province was 9.4, with a range of 0 to 27.

Interpreting this continuous score in terms of its food security implications is not straightforward, necessitating the need to generate categorical indicators of food insecurity (Coates et al., 2007). However, when the HFIAS score is used to categorise households into four levels of food (in)security status (i.e., food secure, mildly food insecure, moderately food insecure, and severely food insecure), the picture becomes less rosy. The food secure category are those households that do not experience food access conditions, and rarely worry about not having enough food. Households in the mildly food insecure category worry about not having enough food sometimes or often, are unable to eat preferred foods, and rarely eat some foods considered undesirable. These households have not cut back on food quantities and have not experienced the most severe access food challenges such as running out of food, going to bed hungry, or going the whole day and night without eating. A moderately food insecure household frequently consumes food that is of low quality, and/or sometimes or often eats undesirable foods, and/or rarely or sometimes reduces quantities of food consumed (i.e., reducing the size of meals or number of meals). A severely food insecure household not only cuts back on meal size or number of meals often, but also experiences any of the three most severe conditions (running out of food, going to bed hungry, or going a whole day and night without eating). The cut-off was as follows: food secure if HFIAS is less than or equal to 1, mildly food insecure if HFIAS is between 2 and 8, moderately food insecure if HFIAS is between 9 and 17, and severely food insecure if HFIAS is greater than or equal to 18.

Figure 52 presents the proportion of the prevalence of food insecurity among the sampled households. The overall results showed that most of the households (73.4%) in the Eastern Cape Province experienced food insecurity and 26.6% of households were food secure. Figure 59 shows that 20.2% of the households were severely food insecure, 31% of the surveyed households were moderately food insecure, and 22.2% of the households were mildly food insecure. Overall, the findings of this study slightly differ from the findings of the Stats SA, (2021) which found more proportions of food secure households than the food insecure ones. However, this household food security situation is not strange bearing in mind that the data was collected during the years of Covid-19 pandemic which may have severely impacted on households' purchasing power and thus increased the proportions of food insecure households. The results are in line with most of the food security findings which generally indicate that a significant proportion of households' experience food access challenges in South Africa. For example, in 2016, SAVAC commissioned a study on livelihoods, food, and nutrition security in which more households were found to be food insecure than those that were food secure (Ngidi et al., 2016; Ngidi and Kajombo, 2017).

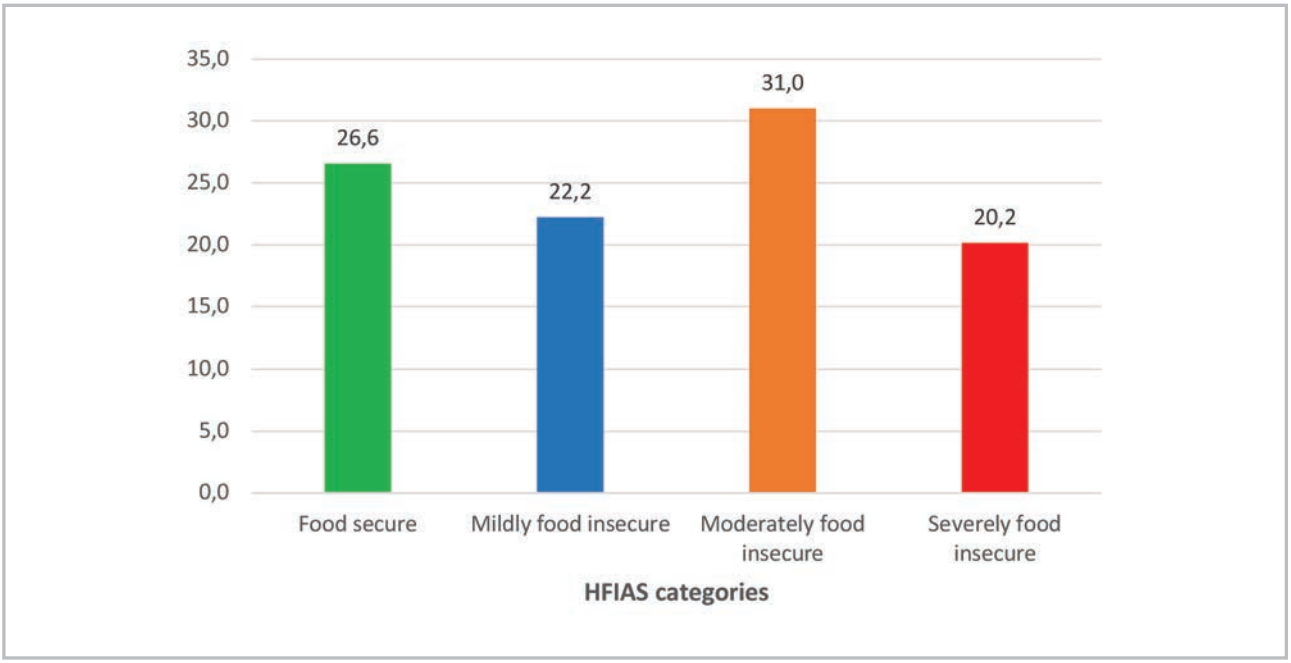


Figure 59: *The categorized food security situation, using HFIAS*

Table 42 and Figure 60 show that the food security status of households was found to be varied by sex and age of household head, as well as by district. The results show that male-headed households were more food secure than female-headed households, with 33% of the male-headed households found to be food secure, compared to 21% of female-headed households. Similarly, Negesse et al. (2020), also found that severity of food insecurity among female-headed households in Ethiopia was higher as compared with their men counterparts. In any category of the HFIAS, female-headed households experienced higher levels of food insecurity. Severe food insecurity was experienced by 19% of the male-headed households compared to 21% of the female-headed households that fell within the same category. Approximately 28% and 34% of male-headed and female-headed households experienced moderate food insecurity, respectively. About 20% and 24% of male-headed and female-headed households experienced mild food insecurity, respectively.

Table 42: District level and gendered food security situation as determined by HFIAS

		Food secure		Mildly food insecure		Moderately food insecure		Severely food insecure	
		N	%	N	%	N	%	N	%
Sex of the Household Head	Male	836	33	523	20	752	28	492	19
	Female	591	21	737	24	1016	34	650	21
Household head age	18-24	66	40	30	18	37	22	38	20
	25-34	156	29	136	25	152	26	103	19
	35-44	242	28	205	23	257	29	186	20
	45-54	281	27	238	21	347	31	237	22
	55-64	286	25	272	21	418	33	274	21
	65+	396	25	379	23	557	34	304	19

District	Sarah Baartman	162	23	168	23	227	31	175	24
	Amathole	159	25	156	23	193	28	167	24
	Chris Hani	147	24	165	25	210	33	111	17
	Joe Gqabi	167	25	140	21	256	39	97	15
	O.R.Tambo	173	26	132	20	257	37	117	17
	Alfred Nzo	162	20	206	25	255	31	189	23
	Buffalo City	232	36	116	18	176	27	132	19
	Nelson Mandela Bay	225	30	177	24	194	26	154	20

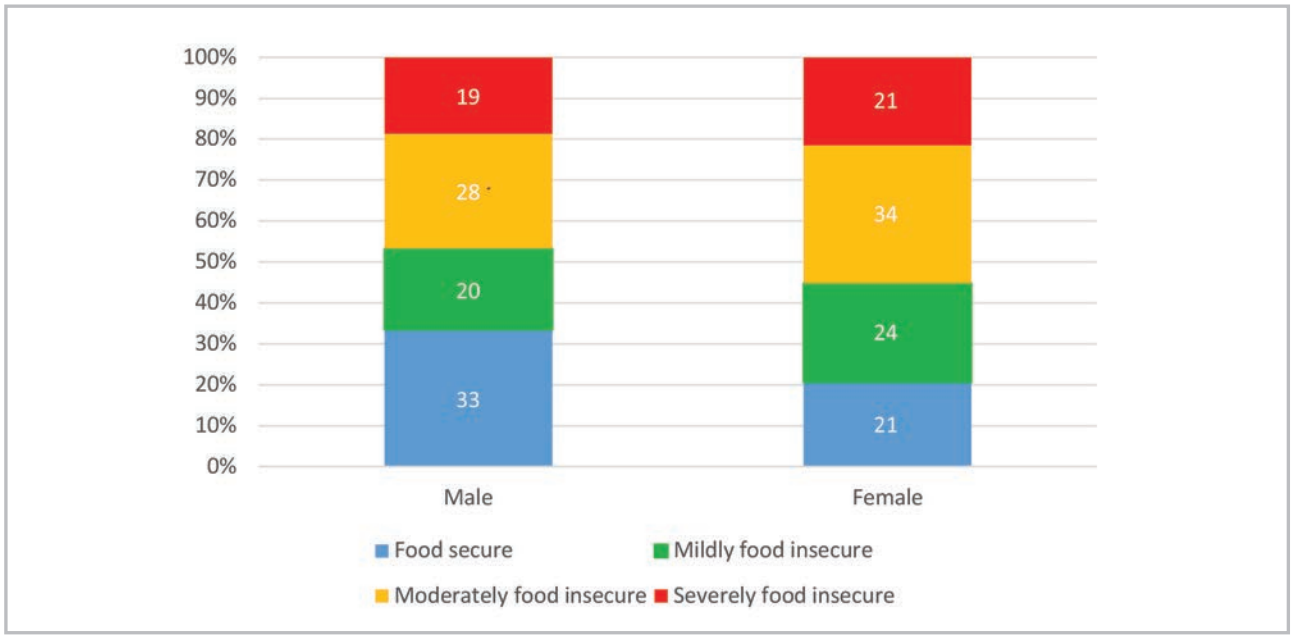


Figure 60: *Food security status disaggregated by sex of household head*

Table 42 and Figure 60 show that households headed by the 18-24 years age group had the highest proportion of households (40%) who were food secure. They were followed by those households headed by the 25-34 years age group, with 29% of the households headed by this age group found to be food secure. The least food secure age group was found to be the 55-64 and 65+ years age groups, where 25% of the household heads in this age group was found to be food secure compared to other age groups. The age groups that were found to be the least severely food insecure were 25-34 and 65+ years, with 19% of the households headed by each of these age groups found to be severely food insecure. The most severely food insecure age group was found to be in the 45-54 years, followed by 55-64 age group, with 22% and 21% of the households in these age groups being severely food insecure.

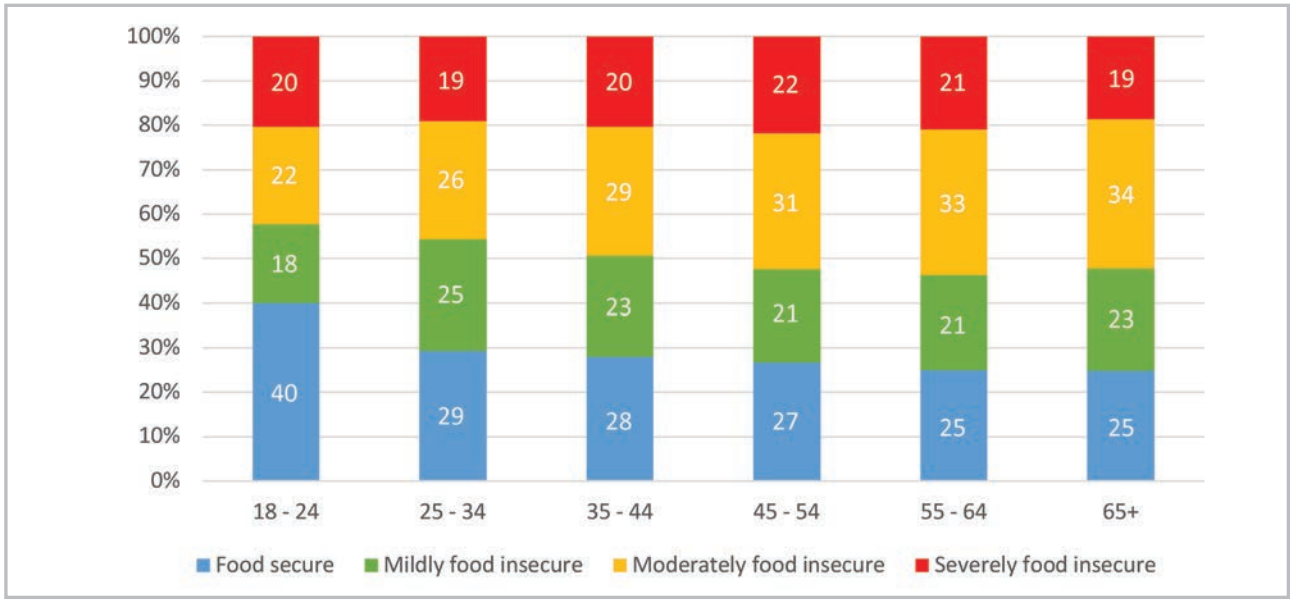


Figure 61: *Food security status by age group of household head*

Table 43 and Figure 62 show that the Buffalo City had the highest proportion of households that were food secure (36%), followed by the Nelson Mandela Bay District, with 30% of the households that were found to be food secure. The least food secure districts were found to be Alfred Nzo and Sarah Baartman, with 20% and 23% of the households found to be food secure in each of these two districts. The Sarah Baartman District also had the highest proportion of households experiencing severe food insecurity. About 24% of the households in both Sarah Baartman and Amathole districts were severely food insecure. This was followed by households from Alfred Nzo District, with also 23% of the households from this district experiencing the severely food insecurity. About 20% of the households in Nelson Mandela Bay also experienced severe food insecurity while another 19% of the severely food insecure households were also each from the Buffalo City. The Joe Gqabi District experienced the least severe food insecurity compared to other districts, with 15% of the households in this district reported to have experienced severe food insecurity. However, moderate food insecurity was also largely experienced by households from the same district (Joe Gqabi), where 39% of the households were moderately food insecure. This was followed by households from the O.R. Tambo, where 37% of the households from this district were reported to have experienced moderate food insecurity. Mild food insecurity was largely experienced by households from the Chris Hani and Alfred Nzo districts where 25% of the households from each of these districts experienced mild food insecurity.

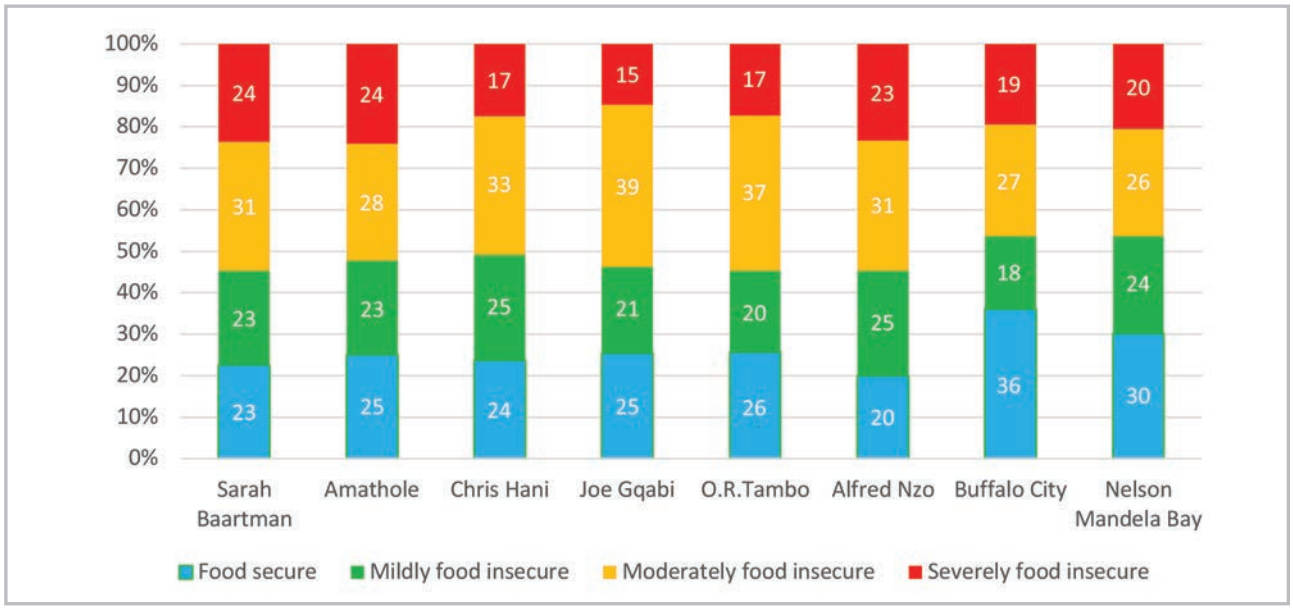


Figure 62: *Food security status by district*

7.2 Household Hunger Scale

The Household Hunger Scale (HHS) is a household food deprivation scale that is derived from selected HFIAS questions for use mainly in situations of high food insecurity levels. Figure 56 presents the results of the HHS scale, showing that most of the sampled households experienced little to no hunger (78.2%). About 16.5% of the households and 5.3%, respectively, experienced moderate hunger and severe hunger. While a considerable proportion of households experienced food insecurity (as shown by the HFIAS results), the HHS suggests that the level of food deprivation is not very severe for most of the households in the Eastern Cape Province (Figure 56).

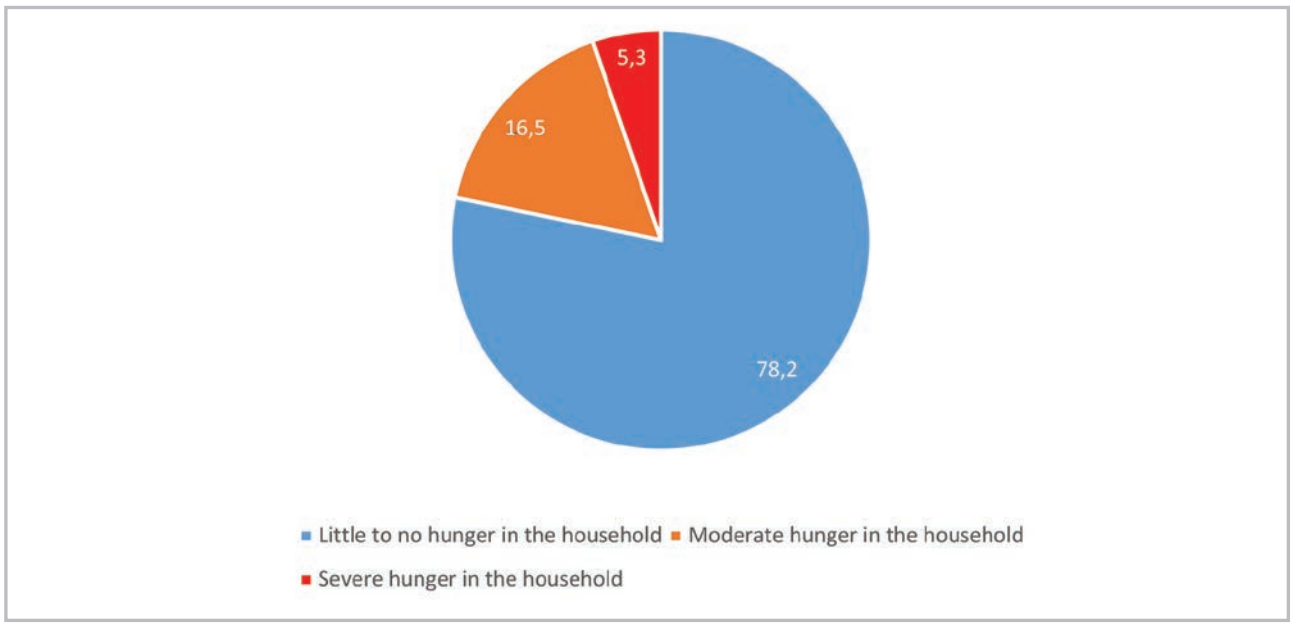


Figure 63: *Hunger experiences of households in Eastern Cape Province*

Table 44 presents the hunger status of households disaggregated by sex, age, and district. Table 44 and Figure 64 show that the hunger status generally did differ between male-headed and female-headed households across all the categories of the HHS. Female-headed households generally experienced more hunger than male-headed households in the province.

Table 43: Food security situation, using HHS in Eastern Cape Province

		Little to no hunger in the household		Moderate hunger in the household		Severe hunger in the household	
		N	%	N	%	N	%
Sex of the household head	Male	2252	80	432	15	156	5
	Female	2513	77	576	18	175	5
Household head age	18-24	151	83	24	11	11	6
	25-34	464	78	87	15	39	6
	35-44	734	77	174	18	45	4
	45-54	920	76	197	17	83	7
	55-64	1045	77	245	17	80	6
	65+	1451	80	281	16	73	4

District	Sarah Baartman	599	78	123	15	56	7
	Amathole	542	74	151	20	45	6
	Chris Hani	553	78	120	17	34	5
	Joe Gqabi	604	82	100	14	31	4
	O.R.Tambo	609	81	120	16	21	3
	Alfred Nzo	659	76	168	19	38	4
	Buffalo City	559	78	112	15	50	7
	Nelson Mandela Bay	640	79	114	14	56	7

Table 43 and Figure 64 indicated that 80% of the male-headed households experienced little to no hunger compared to 77% of the female-headed households. The proportion of female-headed households (18%) was higher than that of male-headed (15%) in the moderate hunger category. Severe hunger in the household was the same among female-headed (5%) than among male-headed households (5%).

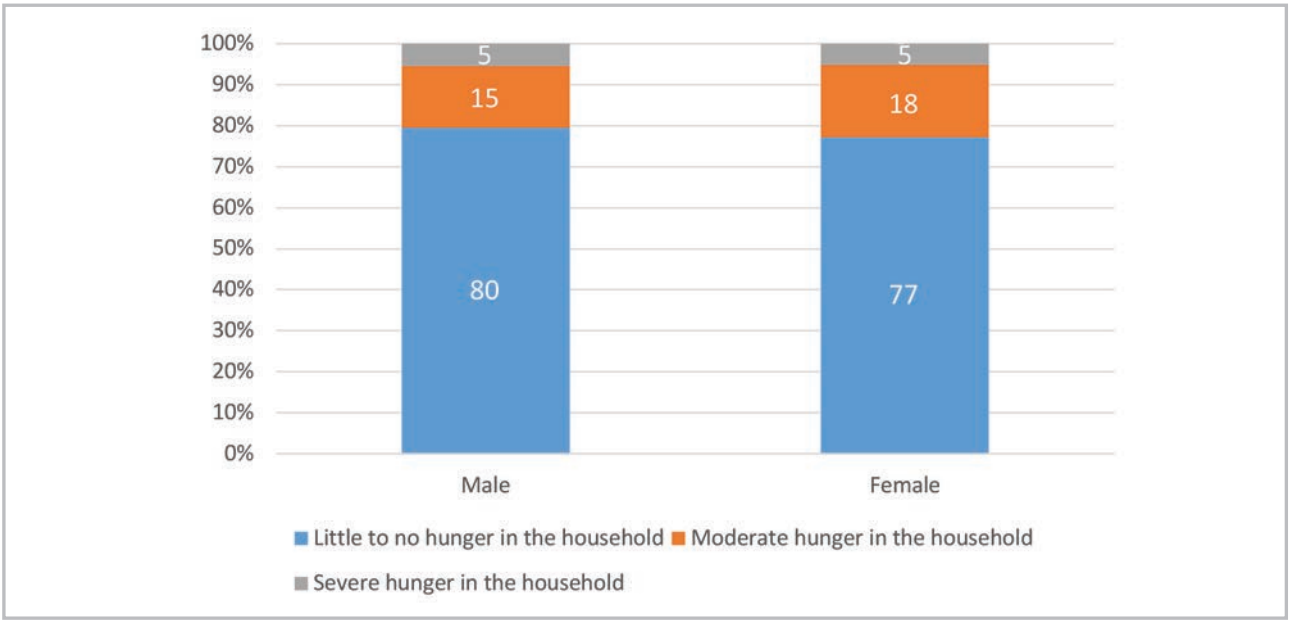


Figure 64: *Household hunger status disaggregated by sex of household head in Eastern Cape Province*

The most food secure age group was found to be 18-24 years, with 83% of the households headed by this age group experiencing little to no hunger in the household. This was followed by household heads in the age group of 65+ years (Figure 58), with 80% of the household-heads in this age group being food secure. Households in the age group of 35-44 years experienced relatively more moderate hunger compared to the other age groups, with 18% of the households in this age category experiencing moderate hunger. This was followed by households in the age categories of 45-54 and 55 - 64 years, where 17% of each of the household heads in this age groups experienced moderate hunger in their households. Severe hunger in the household was largely experienced by 45-54 years age group, with 7% of the household heads in each of this age group found to be experiencing severe hunger.

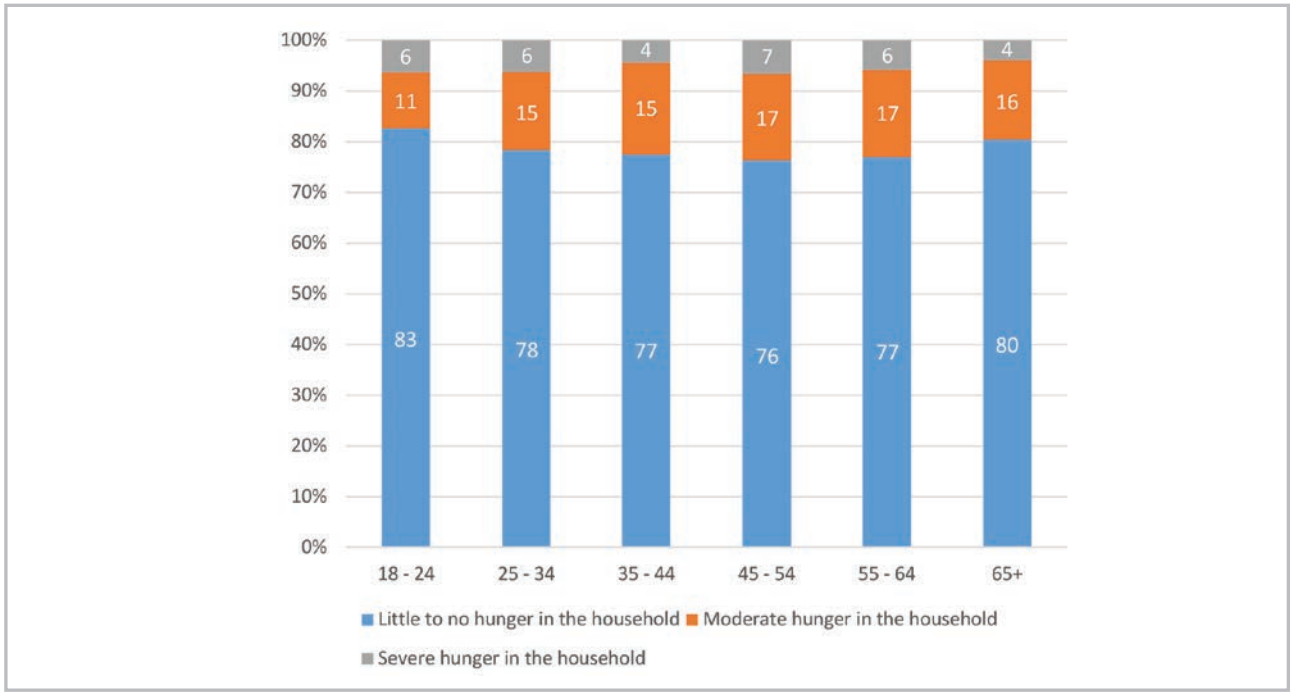


Figure 65: *Household hunger status disaggregated by age group of household head in Eastern Cape Province*

There were minor variations in the hunger status of households across the eight districts in the Eastern Cape Province. In terms of the HHS, the Joe Gqabi District was the most food-secure district with 82% of the households found to have experienced little to no hunger. This was followed by the O.R. Tambo District with 81% of the households from this district found to have experienced little to no hunger. Generally, households across all districts did not experience too much hunger with more than 74% or more of the households in all districts experiencing little to no hunger (Figure 59). More households in Amathole District experienced moderate levels of hunger compared to the other ten districts, with 20% of the household heads reportedly experiencing moderate hunger. Overall, there were also differences in the proportion of households who experienced severe hunger in the eight districts, ranging from 3% to 7% across the various Districts.

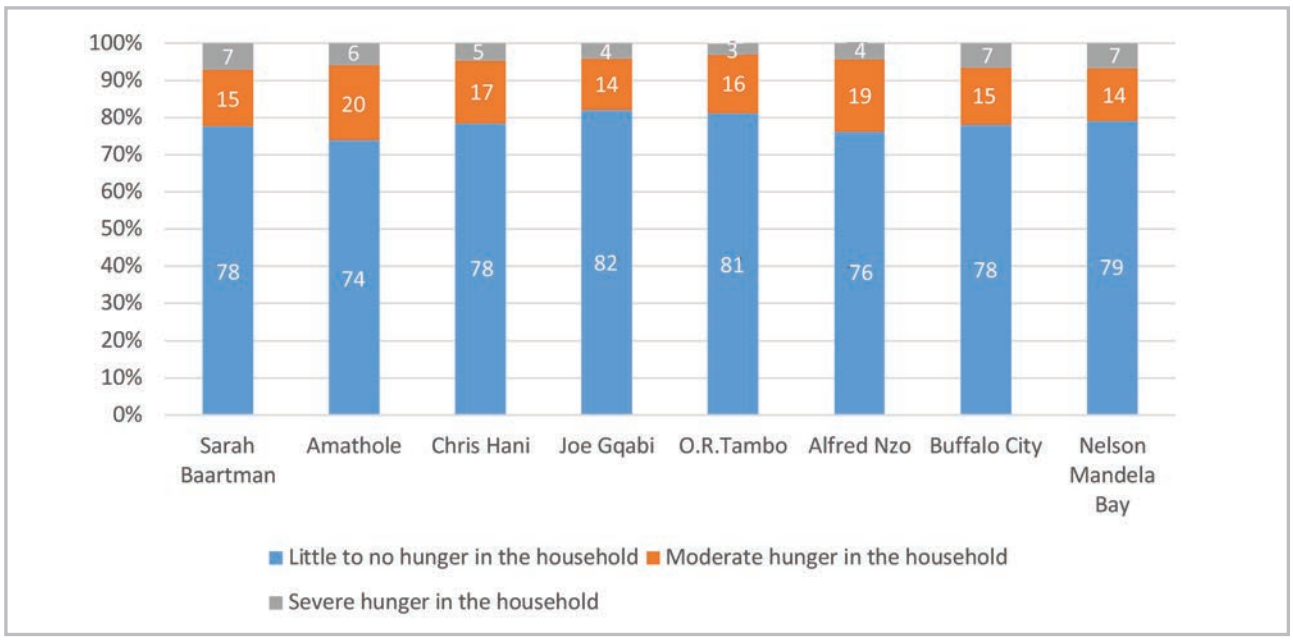


Figure 66: *Household hunger status by district*

7.3 Household Dietary Diversity Score (HDDS)

HDDS measures the economic ability of a household to access a variety of foods (Kennedy, 2011). Higher levels of HDDS imply improved chances of a household to consume enough of all food components necessary for good health. HDDS was constructed using the number of food groups consumed by the household over a 24-hour recall. The food items were categorized into 12 different food groups.

On average, the households in the Eastern Cape Province consumed more than 7 out of 12 food groups, which suggests above-average dietary diversity levels. Using the cut-offs suggested by Kennedy (2011), 78% of households consumed highly diverse diets (more or equal to 6 food groups) whilst 15.5% and 6.5% of the households consumed medium dietary diversity (4-5 food groups) and low diverse diets (less or equal to 3 food groups), respectively (Figure 67).

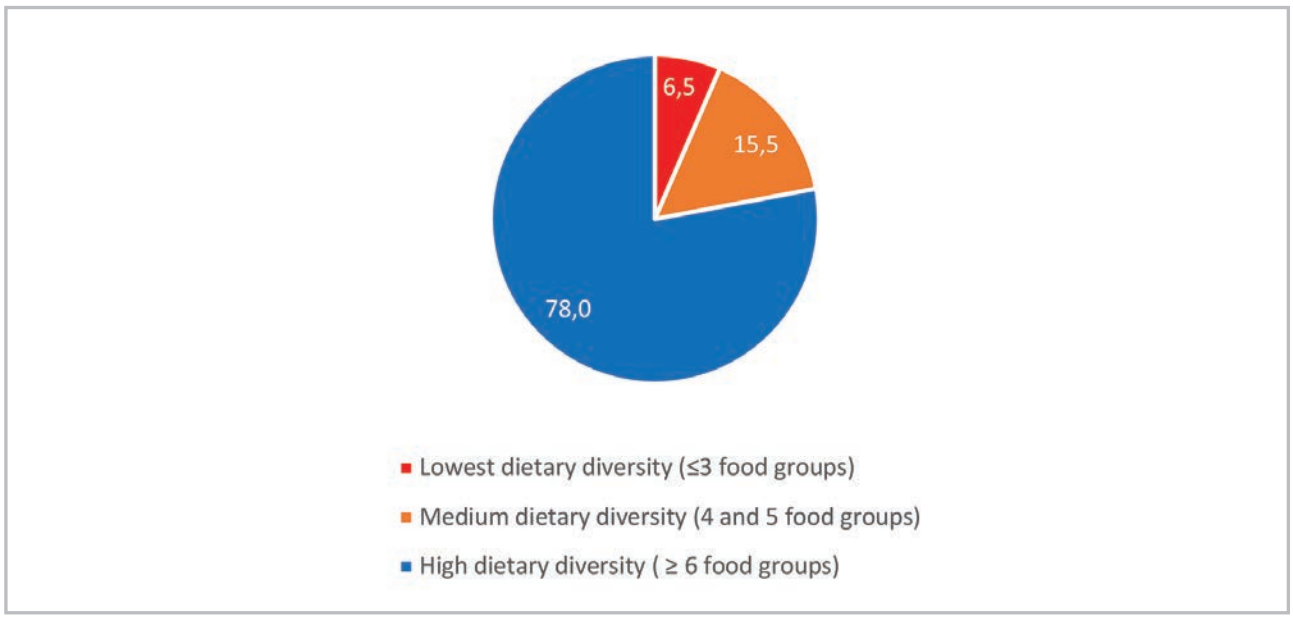


Figure 67: *Household Dietary Diversity Scores*

The results in Table 44 and Figure 68 show that 7% and 6% of the male-headed and female-headed households had the lowest dietary diversity, respectively. About 78% of both male-headed and female-headed households were in the category of highest dietary diversity, suggesting that they both had better access to diversified food. Both male-headed and female-headed households consumed about 4 and 5 food groups (medium dietary diversity), with 15% and 16% of the households, respectively, reported to have consumed medium dietary diversity. Concluding within the context of this tool, these results generally suggest that both male-headed and female-headed households have better access to diversified food.

Table 44: Household Dietary Diversity Scores in Eastern Cape Province

		Lowest dietary diversity (≤3 food groups)		Medium dietary diversity (4 and 5 food groups)		High dietary diversity (≥ 6 food groups)	
		N	%	N	%	N	%
Sex of Household head	Male	193	7	437	15	2195	78
	Female	205	6	525	16	2529	78
Household head age	18-24	10	7	20	12	149	81
	25-34	41	7	105	18	443	75
	35-44	54	6	142	14	756	80
	45-54	72	6	189	15	934	79
	55-64	97	7	215	16	1054	77
	65+	124	7	291	16	1388	77
District	Sarah Baartman	49	6	130	17	597	77
	Amathole	56	8	132	18	545	74
	Chris Hani	41	5	113	16	549	79
	Joe Gqabi	61	8	110	15	562	77
	O.R.Tambo	42	6	112	15	593	79
	Alfred Nzo	28	3	169	20	667	77
	Buffalo City	70	10	91	12	558	78
	Nelson Mandela Bay	51	6	105	13	653	81

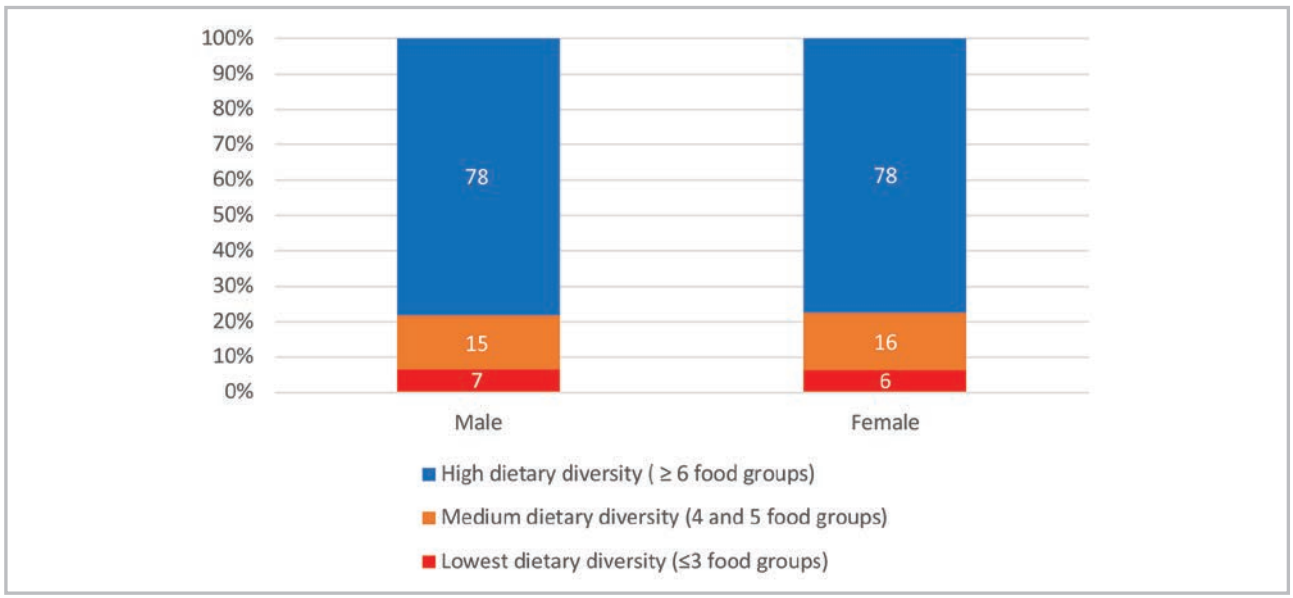


Figure 68: *Dietary Diversity Score category by sex of household*

In terms of the age groups, most of all age groups generally consumed a high dietary diversity, with results showing all age groups having a higher percentage of 77% or above of households that consumed highly diversified food. Results of the age groups also show that household heads aged 18-24 years were the ones that largely consumed the highest dietary diversity, with 81% of the households from this age group found to have each consumed highest dietary diversity (Figure 68). Household age group aged 25-34 years were the least food secure households compared to other households in other age groups. Generally, households from different districts had the highest dietary diversity with 74% or more found to be in the category of high

dietary diversity (Figure 69). Households in the Nelson Mandela District had the highest dietary diversity, with 81% of the households from this district having consumed highest dietary diversity. Most households with lowest dietary diversity were in the Amathole District. These results should be taken with caution because with 24-hour recall it is possible to find the situation looking good in terms of food variety simply because on the previous day it was pension day.

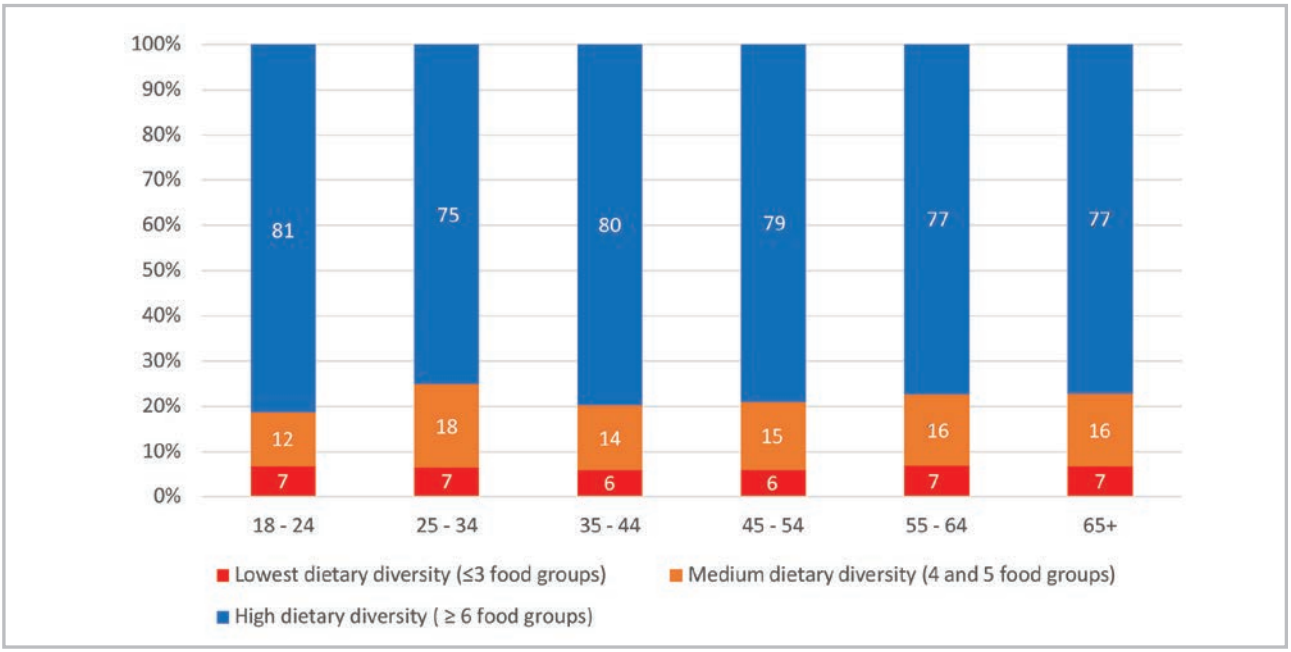


Figure 69: *Dietary diversity category by age of household head*

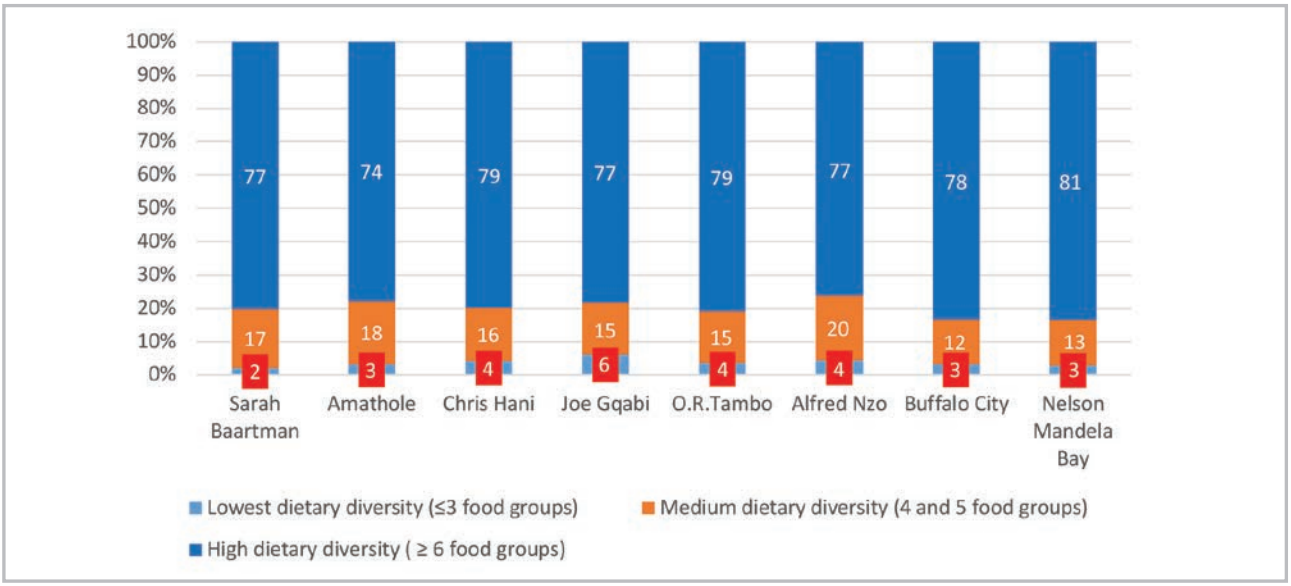


Figure 70: *Dietary diversity category by district*

However, HDDS should not be interpreted as a measure of nutrition or diet quality, as achieving a high dietary diversity score does not guarantee that important food groups, such as fruits and vegetables, are included in the diet. A household can lack crucial micro-nutrients even when consuming a diverse diet. Figure 71 shows the food groups and their frequency of consumption by the households. The figure shows that the most popular food groups were organ meat, cereals, condiments, oils and fats, sugars, other vegetables, meat, roots and tubers, milk and milk products, orange fresh vegetables and eggs. The least consumed food groups were dark leafy vegetables, fish and sea foods pulses and nuts and orange-coloured fruits. Figure 71 shows that the most consumed food groups were mostly the less healthy ones, providing a different light to Figure 71, which gives an impression of a highly diverse and healthy diet.

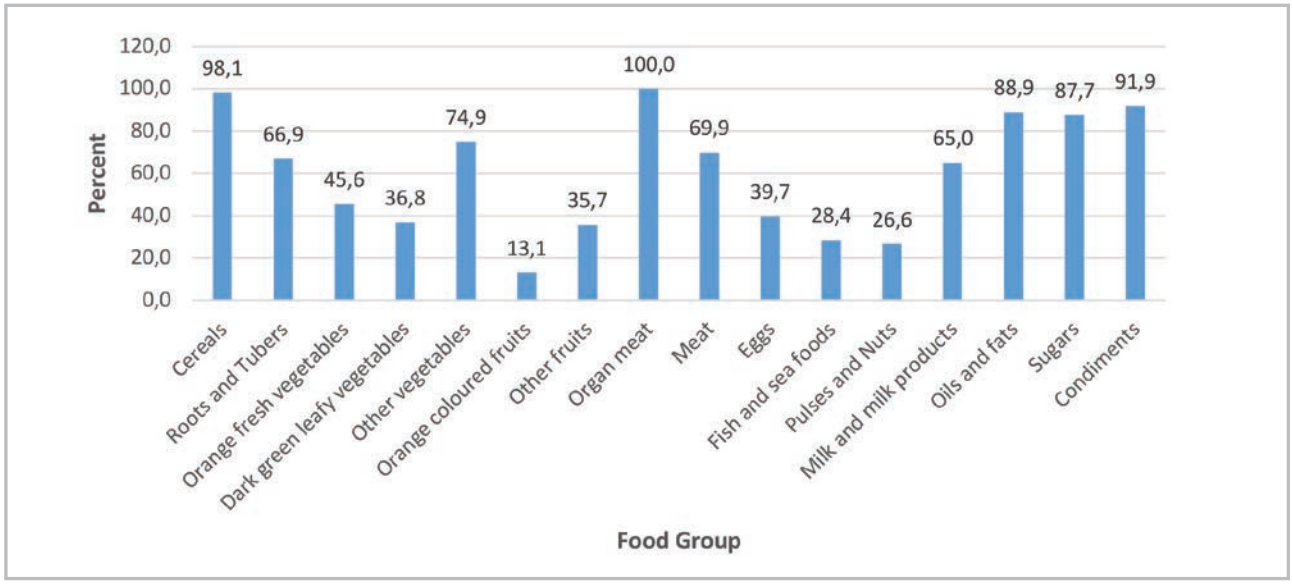


Figure 71: *Frequency of food group consumption*

7.4 Food consumption score

Food Consumption Scores (FSC) were calculated using the WFP methodology to further understand the levels of dietary diversity in the study areas. This FCS differs from Dietary Diversity in that it represents a weighted dietary diversity score.Figure 65 shows that about 61.6% of the households were consuming adequately (acceptable) diversified diets and about 23.6 % of households are at the borderline and could fall into unacceptable diversity of foods if no actions are taken to help them improve their diets. Results further indicate that 14.8% of the households consumed poor diets.

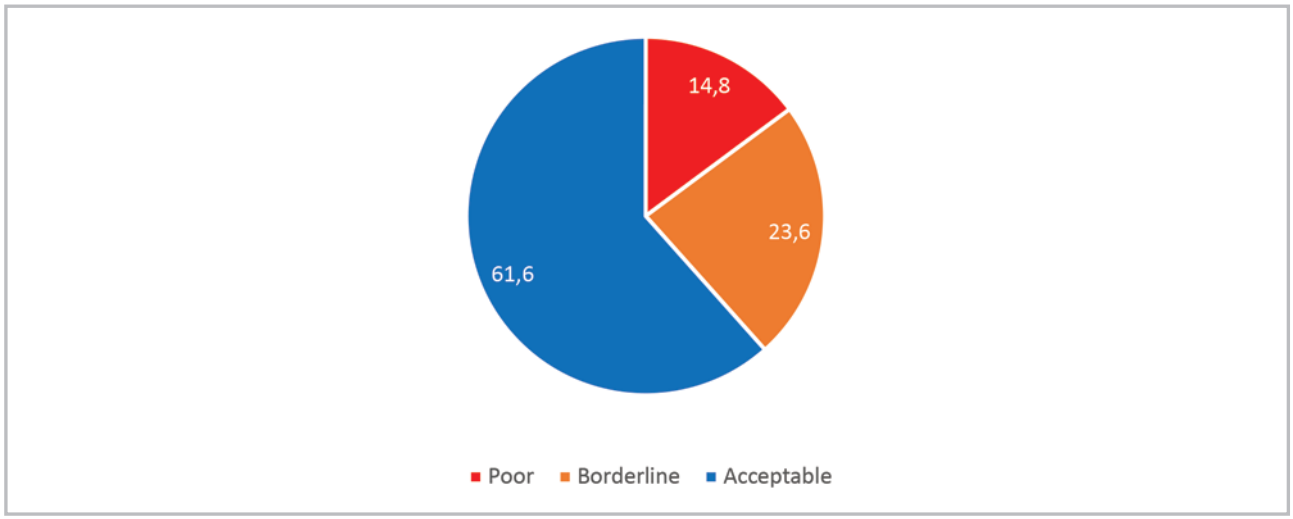


Figure 72: *Food consumption score*

Table 45 presents the food consumption score categories according to sex, age and district

Table 45: Food Consumption Score by sex, age of household head, and district

		Poor		Borderline		Acceptable	
		N	%	N	%	N	%
Sex of household head	Male	195	15	258	21	758	63
	Female	190	14	332	26	799	60
Household head age	18-24	4	9	18	42	25	50
	25-34	37	17	47	23	130	61
	35-44	68	16	84	21	262	63
	45-54	63	11	121	24	320	65
	55-64	83	14	137	26	327	60
	65+	126	16	179	23	470	61
District	Sarah Baartman	68	22	50	15	208	64
	Amathole	70	22	80	26	160	52
	Chris Hani	52	15	103	29	204	56
	Joe Gqabi	57	17	111	32	178	51
	O.R.Tambo	29	8	114	32	219	60
	Alfred Nzo	18	9	22	11	166	81
	Buffalo City	55	16	66	19	218	65
	Nelson Mandela Bay	43	14	44	15	208	71

Table 45 and Figure 73 present the results showing the relationship between the sex of household head and food consumption category. The results indicate that male-headed households had slightly more acceptable diets compared to female-headed households. About 63% of the male-headed households were found to have consumed acceptable diets compared to 60% of the female-headed households. Female-headed households were found in slightly higher proportions in the borderline category, with 26% of the female-headed households found in the borderline compared to 21% of the male-headed households. About 15% of the male-headed households compared to 14% of the female-headed consumed poor diets.

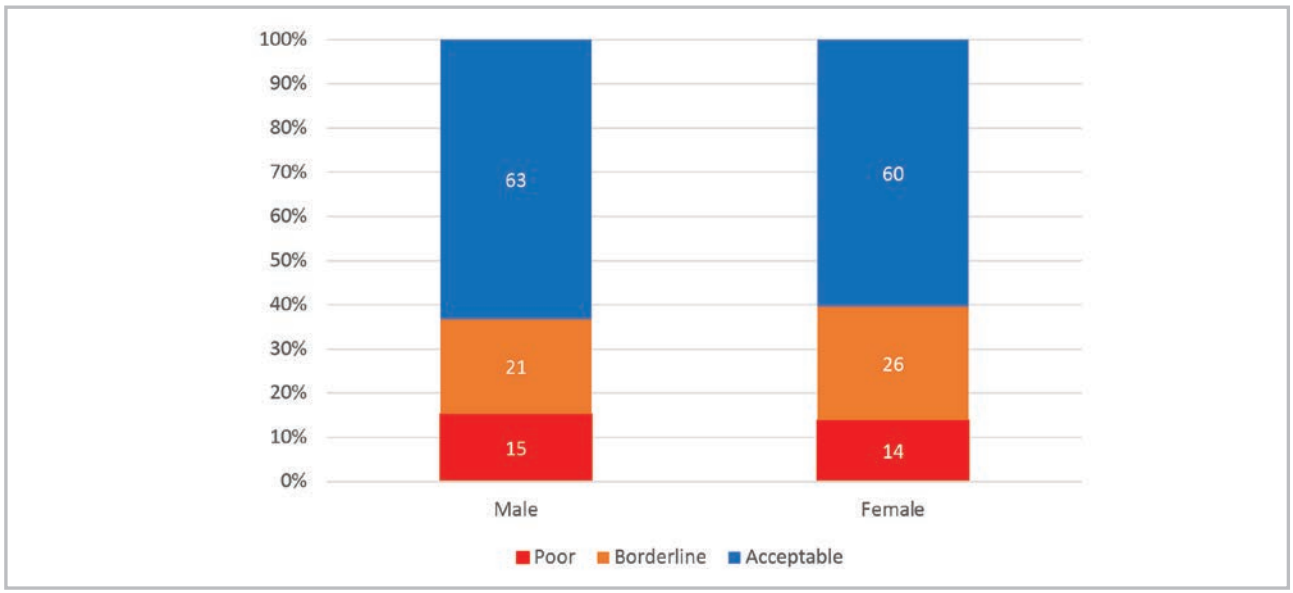


Figure 73: *Food consumption category by sex of household head*

The relationship between the age of household head and the chances of consuming acceptable diets was not linear (Figure 74). The proportion of households who consumed acceptable diets across the age groups ranged from 50% to 65%. The most households that consumed acceptable diets were in the age group 45-54 years, with 65% of the household heads found to have consumed acceptable diets. This was followed by households in the age group 35-44, with 63% of the households in this age group having consumed the acceptable diets. The most households in the borderline were in the age groups of 18-24 years, followed by households in the age group of 55-64 years. Most households with poor diets were in the age group of 25-34, with 17% of the households in this age category found to have consumed poor diets.

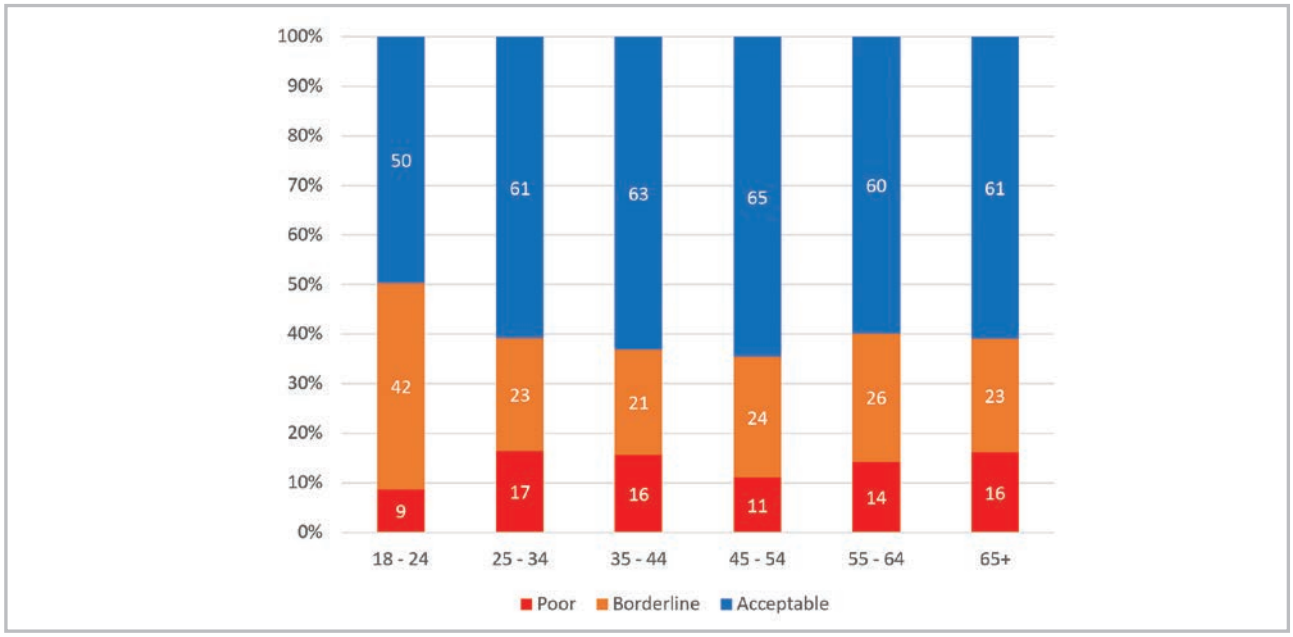


Figure 74: *Food consumption category by age of household head*

Regarding the districts, it was found that more households with poor diets were found in the Amathole and Sarah Baartman district municipalities, where 22% of the households from each district were found in this category. This was followed by households from the Joe Gqabi district municipality, with 17% of the households from this district found in this category (Figure 75). Households from the Alfred Nzo and Nelson Mandela Bay districts consumed diverse diets compared to the other districts, with 81% and 71% of the households from these districts in this category, respectively. The highest number of households on the borderline were from the Joe Gqabi and O.R. Tambo districts, followed by households from the Chris Hani district municipality.

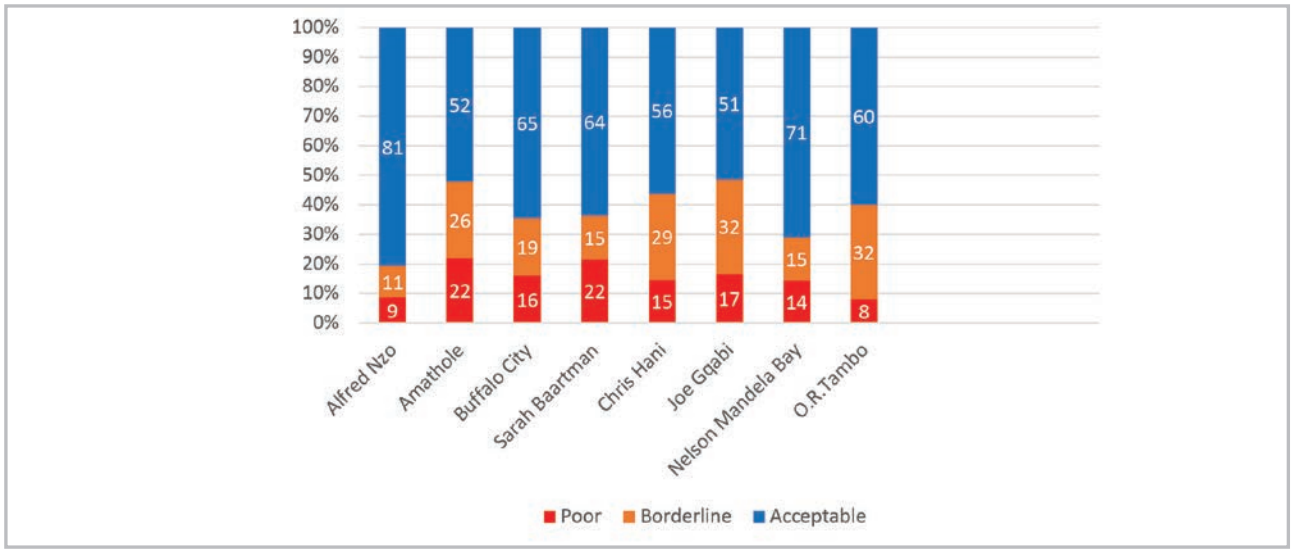


Figure 75: *Food consumption category by district*

7.5 Food expenditure

The food expenditure approach captures food security in terms of the amounts of money spent by a household to acquire food, and whether that amount is above or below the food poverty line. The food poverty line, commonly referred to as the 'extreme' poverty line, refers to the amount of money that an individual will need to afford the minimum required daily energy intake (Stats SA, 2021). In 2021, the food poverty line was R624 per person per month (Stats SA, 2021). On average, the households' food expenditure per person per month in the Eastern Cape Province was 592.97, which is lower than the food poverty line. Using the 2021 food poverty line (i.e., R624), Figure 76 shows that 68.1% of the households were below the food poverty line. This indicates very high levels of food poverty, which supports the results of the HFIAS.

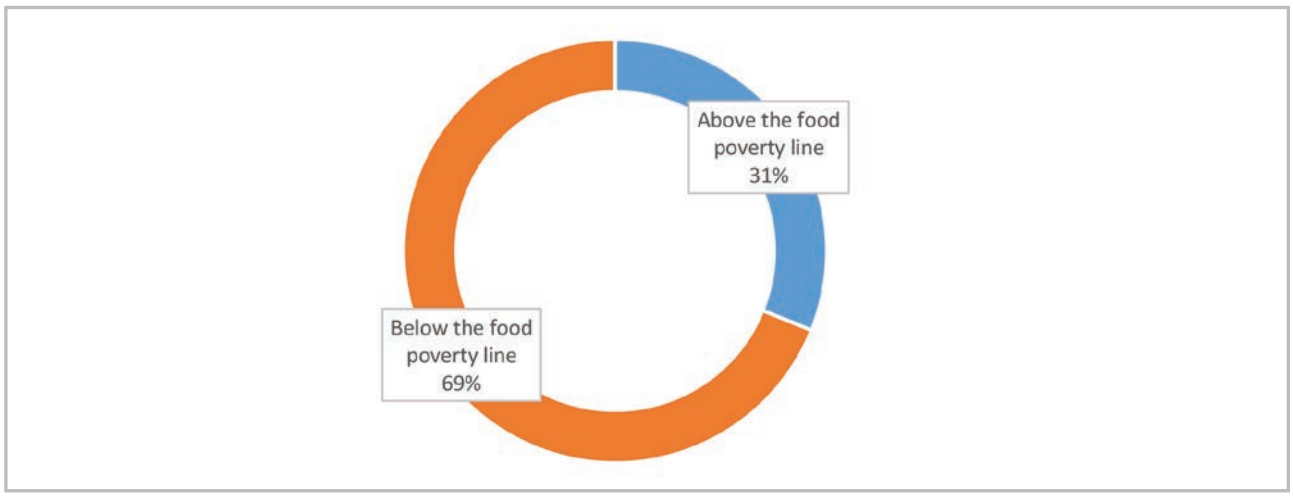


Figure 76: *Food poverty levels in the EC*

The food expenditure and poverty levels varied by sex and age group (Table 46). The Table shows that a higher proportion of female-headed households (74.0%) were below the food poverty compared to male-headed households (63.1%). Across the age-groups, the results show food poverty was more prevalent among households headed by those in the 55-64 years age group, and among those headed by heads at least 65 years old. Food poverty was relatively less prevalent among households headed by those in the 18-24 years age group.

Table 46: Food expenditure per capita per month by sex and age group

Variable		Percentage above FPL	Percentage below FPL
All sample		**31.1**	**69.9**
Household head Sex	Male	36.9	63.1
	Female	26.0	74.0
Household head Age group	18-24	45.4	54.5
	25-34	38.9	61.1
	35-44	30.0	70.0
	45-54	31.2	68.8
	55-64	28.1	71.9
	65+	29.8	70.2
Sarah Baartman	31.7	68.3	
Amathole	26.0	74.0	
Chris Hani	26.7	73.3	

Variable		Percentage above FPL	Percentage below FPL
All sample		**31.1**	**69.9**
Joe Gqabi	23.3	76.7	
O.R.Tambo	31.8	68.2	
Alfred Nzo	25.8	74.2	
Buffalo City	35.3	64.7	
Nelson Mandela Bay	39.9	60.1	

7.6 Relationship between household food security situation and socio-economic factors

Household food security varies according to demographics, socio-economic characteristics, and support levels. This section presents results investigating the extent to which food security status of households differs according to several factors. For this analysis, the HFIAS categories were merged into a binary food security status variable, indicating whether a household was food secure or food insecure. The three food insecurity categories (i.e., mild, moderate, and severe levels) were all captured as food insecure. Table 45 presents the results. The table shows that significant relationships were found between household food security status and some demographics and socioeconomic factors such as gender, age of household heads/ acting head, access to irrigation, improved water source, sanitation, social grants, household size, markets, education level of household head/ acting head, and involvement in agricultural production.

Table 47: Relationship of food security and socio-economic factors in Eastern Cape Province

Variables	Categories	Food security status		t / Chi-square tests
		Food secure	Food insecure	
HH Sex	Male	33.4	66.6	***
	Female	20.6	79.4	
HH age	Mean age (years)	53.7	55.5	***
HH age group	18-24	40.0	60.0	***
	25-34	29.3	70.7	
	35-44	28.0	72.0	
	45-54	26.7	73.3	
	55-64	24.9	75.1	
	65+	24.7	75.3	
Marital status	Married	33.6	66.4	***
	Unmarried	22.4	77.6	
District	Cacadu	22.6	77.4	***
	Amathole	25.1	74.9	
	Chris Hani	23.7	76.3	
	Joe Gqabi	25.5	74.5	
	O.R.Tambo	25.7	74.3	
	Alfred Nzo	20.0	80.0	
	Buffalo City	36.0	64.0	
	Nelson Mandela Bay	30.1	69.9	

Variables	Categories	Food security status		t / Chi-square tests
		Food secure	Food insecure	
HH education level	No schooling	12.7	87.3	***
	Primary	13.8	86.2	
	Matric	27.6	72.4	
	Tertiary	70.1	29.9	
Household size	mean	2.9	1.8	***
HH employment status	Employed	41.8	58.2	***
	Unemployed	21.1	78.9	
Access to social grants	Beneficiary	17.9	82.1	***
	Non-beneficiary	32.8	67.2	
Access to land	Yes	24.1	75.9	***
	No	31.6	68.4	
Involved in farming activities	Yes	23.2	76.8	***
	No	27.6	72.4	
Access to irrigation	Yes	30.5	69.5	***
	No	18.9	81.1	
Access to extension	Yes	22.8	77.2	*
	No	22.2	77.8	
Access to markets	Yes	23.7	76.7	***
	No	19.1	80.9	
Access to road infrastructure	Yes	24.0	76.0	***
	No	19.2	80.8	
Location type	Urban, formal & informal	31.2	68.8	***
	Rural, Traditional areas	21.3	78.7	
	Farms	35.8	64.2	
Access to improved water sources	Yes	12.8	87.2	***
	No	29.2	70.8	
Access to improved sanitation	Yes	14.3	85.7	***
	No	27.0	73.0	

The Table 47 shows female-headed households were significantly more likely to be food insecure than male-headed households. Among male households, 66.6% were food insecure, while 79.4% were food insecure among female-headed households. This result is not unexpected, as females generally have disadvantages in accessing productive resources in traditional communities due to, among others, the historical formulation and implementation of patrilineal laws and cultural traditions, including laws that limit females' inheritance of productive assets such as land. Further, there is often a social and administrative bias towards males, as well as unequal access to education, extension, training, information, and inputs, which limits the livelihood options for females, compounding the food security plight of their households.

The age of a household head also significantly varied with the food status of their households, with the average age of households in the food insecure category marginally higher than that of those in the food secure category. A positive relationship exists between age of household head and food insecurity status,

with the proportion of food insecure households increasing progressively as the household head become older. For example, while 60% of households headed by the 18-24 years age group, 75% of households are food insecure among those headed by the over 65 years group.

Households in the food insecure category had marginally fewer household members than those in the food secure category, and this difference was statistically significant. This was unexpected, since more members imply more mouths to feed, thus should lead to a greater burden than in smaller ones. Bigger households imply a cheaper, reliable, and committed source of labour. This result suggest that the labour availability dimension of household size dominates the consumption burden aspect.

Table 47 shows a positive and significant relationship between the education level of heads of household heads and household food security. The proportion of food secure households increased significantly as education levels also increased. For example, while 12.7% of households headed by people with no education were food secure, 70.1% of households headed by people with tertiary qualifications were food secure. Educated people have higher opportunities and higher chances of success in their endeavours, which leads to higher economic and welfare outcomes. Also, higher education among farming communities, such as those in the farming regions of the Eastern Cape Province, could lead to better information access and assimilation, which may increase awareness of the possible advantages of modernizing agriculture by means of technological inputs or simply taking advantage of opportunities arising in the area. This leads to higher productivity, food production and incomes. Even though increasing education is associated with increasing chances of being food secure, the results indicate that it is only after a household head attains a tertiary qualification that education plays a decided role in ensuring food security. The food-insecure household category dominates among those with education level attainments of matric and below, with food secure households becoming the majority for those in the tertiary qualification category.

The results show that access to land, as well as involvement in farming activities, did not play a crucial role in the food security status of households in the Eastern Cape Province. Among those with access to land, 24.1% were food secure, while 31.6% were food secure among those with no access to land. This result suggests that households that have access to land experience higher level levels of food insecurity. Households that were involved in agriculture were characterised by marginally higher levels of food security than those not engaged in farming activities, indicating that farming does not play a huge role when it comes to food security in the province. In line with expectations, however, households with access to irrigation had a marginally higher proportion of food secure households (30.5%) in comparison to households with no access to irrigation (18.9%). This result suggests that while rain-fed might not be contributing significantly to food security, irrigation-fed farming has potential to improve food security among poor households.

Households in farms (35.8%) reported higher levels of food security than those in urban (31.2%) or rural areas (21.3%) areas. Employment was significantly associated with increased chances of a household being food secure. While 41.8% of households among those headed by employed household heads were food secure, only 21.1% of those headed by unemployed heads were food secure. This is in line with expectations. Employment plays an important role in alleviating the scourge of poverty and food insecurity. Households that were dependent on social grants were more likely to be food insecure than those not dependent on social grants. This indicates that social grants are well-targeted, benefiting the poor food insecure households, whose situation would have been worse without social grants. However, the social grants are not enough to lift households out of food insecurity, as food insecurity remains prevalent among the social grant dependent households.

Access to infrastructure (such as roads), basic services (such as improved water sources and sanitation), and support/ institutional services (extension, market) play a positive role in improving the food security status of households. The results show that among the proportion of food secure households was higher among those who reported to have access to all-weather roads than among those with no access to better roads. Similarly, there was a higher proportion of food secure households among those with access to improved water or sanitation than those without access. Access to extension and markets were also associated with higher proportions of food secure households. These results were expected, since for example, access to

good roads is expected to result in reduced transport costs to and from the market, whether to buy (inputs, food, etc.), or to sell output. Those located near accessible roads have better access to market information (prices of inputs, food items, commodities), and thus are in a better position to achieve better transactions and savings.

7.7 Discussion

The food and nutrition security situation in the Eastern Cape Province continues to be a cause for concern. The food access indicators have shown that a considerable proportion of households still face difficulties in accessing food, with the Household Food Insecurity Access Score (HFIAS), indicating that almost three quarters of the households (73.4%) in the Eastern Cape Province experienced food insecurity, with only 26.6% found to be food secure. This figure is considerably higher when compared with previous studies, such as Stats SA (2020) who reported, in the General Household Survey, that 20.5.% of the households in the Eastern Cape Province were experiencing food access difficulties.

The HFIAS also showed that 20.2% of the households were severely food insecure, 31% of the surveyed households were moderately food insecure, while 22.2% of the households were mildly food insecure. This household food security situation is not strange, bearing in mind that the data was collected during the COVID-19 pandemic times. This implies the effects of Covid-19 measures may have affected both food availability and access in the study area. While the higher food insecurity figures reported in this study could also be possibly because the study largely focussed on open access livelihood zones and these are generally rural communities which are traditionally more food insecure, hence you would expect higher food insecurity levels there. Overall, these results are in line with most of the food security findings which generally indicate that a significant proportion of households' experience food access challenges in South Africa. For example, the 2021 Global Food Security Report indicated that during the 2018-20 period, 45% of the population in South Africa were characterised by moderate food insecurity, and 19% experienced severe food insecurity. The Rapid Assessment Study on the impact of COVID-19 on food and nutrition security found that about 48.9% of individuals in South Africa have moderate to severe food insecurity.

In addition, the results of the food security status as measured by the Household Hunger Scale (HHS) showed that most of the sampled households experienced little to no hunger (78.2%). About 16.5% and 5.3% of the households experienced moderate hunger and severe hunger, respectively. While a significant proportion of households experienced food insecurity (as shown by the HFIAS results), the HHS suggests that the level of food deprivation is not very severe for most of the households in the Eastern Cape Province. Also, emerging results from the household survey indicate that 80% of the male-headed households experienced little to no hunger compared to 77% of the female-headed households. This situation indicates that should there be interventions, such interventions should be more tailor-made for female-headed households. The moderate hunger in the household was slightly more experienced by female-headed households compared to male-headed households while there were same levels of severe hunger in the household was more experienced by both male-headed and female-head households.

The Food Consumption Score (FCS) revealed that most households (14.8%) were consuming poor diets in this province. This is an alarming figure requires urgent attention from the authorities and other stakeholders involved in the food system in the province and nation. Even the other balance of the households were in the borderline line, with 23.6% of the households found in this category. This means 61.6% of the households in this province consumed acceptable diets. The findings denote the importance for the government to develop interventions that enhance access to diverse foods in most of the areas across districts as a number of these districts are on borderline diets.

The most popular food groups were organ meat, cereals, condiments, oils and fats, sugars, other vegetables, meat, roots and tubers, milk and milk products, orange fresh vegetables and eggs. The least consumed food groups were dark leafy vegetables, fish and see foods, pulses and nuts, and orange-coloured fruits. This shows that the most consumed food groups were mostly the less healthy ones, providing a different light to what a dietary diversity score showed which gave an impression of a highly diverse and healthy diet.

8 Nutrition

8.1 Child nutrition and well-being

South Africa adopted the WHO feeding guidelines which recommended that infants should be exclusively breastfed until 6 months of age (WHO, 2003; DoH, 2011). It is important to have data on breastfeeding and complementary feeding since this can provide information on the child's growth and immunity and may also explain certain disease conditions. Exclusive breastfeeding for 6 months is particularly important because it provides the best immunity against infectious diseases and furthermore, decreases the likelihood of development of gastrointestinal diseases resulting from feeding from bottles which are not properly cleaned or from infant formula which has not been correctly mixed. Exclusive breastfeeding is encouraged by putting the baby to the breast as soon as possible after giving birth, and by not providing any fluid other than breast milk. The longer this is delayed the less chance there is of exclusive breastfeeding taking place. It is recommended that semi-solid foods should not be introduced to exclusive breastfeeding infants before 6 months of age since breast milk meets all nutritional requirements; and to infants on other feeding regimes at 4 months of age. Introducing solids too late can also be harmful since infants may not meet all their energy and nutrient requirements.

8.1.1 Infant Feeding practices

Breastfeeding status

Data was recorded for a total of 503 children under the age of 2 years. Of those aged 0-11 months (n=224), 82.6% were ever breastfed, while 73.7% were breastfeeding at the time the survey was conducted. In children aged 12-24 months (n=279), 78.1% were ever breastfed, while 33.9% were being breastfed at the time the survey was conducted (Table 48). Exclusive breastfeeding was reported in 24.4% of all children aged 0-6 months.

While female children appeared to have a higher prevalence of both ever been breastfed (82.5%) and currently being breastfed (55.8%) compared to male children (77.6% and 47.9%, respectively), the differences were not significant. Reports of between 69.4% and 96.6% were recorded for children that were ever breastfed across all districts, with Nelson Mandela Bay having a significantly higher prevalence (96.6%) compared to 4 other districts namely Buffalo City, Chris Hani, Joe Gqabi, and OR Tambo (range: 69.4%-74.6%). Reports of between 42.6% and 68.0% were recorded for children that were currently breastfeeding across all districts, with no significant differences between them. When disaggregating by district though, results should be interpreted with caution as the sample sizes in some districts were small.

Table 48: Breastfeeding status among infants aged 0-24 months in Eastern Cape Province

	Ever been breastfed			Currently breastfed1			Exclusively breastfed (0-6 months)		
	%	95% CI	n	%	95% CI	N	%	95% CI	n
Age									
0-11 months	82.6	[77.1-87.0]	224	73.7	[66.9-79.5]	186	24.4	[16.3-34.8]	82
12-24 months	78.1	[72.9-82.6]	279	33.9	[28.0-40.4]	221	-	-	0#

	Ever been breastfed			Currently breastfed1			Exclusively breastfed (0-6 months)		
	%	95% CI	n	%	95% CI	N	%	95% CI	n
Gender									
Male	77.6	[72.0-82.4]	246	47.9	[40.9-55.0]	192	-	-	30
Female	82.5	[77.3-86.7]	257	55.8	[49.1-62.3]	215	-	-	52
District									
Alfred Nzo	86.3	[76.4-92.5]	73	52.3	[40.3-64.1]	65	-	-	15#
Amathole	83.0	[69.5-91.3]	47	51.3	[36.0-66.4]	39	-	-	10#
Buffalo City	74.5	[60.9-84.6]	51	50.0	[34.6-65.4]	38	-	-	8#
Chris Hani	74.6	[62.5-83.8]	63	48.9	[35.1-62.9]	47	-	-	7#
Joe Gqabi	72.3	[61.7-80.8]	83	42.6	[30.9-55.2]	61	-	-	10#
Nelson Mandela Bay	96.6	[87.2-99.1]	58	53.6	[40.6-66.1]	56	-	-	10#
O.R.Tambo	69.4	[57.9-79.0]	72	51.0	[37.5-64.3]	51	-	-	9#
Sarah Baartman	89.3	[78.1-95.1]	56	68.0	[54.0-79.4]	50	-	-	13#
Total	**80.1**	**[76.4-83.4]**	**503**	**52.1**	**[47.2-56.9]**	**407**	**24.4**	**[16.3-34.8]**	**82**

1among those ever breastfed
* cell sample sizes too small to generate reasonable estimate
# n<30

8.1.1.1 Time lapsed until the introduction of breastfeeding

In most infants aged 0-24months, (n=403), breastfeeding was introduced immediately (68.8%), within the first hour (10.9%) or within 24 hours (5.0%) (Table 49). Only in 1.3% of cases was breastfeeding introduced more than 24 hours after birth. There were no significant differences reported between children aged 0-11 months and 12-24 months. There were also no significant differences between gender.

Reports of between 52.2% and 92.6% were recorded for children that were immediately breastfed across all districts, with Joe Gqabi District having a significantly higher prevalence (92.6%) compared to two other districts namely Amathole (60.7%), and OR Tambo (52.2%) (Table 49). There was also a significant difference across districts for those who were breastfed within an hour, with Joe Gqabi having a significantly lower prevalence (0.6%) compared to Amathole (21.1%). However, due to the small sample size at district level, results should be interpreted with caution.

Table 49: Time lapsed until the introduction of breastfeeding among infants aged 0-24 months in Eastern Cape

	Immediately		Less than one hour		Less than 24 hours		More than 24 hours		Don't know		
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI	n
Age											
0-11 months	75.0	[63.7-83.6]	15.9	[9.1-26.2]	5.2	[2.5-10.4]	2.8	[0.7-10.5]	1.2	[0.2-8.3]	185
12-24 months	65.1	[41.6-83.0]	7.9	[3.7-16.2]	4.9	[2.1-10.9]	0.4	[0.1-2.0]	21.7	[4.6-61.2]	218
Gender											
Male	63.7	[39.3-82.7]	7.1	[2.9-16.0]	3.4	[1.3-8.5]	1.1	[0.3-3.6]	24.8	[6.0-62.9]	191
Female	75.4	[65.8-83.0]	15.9	[9.8-24.8]	7.1	[3.9-12.5]	1.6	[0.2-10.4]	0.0	[0.0-0.3]	212

	Immediately		Less than one hour		Less than 24 hours		More than 24 hours		Don't know		
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI	n
District											
Alfred Nzo	73.7	[56.7-85.7]	18.8	[10.4-31.7]	7.5	[1.7-27.9]	0.0		0.0		63
Amathole	60.7	[43.4-75.7]	21.1	[10.9-36.7]	16.8	[7.6-33.0]	1.4	[0.2-8.3]	0.0		39
Buffalo City	79.9	[61.0-90.9]	10.4	[3.2-29.2]	2.0	[0.5-8.2]	7.7	[1.8-27.7]	0.0		38
Chris Hani	75.1	[57.2-87.2]	13.6	[7.9-22.3]	4.6	[1.3-14.6]	0.0		6.7	[1.1-31.5]	47
Joe Gqabi	92.6	[83.6-96.9]	0.6	[0.1-4.7]	6.7	[2.7-15.6]	0.0		0.0		60
Nelson Mandela Bay	75.5	[62.0-85.3]	18.1	[8.1-35.6]	4.3	[1.6-10.8]	2.2	[0.6-7.6]	0.0		56
O.R.Tambo	52.2	[35.1-68.8]	4.5	[0.9-20.2]	3.4	[0.5-21.1]	0.0		39.9	[17.6-67.4]	50
Sarah Baartman	80.7	[54.8-93.5]	13.3	[4.5-33.6]	6.0	[1.6-20.2]	0.0		0.0		50
Total	**68.8**	**[54.0-80.6]**	**10.9**	**[6.2-18.7]**	**5.0**	**[2.6-9.5]**	**1.3**	**[0.4-4.3]**	**13.9**	**[2.8-47.3]**	**403**

8.1.1.2 Age at which breastfeeding was stopped

In children aged 0-24 months (n=192), breastfeeding was most often stopped between the ages of 0-3 months (26.6%) and 5-6 months (26.4%). About 63% of mothers stopped breastfeeding before the age of 6 months (Figure 77). Only 18.9% of mothers continued to breastfeed for longer than 12 months. Significantly more mothers of children aged 0-11 months (56.1%) stopped breastfeeding at less than 3 months compared to mothers of 12-24 months old (20.3%).

The mean age at which breastfeeding was stopped among those currently breastfed was 6.8 months. While it appeared as if more girls stopped breastfeeding earlier (0-4 months) than boys, there were no significant differences between genders.

Due to small sample sizes in all districts, comparisons could not be made at a district level.

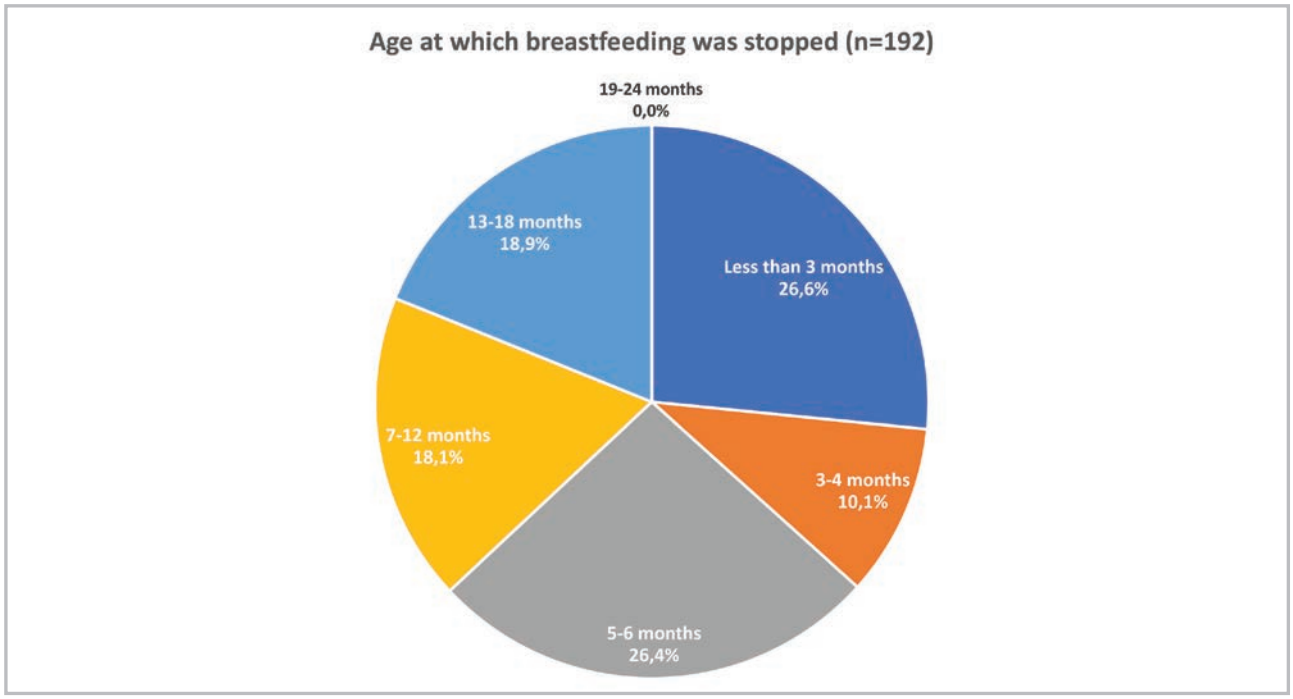


Figure 77: *Age at which breastfeeding was stopped among infants aged 0-24 months in Eastern Cape*

8.1.1.3 First drink other than breast milk

Infant formula (43.7%), gripe water (26.9%), and plain water (19.1%) were reported to be the most common first drink other than breast milk that was introduced to infants under 2 years of age (Figure 78). There were no significant differences between age groups and genders (Table 50). While there were some significant differences at a district level for some of the first drinks, these should be interpreted with caution due to a small sample size (Table 50).

Mothers in most districts reported that infant formula, followed by water, was the most common first drink introduced to children aged 0-24 months (range: 25.85-65.7%) (Table 50). However, in one district (Chris Hani), plain water was the most common drink (39.0%), followed by infant formula (37.1); and in two districts (O.R. Tambo and Sarah Baartman) gripe water was the most common drink (42.6% and 46.5%, respectively) followed by infant formula (37.8% and 25.8%, respectively). It is important to note though that district level comparisons must be interpreted with caution due to the small sample sizes.

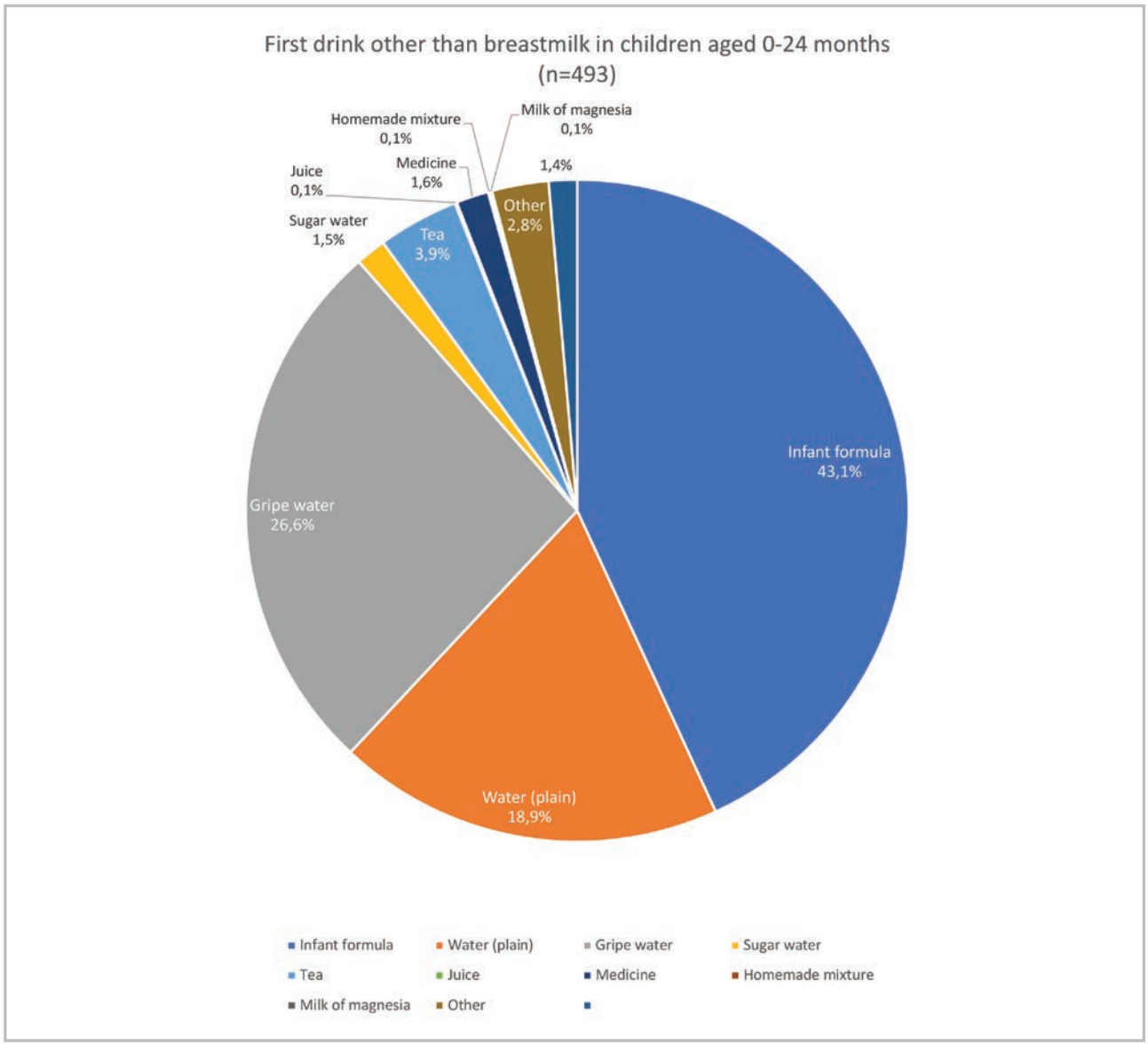


Figure 78: *First drink other than breast milk among children aged 0-24 months in Eastern Cape*

Table 50: The first drink other than breast milk among children aged 0-24 months by district in Eastern Cape Province

	Infant formula		Water (plain)		Gripe water		Sugar water		Tea		Juice		Medicine		Home made mixture		Milk of magnesia		Other		Total
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI	n
Age																					
0-11 months	46.6	[35.7-57.9]	20.2	[13.6-28.9]	21.3	[13.0-33.0]	2.1	[0.5-8.4]	0.7	[0.1-4.5]	0.3	[0.0-1.9]	3.8	[0.7-18.2]	0.3	[0.1-1.2]	0.0		4.7	[1.6-13.4]	217
12-24 months	42.1	[21.9-65.3]	18.5	[9.2-33.7]	30.1	[11.2-59.6]	1.1	[0.5-2.9]	5.9	[1.5-20.9]	0.1	[0.0-0.4]	0.4	[0.1-1.5]	0.0		0.1	[0.0-1.0]	1.7	[0.4-6.9]	276
Gender																					
Male	36.2	[17.3-60.8]	15.4	[7.3-29.6]	35.3	[14.5-63.7]	1.7	[0.4-6.2]	6.7	[1.7-22.3]	0.2	[0.0-1.2]	0.3	[0.1-1.2]	0.0	[0.0-0.4]	0.0		4.1	[1.4-11.9]	239
Female	53.1	[42.5-63.4]	23.8	[16.1-33.7]	16.4	[9.1-27.8]	1.3	[0.5-3.2]	0.6	[0.1-3.3]	0.0		3.3	[0.7-14.9]	0.2	[0.0-1.1]	0.2	[0.0-1.4]	1.1	[0.4-3.0]	254
District - EC																					
Alfred Nzo	51.4	[36.5-66.1]	34.6	[20.8-51.5]	7.7	[2.9-19.1]	0.9	[0.2-3.6]	2.9	[0.5-15.6]	0.0		1.7	[0.4-6.6]	0.8	[0.1-5.8]	0.0		0.0		68
Amathole	65.7	[46.3-80.9]	15.2	[8.2-26.4]	16.6	[5.1-42.7]	2.5	[0.4-15.7]	0.0		0.0		0.0		0.0		0.0		0.0		47
Buffalo City	63.5	[42.0-80.7]	21.5	[7.9-46.7]	10.1	[3.8-23.9]	0.5	[0.1-3.1]	0.0		0.0		0.0		0.0		0.0		4.4	[0.6-27.3]	49
Chris Hani	37.1	[22.5-54.6]	39.0	[19.4-62.9]	10.5	[3.8-25.9]	0.0		0.5	[0.1-3.9]	0.3	[0.1-2.2]	2.4	[0.5-9.8]	0.0		0.0		10.1	[3.0-29.3]	60
Joe Gqabi	36.7	[21.6-55.1]	33.5	[16.1-56.9]	9.3	[1.7-38.0]	0.1	[0.0-0.4]	1.5	[0.3-8.2]	1.4	[0.2-9.0]	0.5	[0.1-3.2]	0.4	[0.1-2.6]	0.0		16.8	[4.9-44.1]	84
Nelson Mandela Bay	45.3	[31.2-60.3]	15.7	[9.6-24.5]	28.3	[15.3-46.3]	1.9	[0.4-8.1]	0.0		0.0		8.2	[1.3-38.4]	0.0		0.6	[0.1-4.4]	0.0		58
O.R.Tambo	37.8	[14.1-69.2]	6.3	[1.6-21.3]	42.6	[17.1-72.8]	2.3	[0.4-12.5]	10.7	[4.3-23.9]	0.0		0.0		0.0		0.0		0.3	[0.1-1.7]	71
Sarah Baartman	25.8	[13.6-43.5]	24.3	[8.0-54.4]	46.5	[27.2-66.9]	2.0	[0.5-8.0]	0.9	[0.2-4.5]	0.0		0.5	[0.1-3.5]	0.0		0.0		0.0		56
Total	**43.7**	**[31.4-56.9]**	**19.1**	**[11.8-29.6]**	**26.9**	**[13.7-46.2]**	**1.5**	**[0.6-3.6]**	**4.0**	**[1.0-14.9]**	**0.1**	**[0.0-0.6]**	**1.6**	**[0.4-7.0]**	**0.1**	**[0.0-0.5]**	**0.1**	**[0.0-0.6]**	**2.8**	**[1.1-6.9]**	**493**

8.1.1.4 Age at which the first drink other than breast milk was introduced

Overall, the first drink other than breastmilk was mainly introduced at 0-1month (58.5%), followed by 6 months (11.2%). The same pattern was followed for children aged children aged 12-24 months, where other drinks were first introduced at 0-1 months (58.7%) and 6 months (11.4%), with no significant differences shown between age groups (Table 51). We can assume that the introduction of other drinks before the age of 1 month is most likely the introduction of infant formula. Of the remaining children, 8.6% of children were introduced to other drinks at three months and only 5.5% were introduced after 6 months of age.

When doing comparisons by gender, 64.7% of boys were introduced to other drinks before the age of one month and 10.1% at three months, while 50.9% of girls were introduced to other drinks before the age of one month and 17.6% at six months. However, there were no significant differences between gender for all ages at which the first drink other than breastmilk was introduced.

Similar patterns were displayed across districts, where most children were introduced to other drinks before the age of 1 month (41.7%-73.6%). While there were some significant differences at a district level at various time periods, these results should be interpreted with caution due to the small sample sizes at district level.

Table 51: Age at which the first drink other than breast milk was introduced among infants aged 0-24 months in Eastern Cape

	0-1 month		2 months		3 months		4 months		5 months		6 months		>6 months		
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI	n
0-11 months	58.0	[46.1-69.1]	13.0	[8.3-19.8]	9.4	[5.3-16.1]	5.4	[2.4-12.1]	1.2	[0.5-2.9]	10.9	[3.2-31.1]	2.0	[0.9-4.8]	215
Age															
12-24 months	58.7	[35.7-78.4]	6.8	[3.4-13.2]	8.2	[3.7-17.3]	2.6	[0.6-10.9]	4.9	[1.4-15.3]	11.4	[5.5-22.0]	7.4	[2.6-19.0]	275
Gender															
Male	64.7	[40.3-83.3]	6.7	[3.1-13.8]	10.1	[4.3-22.2]	4.5	[1.4-13.3]	5.7	[1.6-18.2]	5.9	[2.3-14.1]	2.3	[0.8-6.4]	236
Female	50.9	[41.1-60.5]	12.0	[7.3-19.0]	6.9	[3.7-12.3]	2.5	[0.6-9.1]	1.0	[0.4-2.1]	17.6	[8.9-31.9]	9.2	[3.6-21.5]	254
District															
Alfred Nzo	57.5	[41.4-72.2]	15.5	[7.0-30.6]	2.4	[0.9-6.4]	9.2	[1.7-37.2]	2.8	[0.6-12.0]	8.8	[3.0-22.9]	3.8	[0.8-17.2]	69
Amathole	59.9	[40.0-77.1]	8.6	[3.3-20.6]	8.1	[3.0-20.3]	8.3	[2.7-22.4]	1.6	[0.2-10.4]	5.7	[0.8-30.1]	7.8	[2.7-20.4]	46
Buffalo City	45.8	[31.5-60.7]	5.5	[2.0-14.5]	7.8	[1.9-27.0]	2.1	[0.5-7.9]	1.3	[0.2-9.9]	22.4	[8.5-47.2]	15.1	[3.0-50.4]	49
Chris Hani	53.4	[29.6-75.8]	13.5	[7.1-24.2]	9.0	[2.9-24.7]	2.2	[0.5-9.4]	6.8	[1.6-24.6]	5.8	[2.3-13.5]	9.3	[2.9-26.1]	59
Joe Gqabi	41.7	[24.0-61.9]	25.0	[12.1-44.5]	8.6	[3.1-21.6]	0.0		4.1	[1.2-12.8]	6.0	[2.2-15.5]	14.6	[6.9-28.1]	83
Nelson Mandela Bay	55.3	[37.2-72.1]	8.1	[3.8-16.4]	13.7	[6.8-25.5]	1.6	[0.2-9.4]	2.7	[0.5-13.2]	16.0	[6.9-32.8]	2.6	[0.8-8.1]	57
O.R. Tambo	73.6	[52.4-87.6]	2.1	[0.4-11.6]	6.3	[1.3-25.9]	1.0	[0.2-5.3]	5.0	[0.5-34.5]	10.6	[6.0-18.0]	1.4	[0.3-6.6]	71
Sarah Baartman	44.3	[27.5-62.6]	19.9	[11.6-32.0]	16.7	[6.9-35.1]	14.4	[2.4-53.9]	0.8	[0.2-4.0]	3.5	[1.0-11.2]	0.3	[0.0-2.3]	56
Total	**58.5**	**[45.8-70.0]**	**9.1**	**[5.5-14.7]**	**8.6**	**[4.9-14.9]**	**3.6**	**[1.5-8.4]**	**3.6**	**[1.2-9.8]**	**11.2**	**[7.9-15.7]**	**5.5**	**[2.3-12.3]**	**490**

8.1.1.5 Milk Feeds

The mean age at which milk feeds were introduced to children was 3.8 month. This was higher in those aged 12-24 months (4.4 months), and boys (4.0 months), as compared to those aged 0-11 months (3.0 months) and girls (3.5 months). However, there were no significant differences between both age groups and gender (Table 52). There were also no significant differences in mean age at a district level.

Table 52: Mean age at introduction of milk feeds among infants 0-24 months old in Eastern Cape Province

	Mean	95% CI	n
Age			
0-11 months	3.0	[2.2-3.8]	129
12-24 months	4.4	[3.4-5.3]	162
Gender			
Male	4.0	[3.0-5.0]	136
Female	3.5	[2.8-4.3]	155
District			
Alfred Nzo	2.6	[1.8-3.5]	45
Amathole	4.7	[3.1-6.3]	29
Buffalo City	4.2	[2.5-5.9]	32
Chris Hani	3.9	[2.4-5.3]	36
Joe Gqabi	3.4	[2.7-4.1]	42
Nelson Mandela Bay	2.9	[1.9-3.9]	31
O.R.Tambo	3.8	[2.9-4.6]	44
Sarah Baartman	5.9	[2.1-9.8]	32
Total	**3.8**	**[3.2-4.4]**	**291**

Except for breast milk, the majority of infants (87.6%) were receiving infant formula, full strength cow's milk (10.7%), and diluted cow's milk (3.0%) (Table 53). There was a significant difference in the prevalence of children receiving infant formula, where those aged 12-24 months had a significantly lower prevalence (80.2%) compared to those aged 0-11 months (97.5%). No significant differences were observed between genders. At a district level, there were some significant differences when using full strength cow's milk, diluted cow's milk, and formula. However, comparisons between districts must be interpreted with caution, due to the small sample size at district level.

Table 53: The type of milk other than breast milk that the infant receives (among infants aged 0-24 months who are receiving milk feeds) in Eastern Cape Province

	Cow's milk (full strength)		Cow's milk (diluted)		KLIM / Nespray		Infant formula		Other		
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI	n
Age											
0-11 months	4.5	[1.5-12.5]	5.0	[0.9-23.2]	0.0		97.5	[93.0-99.2]	0.0		129
12-24 months	15.4	[7.8-28.3]	1.5	[0.6-3.6]	2.9	[1.3-6.5]	80.2	[67.2-88.9]	2.9	[0.8-9.4]	162
Gender											
Male	16.0	[7.6-30.8]	4.5	[0.9-20.3]	1.4	[0.4-4.6]	81.5	[66.4-90.7]	2.2	[0.4-12.0]	136
Female	5.7	[2.7-11.8]	1.5	[0.3-6.7]	1.9	[0.7-5.4]	93.5	[88.7-96.3]	1.1	[0.3-4.0]	155

	Cow's milk (full strength)		Cow's milk (diluted)		KLIM / Nespray		Infant formula		Other		
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI	n
District											
Alfred Nzo	0.0		1.5	[0.4-6.2]	0.0		97.3	[92.6-99.0]	0.6	[0.1-4.4]	45
Amathole	-	-	-	-	-	-	-	-	-	-	29#
Buffalo City	21.5	[9.3-42.3]	4.9	[0.8-23.8]	2.1	[0.5-9.1]	85.3	[61.7-95.4]	0.0		32
Chris Hani	12.3	[4.3-30.4]	0.9	[0.1-6.8]	3.8	[0.7-19.3]	84.6	[70.6-92.6]	4.8	[1.4-14.9]	36
Joe Gqabi	21.7	[11.3-37.6]	1.3	[0.2-9.7]	0.0		79.3	[63.9-89.2]	0.0		42
Nelson Mandela Bay	1.3	[0.2-9.6]	0.0		2.0	[0.3-14.1]	90.1	[66.5-97.7]	6.6	[0.9-35.5]	31
O.R.Tambo	4.4	[1.2-15.1]	0.2	[0.0-1.4]	1.3	[0.2-9.6]	94.2	[79.3-98.6]	0.0		44
Sarah Baartman	35.3	[8.0-77.5]	22.7	[3.5-70.1]	0.0		64.7	[22.5-92.0]	0.0		32
Total	**10.7**	**[5.9-18.9]**	**3.0**	**[0.8-10.2]**	**1.7**	**[0.7-3.7]**	**87.6**	**[79.4-92.8]**	**1.6**	**[0.5-5.5]**	**291**

* cell sample sizes too small to generate reasonable estimate
# n<30

8.1.1.6 Solid foods

The mean age at which first semi-solid or solid foods were introduced was 4.7 months. There was a significant difference between the older and younger infants where those aged 12-24 months were first introduced to solid food at the age of 5.2 months compared to significantly lower mean age of 3.7 months in infants aged 0-11 months. There were no significant differences between genders, as well as at a district level (Table 54).

Table 54: Age of introduction of first semi-solid or solid food and the types of foods among infants 0-24 months in Eastern Cape

	Mean	95% CI	sample
Age			
0-11 months	3.7	[3.1-4.3]	178
12-24 months	5.2	[4.7-5.8]	275
Gender			
Male	4.7	[4.2-5.2]	223
Female	4.8	[4.1-5.4]	230
District			
Alfred Nzo	4.7	[3.0-6.5]	61
Amathole	3.9	[3.0-4.9]	44
Buffalo City	5.3	[4.1-6.5]	44
Chris Hani	5.9	[4.4-7.4]	57
Joe Gqabi	4.4	[3.5-5.3]	80
Nelson Mandela Bay	3.7	[2.8-4.7]	53
O.R.Tambo	4.9	[4.4-5.4]	65
Sarah Baartman	4.0	[3.3-4.7]	49
Total	**4.7**	**[4.3-5.2]**	**453**

Table 55 shows that commercial infant cereal was the first semi-solid food given to most children aged 0-24 months (60.9%), followed by homemade infant cereal/porridge (23.9%) and bottled/canned baby foods (3.6%). Only 3.5% of infants had cereal/ porridge supplied by the clinic as their first semi solid foods, while 3.4%, 2.1% and 1.2% of mothers reported other foods, pureed / mashed fruit / vegetables, and traditional baby foods as their infants first food, respectively.

When disaggregating by age groups, the only significant finding occurred for other foods, where a significantly higher proportion of infants aged 0-11 months (9.6%) were given other foods compared to 0.4% of those aged 12-24 months.

While males appear to have a slightly higher prevalence of being introduced to commercial cereal/porridge, females appear to have a slightly higher prevalence of being introduced to homemade cereal/ porridge; however, these results were not significant for any of the first solid foods listed.

When disaggregating by district, significant differences were reported in commercial infant cereal where Buffalo City had a significantly lower prevalence (36.1%) of using it as a first food, compared to Amathole (76.9%) and OR Tambo (74.1%). Amathole was also significantly higher than Nelson Mandela Bay (42.7%). Significant differences were also reported in homemade infant cereal where Alfred Nzo (5.9%) and Joe Gqabi (9.9%) had significantly lower prevalence of using it as a first food compared to Buffalo City (41.9%). Nelson Mandela Bay had had a significantly higher prevalence (13.1%) of using bottled/ canned baby food compared to Joe Gqabi (0.4%) and Alfred Nzo (0.6%). Joe Gqabi District had a significantly higher prevalence (18.1%) of using other foods as a first food compared to Amathole (0.5%), while Sarah Baartman was the only district that reported using custard as a first food (16%). These results must, however, be interpreted with caution due to the small sample sizes at district level (Table 57).

Table 55: Types of first semi-solid or solid food among infants 0-24 months in Eastern Cape

	Name of first semi-solid or solid food (with a spoon or fingers)																
	Infant Cereal / Porridge (commercial)		Cereal / Porridge (homemade)		Cereal / Porridge (clinic)		Pureed / mashed vegetables / fruit		Bottled / canned baby foods		Traditional baby food		Custard		Other (specify)		
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI	n
Age (months)																	
0-11 months	66.7	[54.6-76.9]	12.3	[5.7-24.5]	1.5	[0.4-5.2]	4.4	[1.3-14.0]	5.3	[2.5-11.1]	0.1	[0.0-0.4]	0.0		9.6	[4.4-19.7]	179
12-24 months	58.1	[48.2-67.4]	29.6	[21.7-39.0]	4.4	[2.0-9.7]	0.9	[0.3-2.4]	2.8	[0.8-9.0]	1.7	[0.4-7.0]	2.0	[0.3-13.8]	0.4	[0.1-1.8]	275
Gender																	
Male	61.7	[52.3-70.3]	22.4	[16.0-30.4]	4.8	[2.1-10.8]	1.4	[0.5-3.8]	2.8	[0.7-9.9]	1.4	[0.3-7.0]	2.4	[0.3-16.2]	3.2	[0.9-10.7]	224
Female	60.0	[48.2-70.7]	26.0	[16.7-38.1]	1.7	[0.6-5.0]	3.0	[0.9-9.9]	4.8	[1.8-12.0]	0.8	[0.1-5.3]	0.0		3.7	[1.4-9.2]	230

Name of first semi-solid or solid food (with a spoon or fingers)																	
	Infant Cereal / Porridge (commercial)		Cereal / Porridge (homemade)		Cereal / Porridge (clinic)		Pureed / mashed vegetables / fruit		Bottled / canned baby foods		Traditional baby food		Custard		Other (specify)		
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI	n
District																	
Alfred Nzo	76.3	[52.0-90.5]	5.9	[2.5-13.1]	0.0		16.4	[4.5-44.9]	0.6	[0.1-3.7]	0.0				0.9	[0.1-6.0]	61
Amathole	76.9	[59.4-88.3]	15.8	[6.2-34.7]	0.0		0.9	[0.1-5.8]	6.0	[1.9-17.0]	0.0				0.5	[0.1-3.9]	44
Buffalo City	36.1	[21.6-53.7]	41.9	[26.8-58.7]	6.3	[2.9-13.0]	1.0	[0.1-7.9]	8.2	[2.8-21.6]	0.0				6.4	[1.2-28.2]	43
Chris Hani	68.3	[57.9-77.2]	15.9	[8.7-27.2]	4.0	[0.8-17.8]	0.0		3.1	[0.4-20.5]	6.1	[1.1-26.6]			2.7	[0.6-11.7]	58
Joe Gqabi	61.6	[37.4-81.2]	9.9	[4.6-19.8]	0.6	[0.1-4.1]	1.4	[0.2-9.8]	0.4	[0.0-2.5]	8.1	[1.3-37.5]			18.1	[5.2-47.2]	81
Nelson Mandela Bay	42.7	[25.6-61.8]	35.5	[18.7-56.9]	2.5	[0.6-10.4]	2.0	[0.4-9.2]	13.1	[4.0-35.0]	0.0				4.1	[0.5-25.1]	52
O.R. Tambo	74.1	[65.2-81.4]	19.5	[12.5-29.1]	5.5	[2.3-12.3]	0.0		0.0		0.0				0.9	[0.1-8.7]	65
Sarah Baartman	43.5	[22.0-67.7]	37.4	[19.4-59.7]	0.0		1.5	[0.4-5.3]	0.0		0.2	[0.0-1.8]	16.0	[2.5-58.5]	1.4	[0.2-10.2]	50
Total	**60.9**	**[52.8-68.6]**	**23.9**	**[18.1-30.8]**	**3.5**	**[1.6-7.2]**	**2.1**	**[0.8-5.6]**	**3.6**	**[1.6-8.2]**	**1.2**	**[0.3-4.6]**	**1.4**	**[0.2-9.4]**	**3.4**	**[1.5-7.7]**	**454**

8.1.2 Anthropometry (0-59 months)

This section presents the key nutrition findings for children aged 0-59 months. It presents anthropometric measures such as stunting, wasting and underweight, which are important indicators in the assessment of child health and nutrition status. It highlights both forms of moderate and severe acute malnutrition among children under the age of five. The prevalence of malnutrition remains a public health problem which results in substantial mortality and disease burden worldwide. The Lancet series (2013) reported that malnutrition accounts for 45% of all the deaths of children under the age of five. This estimate translated to 3.1 million deaths globally in 2011. It is further reported that it includes intrauterine foetal growth restriction, stunting, wasting, and micronutrient deficiency, especially of vitamin A and Zinc. This occurs along poor infant feeding practices which are indicated by suboptimum breastfeeding.

Anthropometric data was recorded for 1076 children under the age of 5 years, of these, there were a slightly higher number of girls (53.0%) than boys (47.0%) (Table 56).

Table 56: Distribution of age and sex of the sample in Eastern Cape Province

	Boys		Girls		Total	
AGE (months)	**n**	**%**	**n**	**%**	**N**	**%**
<6	39	40.2	58	59.8	97	9.0
6-17	120	49.0	125	51.0	245	22.8
18-29	117	46.1	137	53.9	254	23.6
30-41	96	45.7	114	54.3	210	19.5
42-53	98	49.2	101	50.8	199	18.5
54-59	36	50.7	35	49.3	71	6.6
Total	**506**	**47.0**	**570**	**53.0**	**1076**	**100.0**

8.1.2.1 Stunting

The overall prevalence of stunting for children under the age of 5 years (n=1033) was 31.4%, of which 15.6% was severe and 15.8% was moderate stunting (Table 57 and Figure 72). There were no significant differences in overall stunting for both age groups and gender. At a district level, Buffalo City (38.0%) and Nelson Mandela Bay Districts (40.3%) had a significantly higher prevalence of overall stunting compared to the Alfred Nzo district (15.9%).

When disaggregating by severe and moderate stunting, children aged 54-59 months had the highest prevalence of moderate stunting (35.3%), which was significantly higher than those aged 30-41-months (11.0%). For severe stunting, the 6-17 months age group had the highest prevalence (24.2%), which was significantly higher than those aged 42-53 months (5.8%) (Table 57 and Figure 80).

There were no significant differences between gender for both moderate and severe stunting. Generally, it seems as if a higher proportion of females were severely stunted (16.4% compared to 14.4%), while a higher proportion of males were moderately stunted (17.1% compared to 14.8%).

District comparisons show that the overall prevalence of stunting was highest in the Nelson Mandela Bay District (40.3%), with more moderate (26.1%) than severe (14.3%) stunting (Table 55 and Figure 74). Overall, stunting was significantly higher in Nelson Mandela Bay (40.3%) and Buffalo City (38.0%) compared to Alfred Nzo (15.9%). There were no significant differences for moderate stunting at a district level. For severe stunting, however, there was a significantly lower prevalence in the Alfred Nzo District (3.6%), compared to the Buffalo City (22.7%), Chris Hani (20.4%), Joe Gqabi (15.1%), Nelson Mandela Bay (14.3%) and Sarah Baartman (22.1%) districts.

Table 57: The prevalence of Stunting in children under 5 years by age, sex, and district in Eastern Cape

	No stunting HAZ>=-2		All stunting HAZ<-2		Moderate stunting HAZ<-2 and >=-3		Severe stunting HAZ<-3		
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	n
Age (months)									
<6	63.1	[47.7-76.1]	36.9	[23.9-52.3]	21.1	[10.2-38.4]	15.9	[9.0-26.6]	92
6-17	61.5	[41.6-78.2]	38.5	[21.8-58.4]	14.3	[7.5-25.4]	24.2	[12.6-41.5]	238
18-29	72.7	[61.5-81.7]	27.3	[18.3-38.5]	13.7	[7.6-23.5]	13.5	[7.9-22.2]	244
30-41	74.0	[64.0-82.0]	26.0	[18.0-36.0]	11.0	[6.8-17.5]	14.9	[8.4-25.0]	207
42-53	77.3	[63.0-87.2]	22.7	[12.8-37.0]	16.9	[8.0-32.2]	5.8	[2.8-11.8]	189
54-59	58.2	[38.5-75.5]	41.8	[24.5-61.5]	35.3	[18.8-56.3]	6.6	[2.4-16.8]	63
Gender									
Female	69.2	[62.1-75.4]	30.8	[24.6-37.9]	14.4	[10.6-19.2]	16.4	[11.2-23.5]	552
Male	68.1	[56.7-77.7]	31.9	[22.3-43.3]	17.1	[10.9-25.8]	14.8	[9.2-22.8]	481
District									
Alfred Nzo	84.1	[75.7-90.1]	15.9	[9.9-24.3]	12.2	[7.0-20.4]	3.6	[1.8-7.2]	152
Amathole	74.4	[58.6-85.6]	25.6	[14.4-41.4]	9.8	[5.3-17.5]	15.8	[6.2-34.6]	112
Buffalo City	62.0	[46.6-75.4]	38.0	[24.6-53.4]	15.3	[7.3-29.3]	22.7	[11.5-39.8]	120
Chris Hani	65.5	[49.5-78.6]	34.5	[21.4-50.5]	14.1	[6.1-29.6]	20.4	[10.1-37.0]	110
Joe Gqabi	67.1	[53.8-78.1]	32.9	[21.9-46.2]	17.9	[9.0-32.5]	15.1	[8.9-24.4]	160
Nelson Mandela Bay	59.7	[45.2-72.6]	40.3	[27.4-54.8]	26.1	[16.1-39.2]	14.3	[7.5-25.6]	111
O.R.Tambo	75.0	[55.5-87.8]	25.0	[12.2-44.5]	11.7	[4.8-25.8]	13.4	[5.6-28.6]	167
Sarah Baartman	61.4	[42.0-77.7]	38.6	[22.3-58.0]	16.5	[6.9-34.5]	22.1	[10.0-42.0]	101
Total	**68.6**	**[62.0-74.6]**	**31.4**	**[25.4-38.0]**	**15.8**	**[12.0-20.5]**	**15.6**	**[11.5-20.8]**	**1,033**

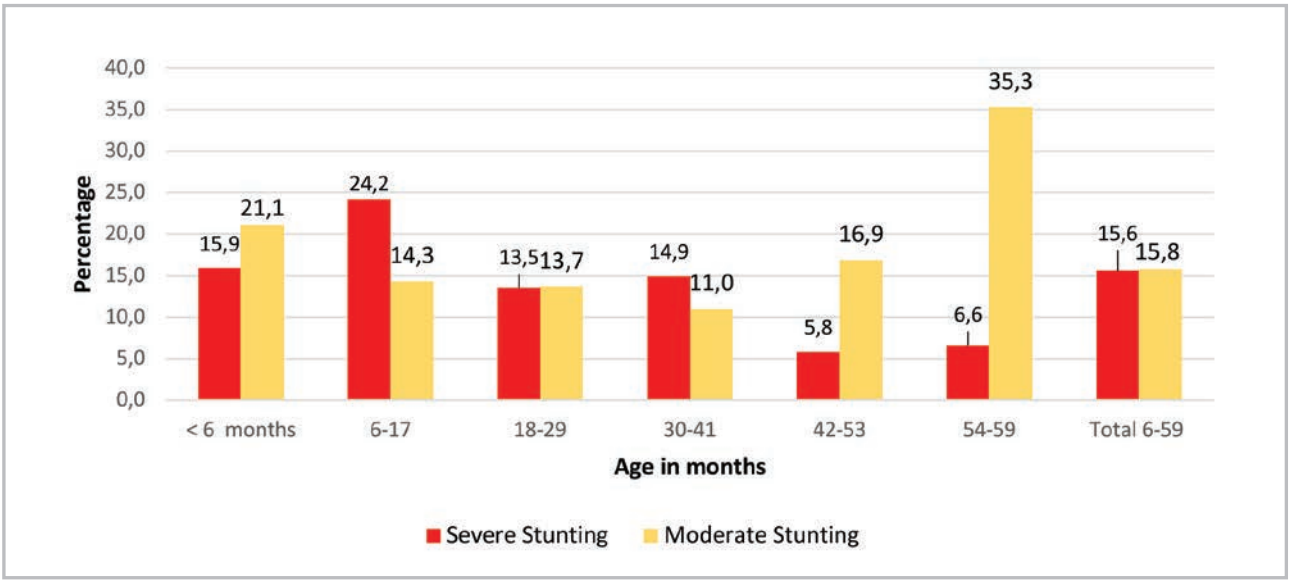


Figure 80: *The prevalence of Stunting in children under 5 years by age group in Eastern Cape*

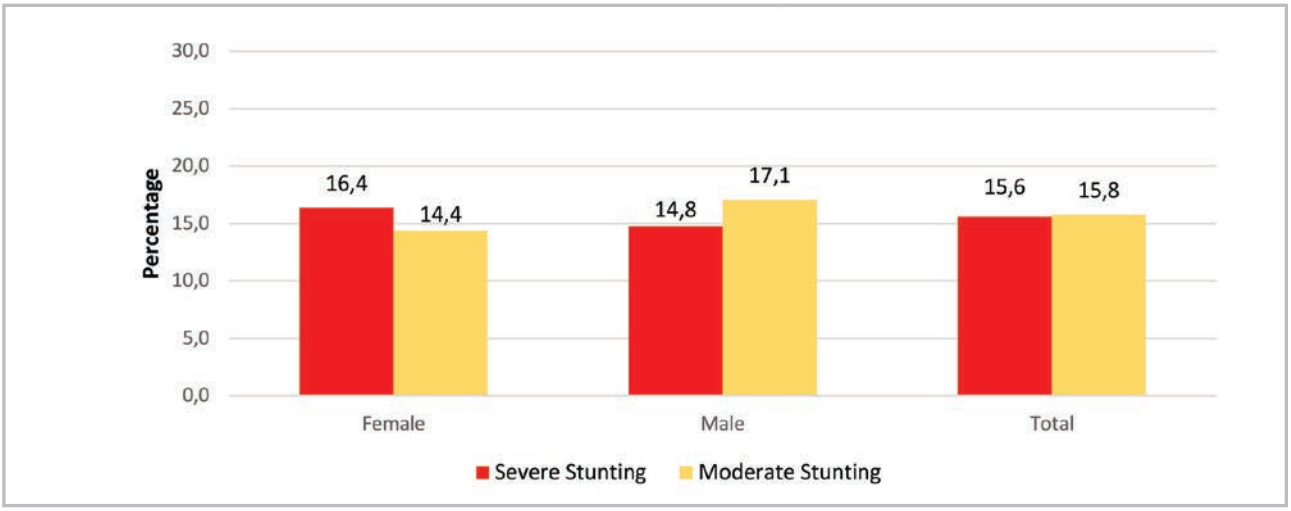


Figure 81: *The prevalence of Stunting in children under 5 years by gender in Eastern Cape*

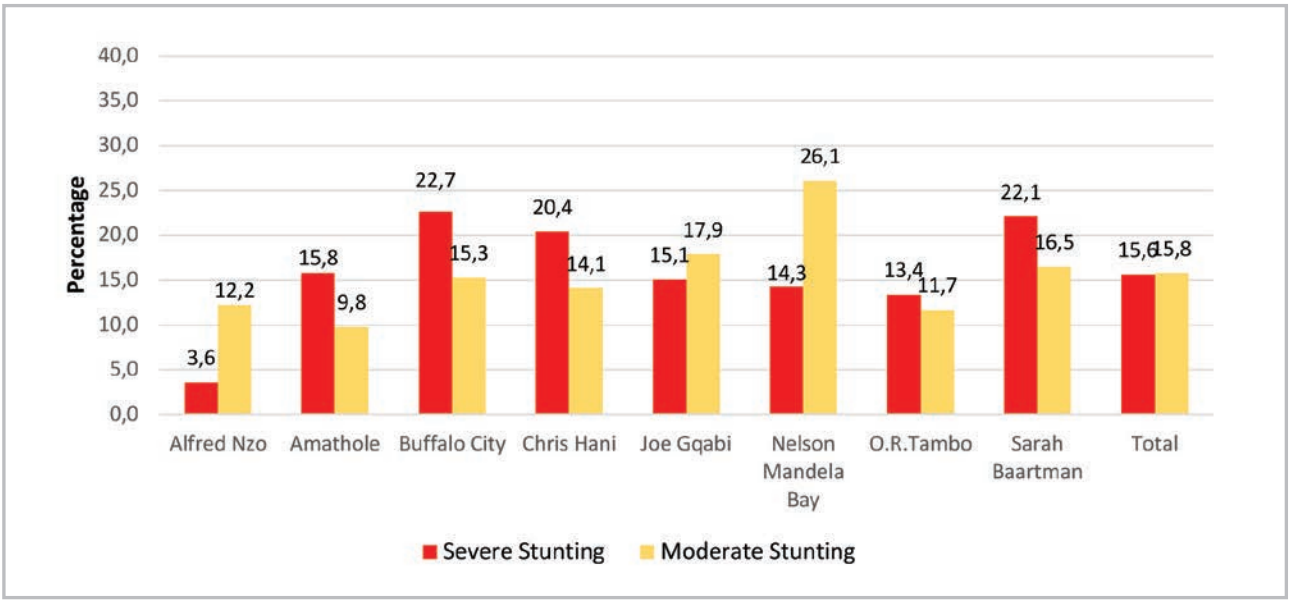


Figure 82: *The prevalence of Stunting in children under 5 years by district in Eastern Cape*

8.1.2.2 Wasting

The overall prevalence of wasting for children under the age of 5 years (n=1005) was 4.1%, of which 1.6% was severe and 2.6% was moderate wasting (Table 56 and Figure 83). For overall wasting, across all age groups, the prevalence ranged from 1.1% in children aged 18-29 and 54-59 months to 6.7% in children 6-17 months. The differences between these age groups were, however, not significant. While the prevalence of overall wasting in females (6.4%) was three times more than that in males (2.0%), these differences were also not significant. Overall, wasting ranged from 1.2% in Chris Hani to 10.5% in Buffalo City districts, however, differences between districts were also not significant (Table 58 and Figure 83).

The prevalence of moderate wasting was highest in children aged 6-17 months (5.0%), and lowest in the age groups 18-29 months (0.5%) (Table 58 and Figure 84). There were no significant differences between age groups. While females had a higher prevalence of moderate wasting (3.9%) than males (1.3%), there was no significant differences between genders. At a district level, however, Buffalo City had a significantly higher prevalence of moderate wasting (10.4%) and Nelson Mandela Bay district (0.2%).

Comparisons for severe wasting did not reveal any significant differences between age groups or gender. However, the prevalence of severe wasting in Alfred Nzo District (5.5%) was significantly higher compared to the Buffalo City (0.1%) and Joe Gqabi (0.0%) districts (Table 58).

Table 58: The prevalence of Wasting in children under 5 years disaggregated by age, sex and district in Eastern Cape Province

	No wasting WHZ>=-2		All wasting WHZ<-2		Moderate wasting WHZ<-2 and >=-3		Severe wasting WHZ<-3		
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	n
Age (months)									
<6	94.4	[82.6-98.4]	5.6	[1.6-17.4]	2.2	[0.4-12.1]	3.4	[0.6-16.0]	84
6-17	93.3	[78.1-98.2]	6.7	[1.8-21.9]	5.0	[1.0-22.0]	1.7	[0.3-8.6]	234
18-29	98.9	[97.0-99.6]	1.1	[0.4-3.0]	0.5	[0.2-1.7]	0.5	[0.1-2.8]	237
30-41	95.2	[89.8-97.8]	4.8	[2.2-10.2]	2.9	[1.1-7.5]	2.0	[0.6-6.7]	203
42-53	96.5	[91.5-98.6]	3.5	[1.4-8.5]	1.4	[0.6-3.5]	2.1	[0.5-8.1]	184
54-59	98.9	[92.7-99.9]	1.1	[0.1-7.3]	1.1	[0.1-7.3]	0.0		63
Gender									
Female	93.6	[86.1-97.2]	6.4	[2.8-13.9]	3.9	[1.1-12.6]	2.5	[1.0-6.0]	539
Male	98.0	[96.0-99.0]	2.0	[1.0-4.0]	1.3	[0.6-3.0]	0.7	[0.2-2.0]	466
District									
Alfred Nzo	93.3	[79.8-98.0]	6.7	[2.0-20.2]	1.2	[0.4-3.2]	5.5	[1.3-20.8]	150
Amathole	96.7	[89.2-99.1]	3.3	[0.9-10.8]	2.5	[0.6-10.8]	0.7	[0.1-5.1]	106
Buffalo City	89.5	[62.7-97.8]	10.5	[2.2-37.3]	10.4	[2.2-37.4]	0.1	[0.0-0.6]	111
Chris Hani	98.8	[96.3-99.6]	1.2	[0.4-3.7]	0.4	[0.1-3.1]	0.7	[0.2-3.0]	104
Joe Gqabi	98.3	[93.2-99.6]	1.7	[0.4-6.8]	1.7	[0.4-6.8]	0.0		159
Nelson Mandela Bay	98.5	[94.9-99.6]	1.5	[0.4-5.1]	0.2	[0.0-1.6]	1.3	[0.3-5.1]	108
O.R.Tambo	97.2	[92.3-99.0]	2.8	[1.0-7.7]	1.8	[0.6-5.1]	1.0	[0.2-6.5]	165
Sarah Baartman	93.9	[82.6-98.0]	6.1	[2.0-17.4]	1.5	[0.4-4.9]	4.7	[1.1-17.3]	102
Total	**95.9**	**[92.2-97.9]**	**4.1**	**[2.1-7.8]**	**2.6**	**[1.0-6.5]**	**1.6**	**[0.8-3.3]**	**1,005**

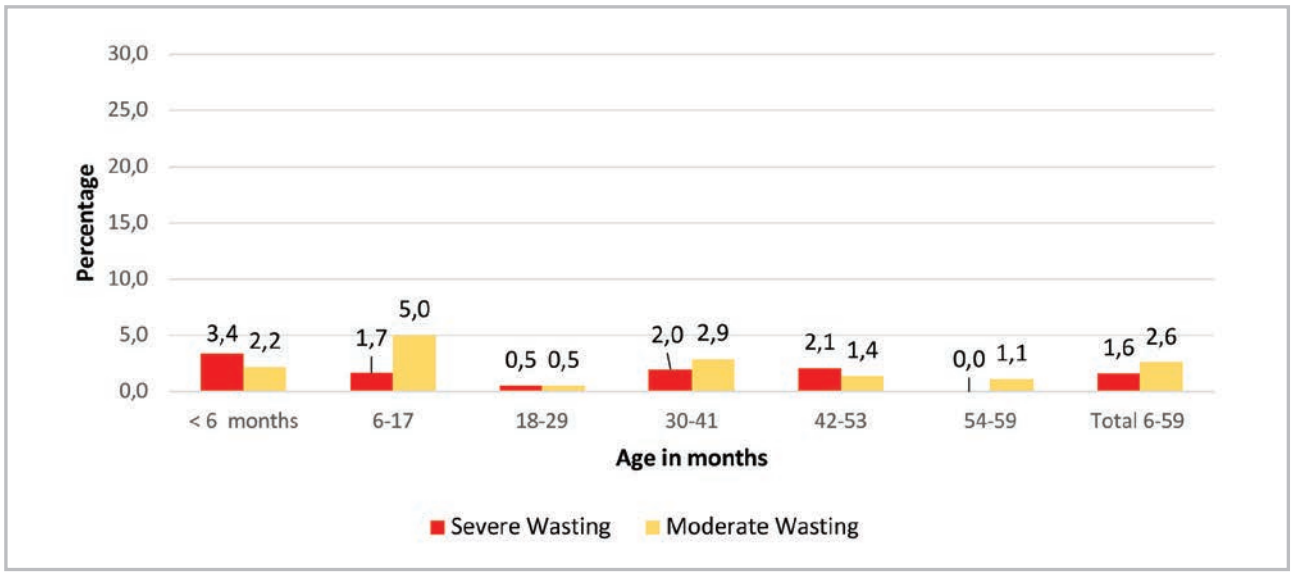


Figure 83: *The prevalence of Wasting in children under 5 years by age group in Eastern Cape*

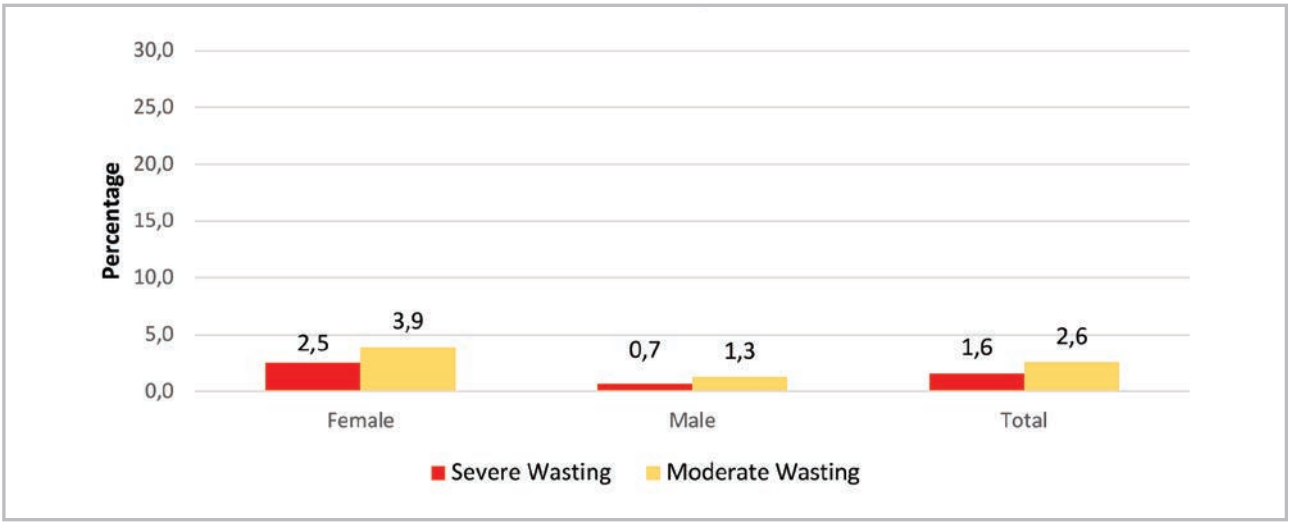


Figure 84: *The prevalence of Wasting in children under 5 years by gender in Eastern Cape*

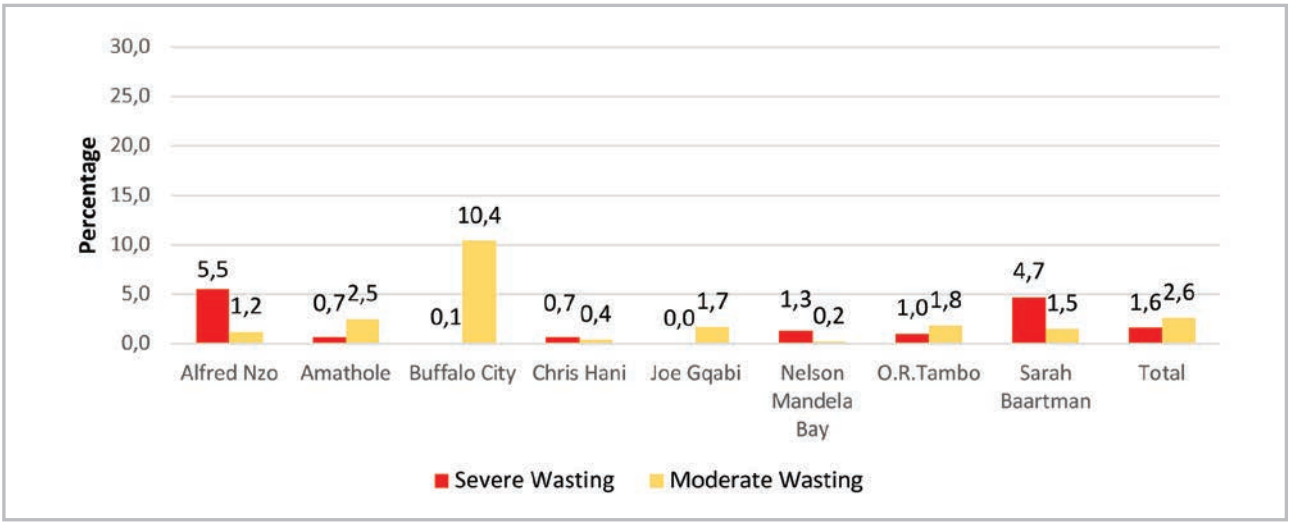


Figure 85: *The prevalence of Wasting in children under 5 years by district in Eastern Cape*

8.1.2.3 Underweight

The overall prevalence of underweight for children under the age of 5 years (n=1062) was 7.7%, of which 3.0% was severe and 4.7% was moderate underweight (Table 59 and Figure 86). The prevalence of overall, and severe underweight was highest in children aged 6-17 months at 11.5%, and 6.5%, respectively, while moderate underweight was highest in the 30–41-month age group (7.8%). However, there were no significant differences in the overall and moderate categories of underweight across age groups. The prevalence of severe underweight in the <6-month age group (0.0%) was significantly lower than all other age groups (range 0.8%-6.5%).

Comparisons between gender showed that females (11.3%) had a prevalence of underweight three times higher than that of males (4.5%) (Table 59 and Figure 86). These differences were not significant at an overall level, nor in the moderate and severe underweight categories.

Buffalo City District reported a higher prevalence of overall underweight (13.9%), compared to the other districts; however, this was not significantly different. However, OR Tambo had a significantly lower prevalence (2.2%) of overall underweight compared to Nelson Mandela Bay (11.9%) and Sarah Baartman (13.5%) (Table 59 and Figure 86). No significant differences were observed at a district level for moderate underweight. However, OR Tambo District had a significantly lower prevalence of severe underweight (0.5%) compared to the Buffalo City District (10.4%).

Table 59: The prevalence of Underweight in children under 5 years by age, sex, and district in Eastern Cape

	Not underweight WAZ>=-2		All Underweight WAZ<-2		Moderate underweight WAZ<-2 and >=-3		Severe underweight WAZ<-3		
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	n
Age (months)									
<6	95.4	[86.6-98.5]	4.6	[1.5-13.4]	4.6	[1.5-13.4]	0.0		93
6-17	88.5	[74.3-95.3]	11.5	[4.7-25.7]	5.1	[2.0-12.0]	6.5	[1.6-22.6]	244
18-29	95.0	[90.7-97.4]	5.0	[2.6-9.3]	3.1	[1.4-6.9]	1.8	[0.7-4.8]	252
30-41	89.8	[83.3-93.9]	10.2	[6.1-16.7]	7.8	[4.2-13.9]	2.5	[0.9-6.3]	208
42-53	94.4	[89.4-97.1]	5.6	[2.9-10.6]	3.6	[1.8-7.3]	2.0	[0.5-6.9]	194
54-59	95.7	[90.0-98.2]	4.3	[1.8-10.0]	3.5	[1.3-9.2]	0.8	[0.2-3.3]	71
Gender									
Female	88.7	[81.7-93.2]	11.3	[6.8-18.3]	6.1	[3.7-9.8]	5.3	[1.9-13.5]	563
Male	95.5	[92.7-97.2]	4.5	[2.8-7.3]	3.4	[2.0-5.9]	1.1	[0.4-2.7]	499
District									
Alfred Nzo	92.0	[77.7-97.4]	8.0	[2.6-22.3]	7.4	[2.2-22.4]	0.6	[0.1-2.9]	155
Amathole	97.2	[90.8-99.2]	2.8	[0.8-9.2]	2.2	[0.5-9.1]	0.7	[0.1-4.6]	120
Buffalo City	86.1	[65.7-95.2]	13.9	[4.8-34.3]	3.6	[1.2-10.0]	10.4	[2.5-34.4]	124
Chris Hani	93.2	[85.4-97.0]	6.8	[3.0-14.6]	5.9	[2.5-13.7]	0.8	[0.1-5.7]	114
Joe Gqabi	94.2	[87.8-97.4]	5.8	[2.6-12.2]	4.9	[2.0-11.5]	0.9	[0.3-3.2]	163
Nelson Mandela Bay	88.1	[77.3-94.2]	11.9	[5.8-22.7]	7.2	[3.6-13.8]	4.7	[1.0-18.4]	115
O.R.Tambo	97.8	[94.4-99.1]	2.2	[0.9-5.6]	1.7	[0.6-5.0]	0.5	[0.2-1.6]	170
Sarah Baartman	86.5	[73.7-93.6]	13.5	[6.4-26.3]	8.9	[3.6-20.5]	4.6	[1.4-14.4]	101
Total	**92.3**	**[88.6-94.8]**	**7.7**	**[5.2-11.4]**	**4.7**	**[3.2-6.8]**	**3.0**	**[1.3-6.9]**	**1,062**

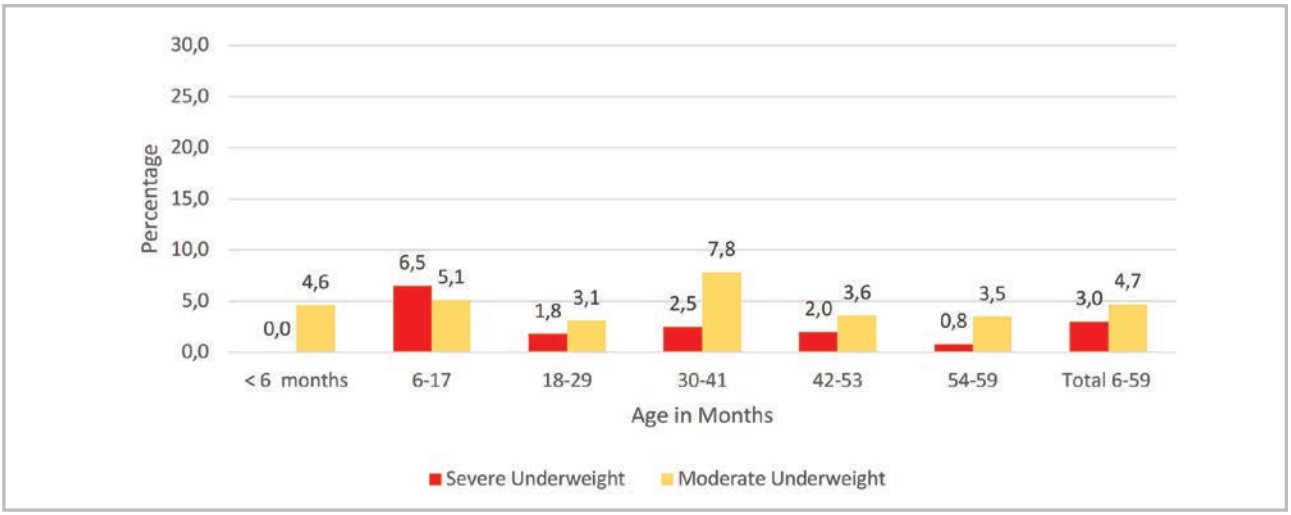


Figure 86: *The prevalence of Underweight in children under 5 years by age group in Eastern Cape*

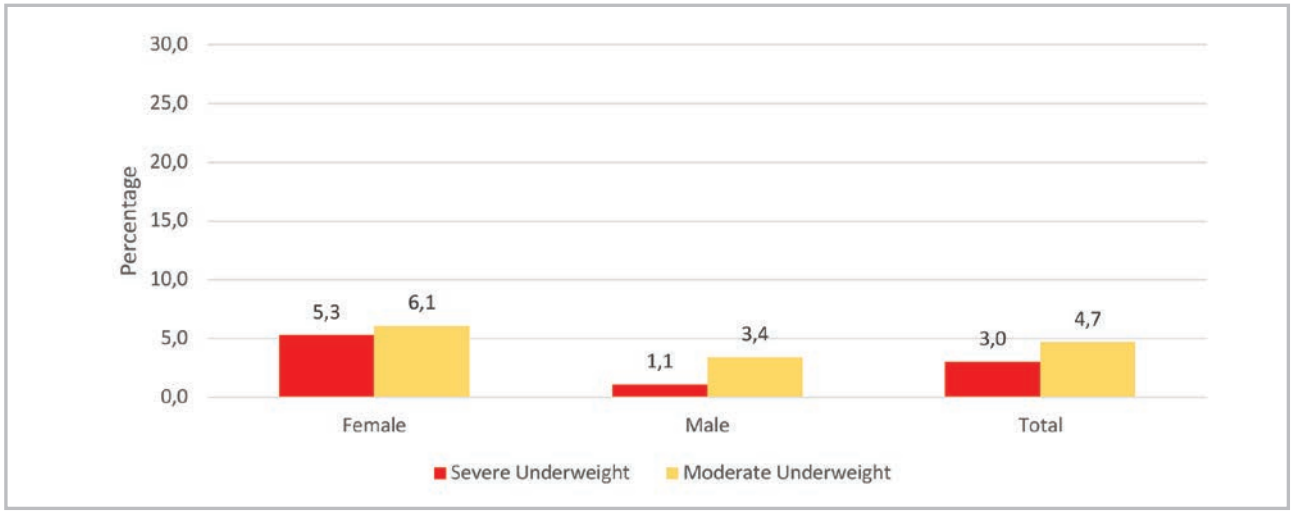


Figure 87: *The prevalence of Underweight in children under 5 years by gender in Eastern Cape*

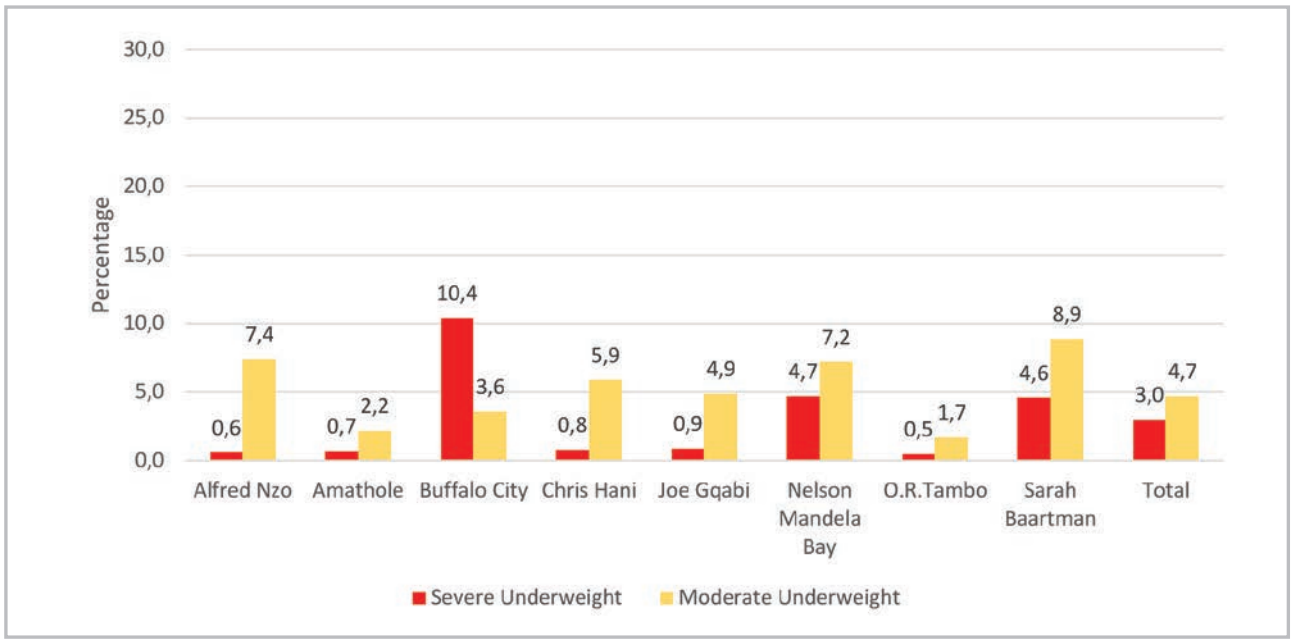


Figure 88: *The prevalence of Underweight in children under 5 years by district in Eastern Cape*

8.1.2.4 Overweight

The prevalence of overall overweight for children under the age of 5 years (n=1005) was 21.9%, of which 14.4% was severe and 7.5% was moderate overweight (Table 60 and Figure 89). The prevalence of overall overweight appeared to decrease with age, with those aged <6months (54.9%) having a significantly higher prevalence than all other age groups (range 8.0%-17.2%) except the 6-17 months age group (26.3%). Similarly, those aged younger than 6 months (16.7%) had a significantly higher prevalence of moderate overweight compared to those aged 42-53 months (2.5%). For severe overweight, those aged younger than 6 months had a significantly higher severe overweight prevalence than all age groups (range 4.7%-11.4%) except the 6-17 months age group (19.8%). The 6-17 months age group, however, also had a significantly higher prevalence of severe overweight (19.8%) compared to the those aged 42-53 months (4.7%).

Females had a higher prevalence of overall overweight (23.3%) compared to males (20.5%) (Table 60 and Figure 89), with the same prevalence of moderate overweight (7.5%) and a slightly higher prevalence of severe overweight (15.8% compared to 13.0%). However, there were no significant differences among gender for all categories of overweight.

Overall overweight ranged from 14.1% in Nelson Mandela Bay to 37.5% in Sarah Baartman; however, there were no significant differences between districts. Moderate overweight ranged from 2.4% in Nelson Mandela Bay to 20.0% in Amathole District, which was significantly different, while severe overweight ranged from 11.4% in O.R. Tambo to 29.2% in Chris Hani, with no significant differences at a district level (Table 60 and Figure 89).

Table 60: The prevalence of overweight in children under 5 years by age, sex, and district in Eastern Cape

	Not overweight WHZ<2		All overweight WHZ>=2		Moderate overweight WHZ>=2 and <3		Severe overweight WHZ>=3		
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	n
Age (months)									
<6	45.1	[30.7-60.4]	54.9	[39.6-69.3]	16.7	[8.4-30.7]	38.2	[23.7-55.1]	84
6-17	73.7	[57.8-85.1]	26.3	[14.9-42.2]	6.6	[3.5-12.1]	19.8	[10.7-33.6]	234
18-29	82.8	[73.5-89.3]	17.2	[10.7-26.5]	7.5	[3.3-16.6]	9.7	[5.8-15.7]	237
30-41	78.6	[67.1-86.8]	21.4	[13.2-32.9]	10.1	[4.7-20.2]	11.4	[5.5-21.8]	203
42-53	92.8	[87.4-96.0]	7.2	[4.0-12.6]	2.5	[1.0-6.0]	4.7	[2.3-9.5]	184
54-59	92.0	[80.2-97.0]	8.0	[3.0-19.8]	3.1	[0.6-13.2]	4.9	[1.4-15.9]	63
Gender									
Female	76.7	[70.6-81.9]	23.3	[18.1-29.4]	7.5	[5.1-10.9]	15.8	[11.3-21.6]	539
Male	79.5	[70.7-86.2]	20.5	[13.8-29.3]	7.5	[4.2-13.1]	13.0	[8.3-19.9]	466
District									
Alfred Nzo	82.4	[70.5-90.1]	17.6	[9.9-29.5]	5.4	[2.0-13.7]	12.2	[5.9-23.7]	150
Amathole	68.0	[52.3-80.5]	32.0	[19.5-47.7]	20.0	[8.9-38.8]	12.0	[6.7-20.5]	106
Buffalo City	80.2	[68.1-88.5]	19.8	[11.5-31.9]	6.7	[2.9-15.1]	13.1	[6.5-24.4]	111
Chris Hani	65.4	[49.9-78.2]	34.6	[21.8-50.1]	5.4	[2.4-11.4]	29.2	[17.0-45.4]	104
Joe Gqabi	77.4	[65.9-85.8]	22.6	[14.2-34.1]	10.6	[4.9-21.6]	12.0	[6.7-20.6]	159
Nelson Mandela Bay	85.9	[74.1-92.8]	14.1	[7.2-25.9]	2.4	[0.9-6.8]	11.7	[5.3-23.6]	108
O.R.Tambo	82.4	[68.2-91.1]	17.6	[8.9-31.8]	6.2	[2.9-12.9]	11.4	[5.2-23.1]	165
Sarah Baartman	62.5	[42.5-79.0]	37.5	[21.0-57.5]	14.0	[4.8-34.7]	23.4	[10.6-44.0]	102
Total	**78.1**	**[72.8-82.7]**	**21.9**	**[17.3-27.2]**	**7.5**	**[5.3-10.6]**	**14.4**	**[10.9-18.8]**	**1,005**

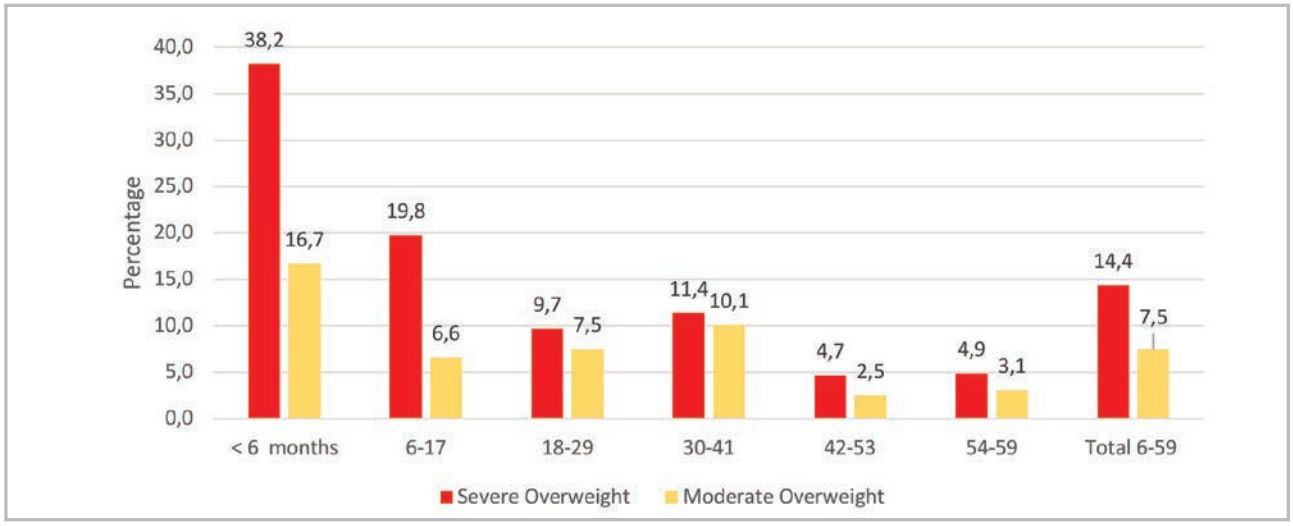


Figure 89: *The prevalence of Overweight in children under 5 years by age group in Eastern Cape*

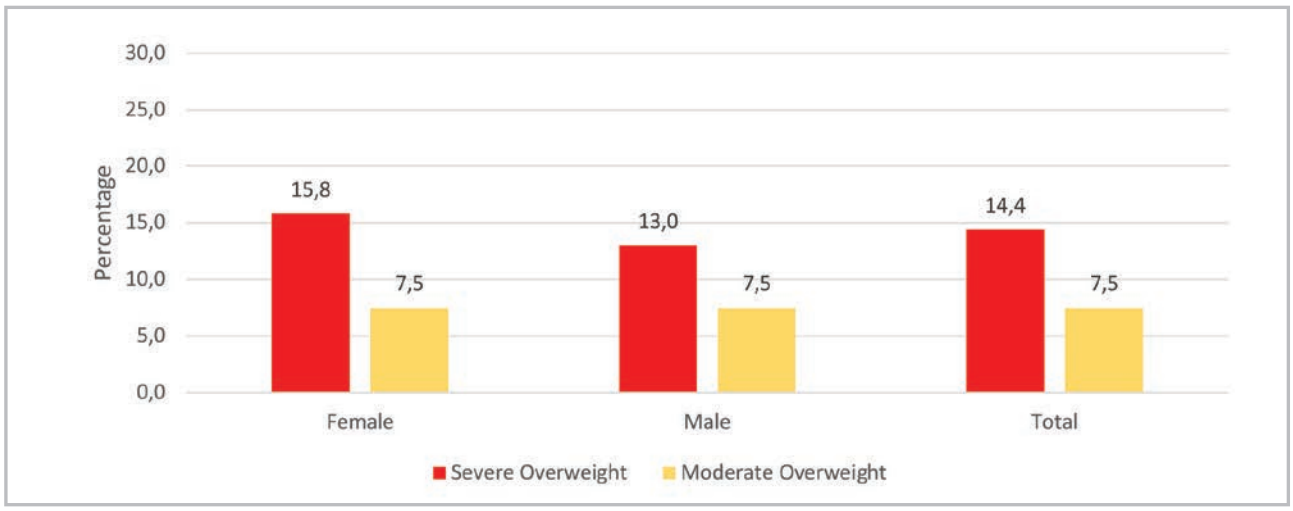


Figure 90: *The prevalence of Overweight in children under 5 years by gender in Eastern Cape*

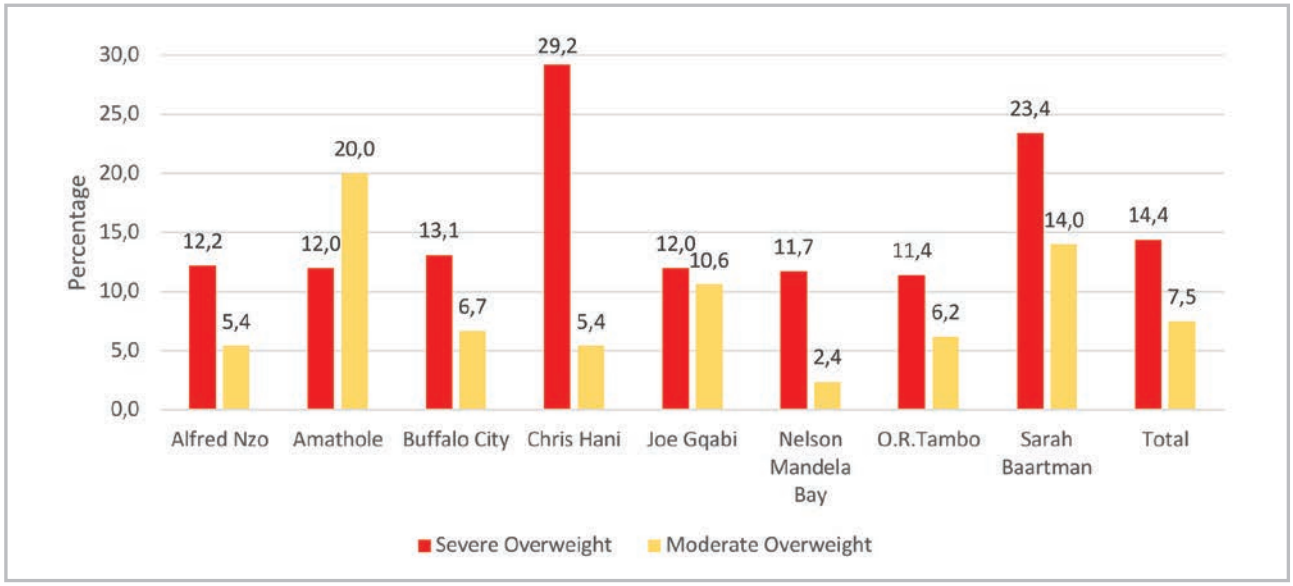


Figure 91: *The prevalence of Overweight in children under 5 years by district in Eastern Cape*

8.2 Anthropometry (18 years and older)

8.2.1 Body Mass Index (BMI)

The mean BMI for adults aged 18 years and older (n=5586) in Eastern Cape Province was 27.6kg/m^2. This was significantly different between males (24.2kg/m^2; 95% CI 23.5-24.9) and females (29.3kg/m^2; 95% CI 28.8-29.8). There were also significant differences in mean BMI between individuals of different age groups, with those aged 18-24 years having a significantly lower mean BMI (24.0kg/m^2) than those aged 25 years and older (range 27.2-31.1kg/m^2). Furthermore, those aged 25-34 years, also had a significantly lower mean BMI (27.2kg/m^2 95% CI 26.3-28.0) compared to those aged 45-54 years (29.8kg/m^2 ;95% CI 28.6-30.9) and 55-64 years (31.1kg/m^2; 95% CI 30.2-32.1). There were also significant differences in mean BMI at a district level, where Buffalo City had a significantly higher mean BMI (29.0kg/m^2; 95% CI 28.1-29.9) as compared to Alfred Nzo (26.1kg/m^2; 95% CI 25.0-27.3), Joe Gqabi (27.3kg/m^2; 95% CI 26.5-28.0), and Nelson Mandela Bay (27.3kg/m^2; 95% CI 26.6-28.0).

Overall, 56.6% were classified as either overweight (24.2%) or obese (32.4%). About one third (36.1%) were classified as normal weight, and 7.3% were classified as underweight (Figure 92).

When disaggregating by gender (Females n=3784, Males n=1794), the proportion of overweight appears to be higher in females than in males (26.6% vs 19.7%, respectively); however, this is not significantly different. At the same time, the prevalence of obesity was significantly higher in females than in males (41.4% vs 14.6%) (Figure 93). Overall, almost twice as many (68.0%) of females in the Eastern Cape Province were either overweight or obese, compared to (34.3%) of males. Conversely, the prevalence of underweight in females (5.7%) was lower, at nearly two times of that in males (10.5%), although this was not significant. The prevalence of normal weight in females, which was also nearly two times less than that in males, was significantly lower (26.4 %) than that of males (55.1%).

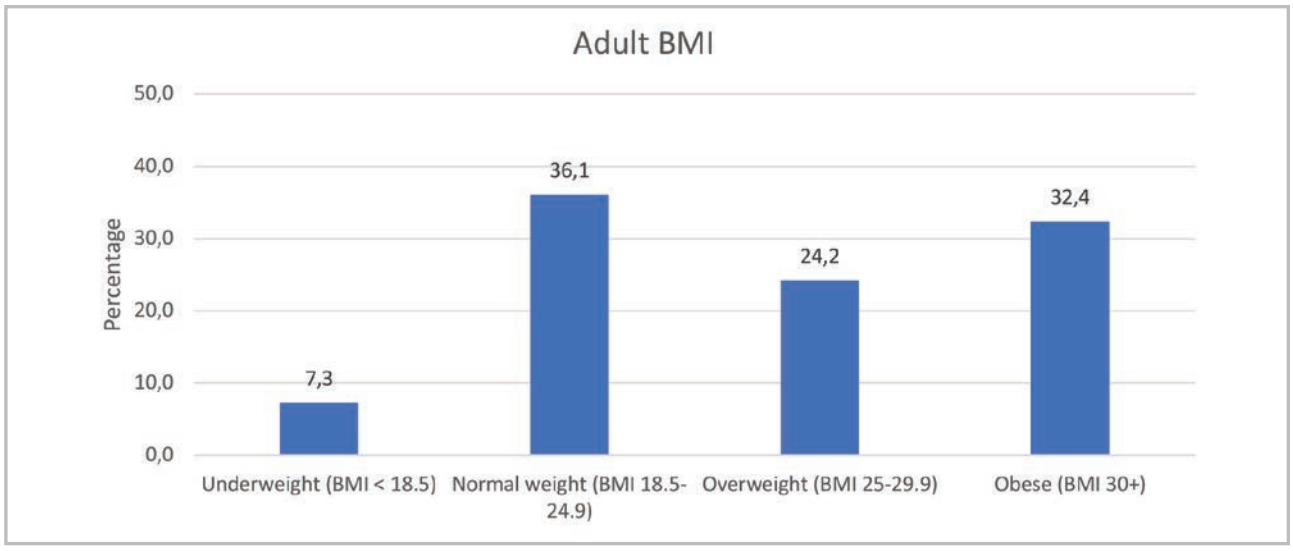


Figure 92: *Distribution of BMI in adults aged 18 years and older by districts in Eastern Cape*

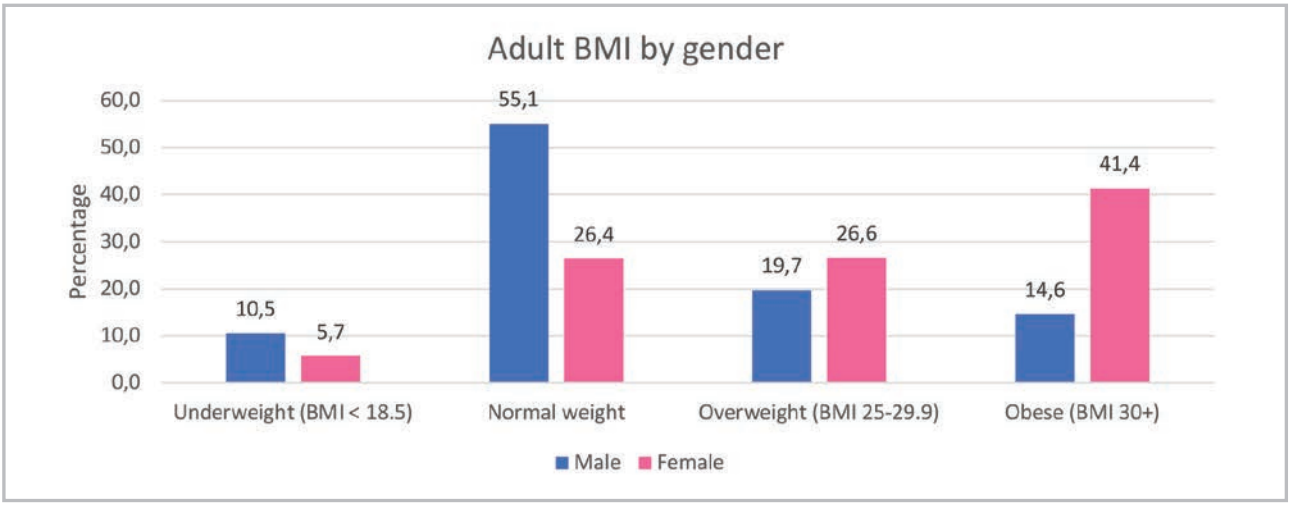


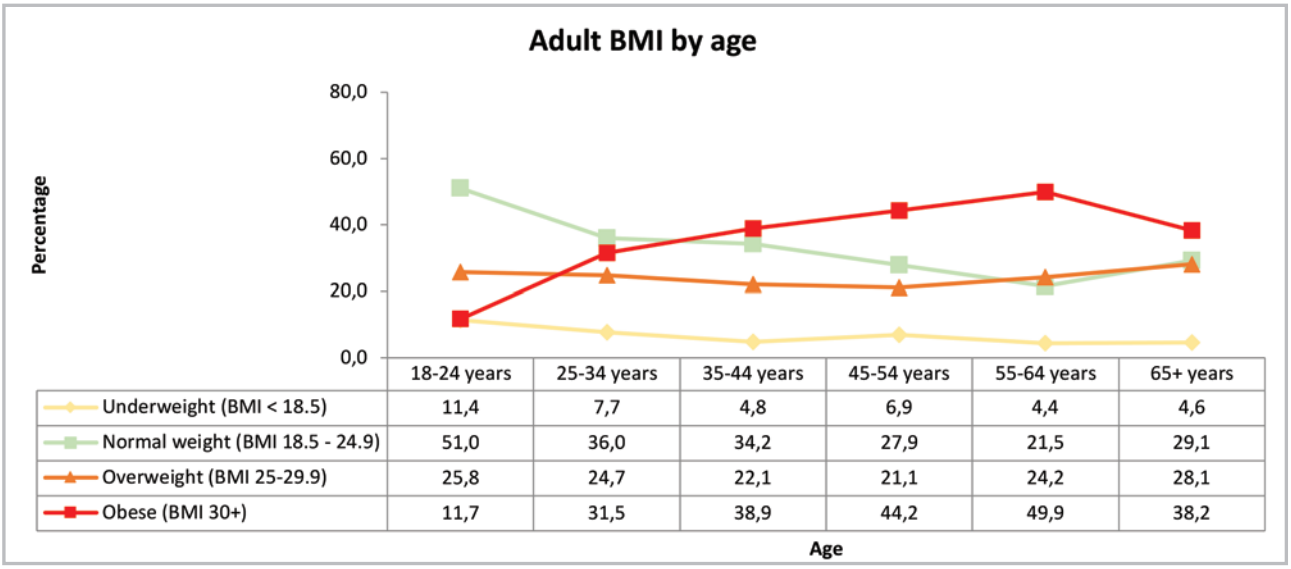
Figure 93: *Distribution of BMI in adults aged 18 years and older by gender in Eastern Cape*

When disaggregating the overall adult population by age, there was no significant differences in the prevalence of overweight across all age groups. There were, however, significant differences in obesity between age groups, where those aged 18-24 years had a significantly lower prevalence of obesity (11.7%) compared to those in all-other age groups (range: 31.5%-44.9%) (Figure 94). Furthermore, those aged 25-34 years (31.5%), 35-44 years (38.9%), and those older than 65 years (38.2%) also had a significantly lower prevalence of obesity (31.5%) compared to those aged 55-64 years (49.9%) (Figure 94). For normal weight the inverse relationship was evident, where those aged 18-24 years had a significantly higher prevalence of normal weight (51.0%) compared to all other age groups (range: 21.5%-36.0%). Those aged 25-34 years and 35-44 years also had a significantly higher prevalence of normal weight 36.0% and 34.2%, respectively) compared to those aged 55-64 years (21.5%) (Figure 94). A similar relationship was evident for underweight where those aged 18-24 years had a higher prevalence of underweight (11.4%) compared to all other age groups (range: 4.4% - 7.7%), but this was not significant.

Figure 95 compares BMI differences by age group between males and females. These figures clearly illustrate that obesity is higher in females (range 17.9%-54.7%) than males (range 1.6%-36.8%) across all age categories. There were significant differences in obesity across age categories for both males and females. In females and males, those aged 18-24 years had a significantly lower prevalence (17.9% and 1.6%, respectively) compared to all other age groups (range: 40.6%-54.7% and 13.2%-36.8%, respectively). Furthermore, males aged 25-34 years also had a lower prevalence (13.2%) compared to all those aged 55-64 years (36.8%).

There were no significant differences in overweight across age groups in both genders.

The prevalence of underweight is lower in females (2.6%-12.0%) compared to males (2.8%-16.1%) across most age categories, except in the 18-24 and 65 years and older age groups. While there were no significant differences in underweight across age categories for females, in males those aged 65 years and older had a significantly lower prevalence of underweight (2.8%) compared to those aged 25-34 years (12.7%), and those aged 45-54 years (16.1%).



	18-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65+ years
Underweight (BMI < 18.5)	11,4	7,7	4,8	6,9	4,4	4,6
Normal weight (BMI 18.5 - 24.9)	51,0	36,0	34,2	27,9	21,5	29,1
Overweight (BMI 25-29.9)	25,8	24,7	22,1	21,1	24,2	28,1
Obese (BMI 30+)	11,7	31,5	38,9	44,2	49,9	38,2

Figure 94: *Distribution of BMI in adults aged 18 years and older by age categories in Eastern Cape*

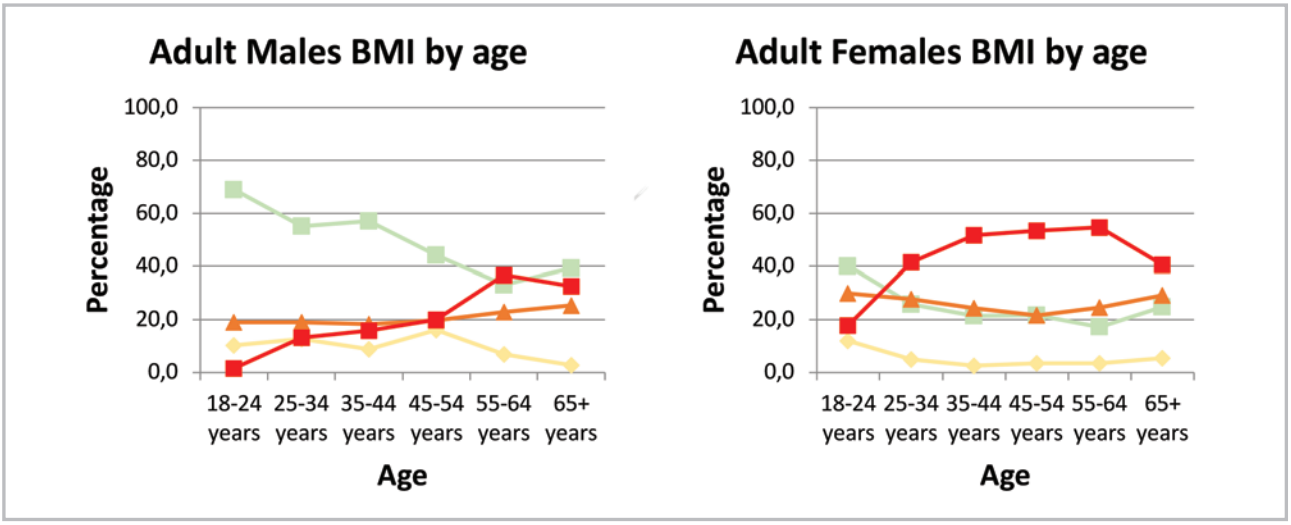


Figure 95: *Comparison of the distribution of BMI in adults aged 18 years and older by age and gender in Eastern Cape*

Figure 96 shows disaggregation of BMI at a district level. There was a significant difference in overweight at a district level, whereby Sarah Baartman had a significantly lower prevalence of overweight (15.1%) compared to Buffalo City (30.2%). There were no significant differences for both underweight and obesity at a district level.

Figure 97 compares district level data by gender. In both genders these figures illustrate that in all districts, females have higher prevalence of obesity (35.1%-48.6%) than males (6.8%-21.5%). The prevalence of obesity in females was highest in Amathole (48.6%) compared to the lowest in Alfred Nzo (35.1%), while in males in O.R. Tambo (21.5%) had the highest prevalence of obesity compared to the lowest in Alfred Nzo (6.8%). There were, however, no significant differences in the prevalence of obesity at district level for both genders.

While there were no significant differences in the prevalence of overweight in females at a district level, in males those in Buffalo City had a significantly higher prevalence of overweight (29.3%) than those in Joe Gqabi (9.7%), and Sarah Baartman (8.5%).

The prevalence of underweight was higher in males (range: 7.6%-18.2%) than in females (range (1.6%-8.2%) across all districts except O.R. Tambo, where the prevalence of underweight in females (9.3%) was higher than males (3.8%) (Figure 97). In females, there was a significant difference in the prevalence of underweight at a district level, whereby Buffalo City was significantly lower (1.6%) compared to Sarah Baartman (8.2%), while in males those in O.R. Tambo had a significantly lower prevalence of underweight (3.8%) than those in Nelson Mandela Bay (18.2%).

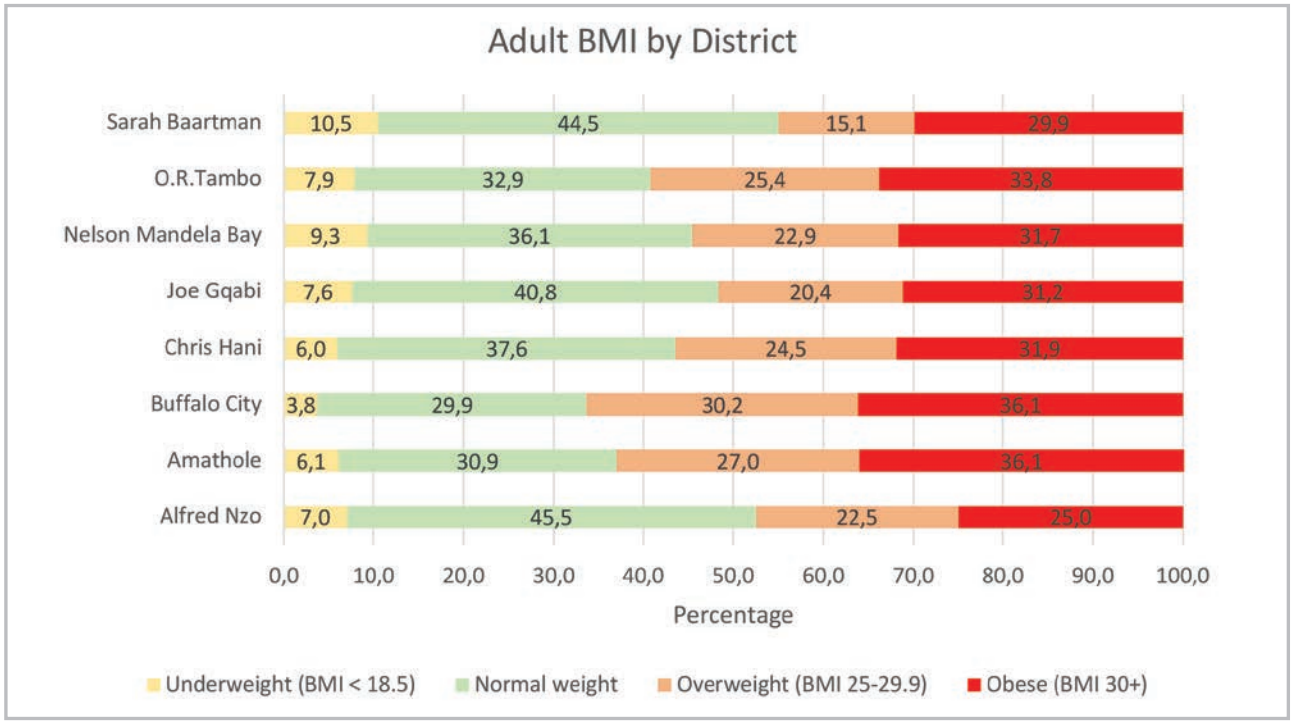


Figure 96: *Comparison of the distribution of BMI in adults aged 18 years and older by districts in Eastern Cape*

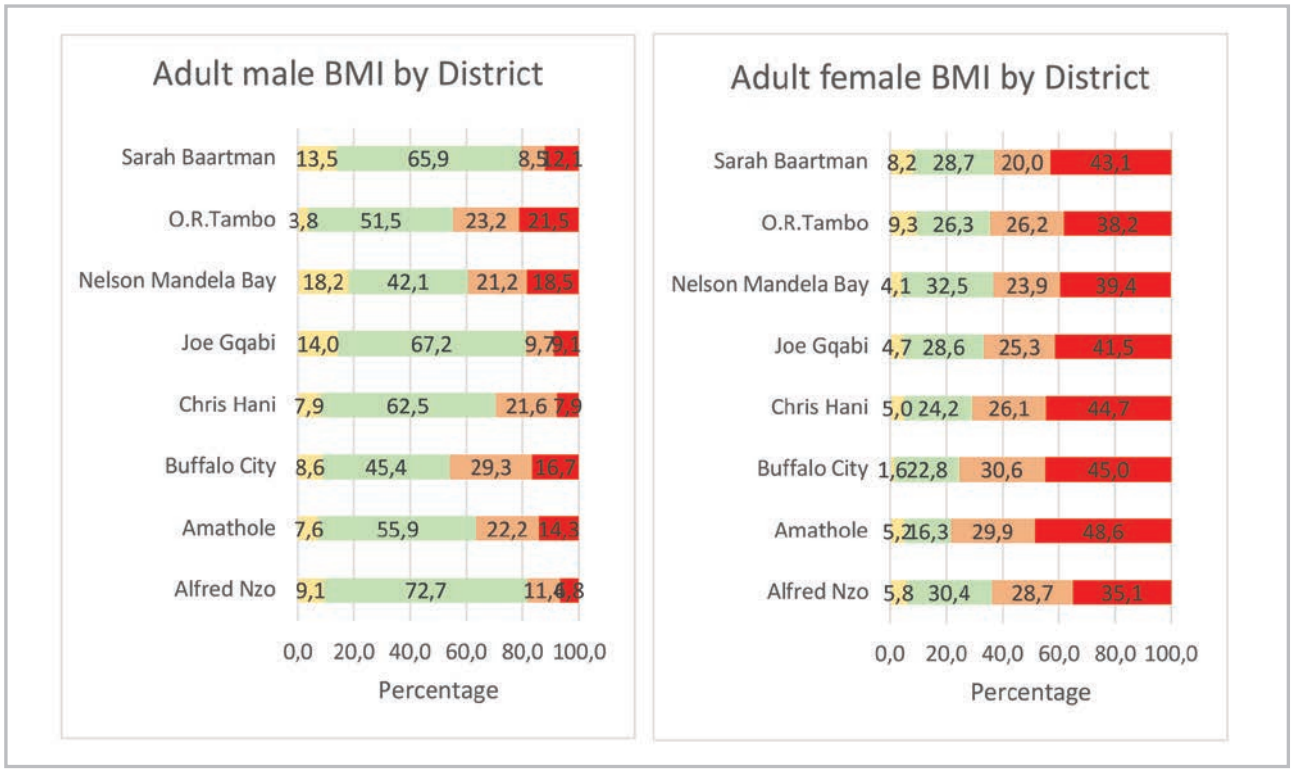


Figure 97: *Comparison of the distribution of BMI in adults aged 18 years and older by districts and gender in Eastern Cape*

8.2.2 Waist Hip ratio

A waist hip ratio (WHR) ≥ 1 in males and ≥ 0.85 in females is indicative of increased risk of non-communicable diseases (NCDs) such as diabetes and hypertension, amongst other illnesses. The mean waist hip ratio for males (n=1817) and females (n=3843) was 0.88 (95% CI:0.87-0.89) and 0.85 (95% CI: 0.84-0.86), respectively. However, Table 61 clearly shows that overall, a far greater proportion of females (49.4%) had a high WHR compared to only 9.1% of males.

Table 61: Waist hip ratio (WHR) of adults aged 18 years and older in Eastern Cape disaggregated by gender, age, and district

	Males					Females				
	Waist-hip ratio		Waist hip ratio>=1			Waist-hip ratio		Waist hip ratio >= 0.85		
	Mean	95% CI	%	95% CI	n	Mean	95% CI	%	95% CI	n
Age group										
18-24	0.84	[0.82-0.86]	3.4	[1.3-8.5]	216	0.80	[0.78-0.81]	25.5	[17.0-36.3]	346
25-34	0.86	[0.85-0.88]	6.3	[3.5-10.9]	384	0.83	[0.82-0.84]	42.6	[35.0-50.5]	661
35-44	0.89	[0.87-0.90]	9.8	[6.0-15.6]	345	0.87	[0.86-0.89]	56.9	[48.8-64.6]	714
45-54	0.90	[0.88-0.92]	14.7	[9.8-21.5]	290	0.88	[0.86-0.89]	59.5	[51.9-66.7]	659
55-64	0.93	[0.89-0.96]	17.8	[10.2-29.3]	283	0.90	[0.88-0.92]	73.2	[66.3-79.1]	723
>=65	0.94	[0.92-0.96]	23.2	[11.6-40.8]	299	0.88	[0.87-0.90]	70.2	[64.5-75.3]	740
District										
Alfred Nzo	0.88	[0.87-0.89]	4.9	[2.1-10.9]	257	0.84	[0.82-0.86]	46.0	[35.0-57.5]	558
Amathole	0.86	[0.85-0.88]	9.5	[6.0-14.7]	228	0.86	[0.84-0.88]	54.4	[44.2-64.2]	462
Buffalo City	0.91	[0.88-0.93]	17.6	[10.8-27.5]	239	0.85	[0.84-0.87]	51.6	[44.7-58.4]	513
Chris Hani	0.90	[0.87-0.92]	8.3	[4.9-13.8]	186	0.85	[0.83-0.87]	45.3	[36.8-54.2]	445
Joe Gqabi	0.88	[0.82-0.93]	9.4	[2.5-29.7]	198	0.86	[0.84-0.88]	54.0	[45.3-62.5]	480
Nelson Mandela Bay	0.89	[0.87-0.90]	10.0	[5.9-16.2]	245	0.86	[0.85-0.87]	56.4	[50.2-62.4]	451
O.R.Tambo	0.85	[0.82-0.89]	7.3	[4.4-11.9]	204	0.83	[0.81-0.84]	40.5	[31.2-50.5]	474
Sarah Baartman	0.86	[0.84-0.87]	4.6	[2.7-7.9]	260	0.87	[0.85-0.89]	55.2	[49.3-61.0]	460
Total	**0.88**	**[0.87-0.89]**	**9.1**	**[7.2-11.4]**	**1,817**	**0.85**	**[0.84-0.86]**	**49.4**	**[46.2-52.6]**	**3,843**

Table 61 and Figure 98 illustrate that WHR tends to increase with age in males and females, peaking in the age group 65+ years in males and 55-64 years in females. There were significant differences between age groups in both female and males. Amongst males, those aged 65 years and older had a significantly higher prevalence of an increased WHR (23.2%) compared to those aged 18-34 years (range 3.4%-6.3%). In females, those aged 18-24 years had a significantly lower prevalence of an increased WHR (25.5%) compared to those aged 35 years and older (range 56.9%-73.2%)

At a district level, there were significant differences in the mean WHR among females, with O.R. Tambo (0.83) having a significantly lower mean WHR as compared to Amathole (0.86), Buffalo City (0.85), Joe Gqabi (0.86), Nelson Mandela Bay (0.86), and Sarah Baartman (0.87). There were no significant differences at a district level in the proportion of females who had a high WHR.

Among males, those in Buffalo City had a significantly higher mean BMI (0.91) compared to those in Sarah Baartman (0.86). There was also a significant difference in the proportion of those who had a high WHR among males at a district level. Males in Buffalo City had a significantly higher WHR (17.6%) compared to males in Sarah Baartman (4.6%). Overall, all districts indicated that a higher proportion of females have a high WHR compared to males (Table 61 and Figure 99).

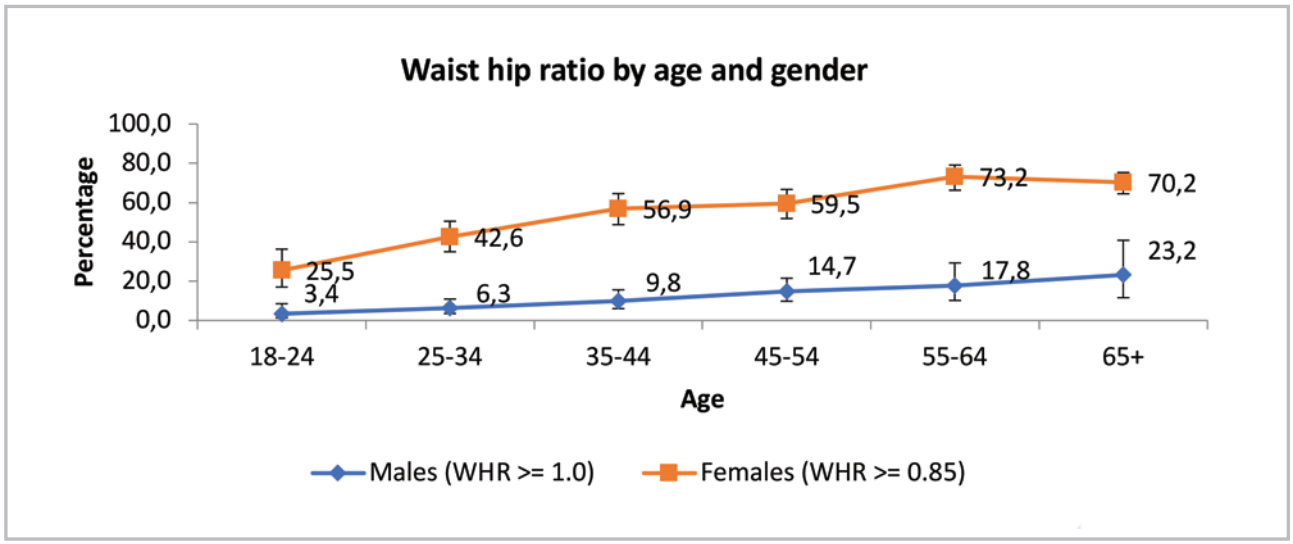


Figure 98: *Comparison of the distribution of WHR in adults aged 18 years and older by age and gender in Eastern Cape Province*

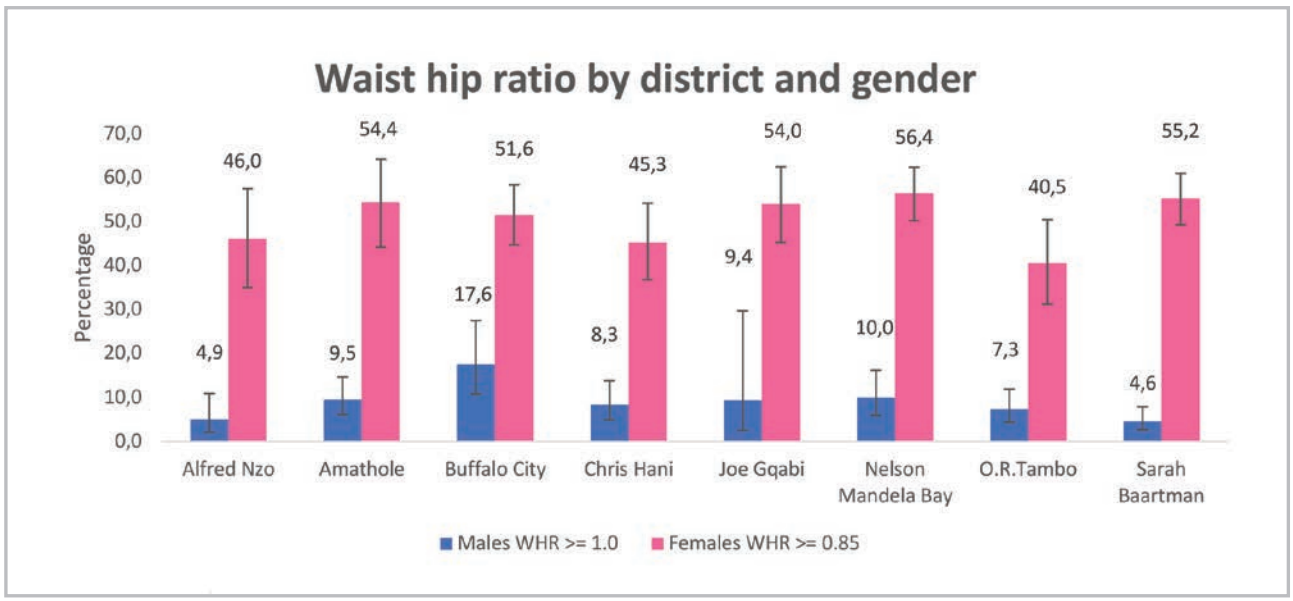


Figure 99: *Comparison of the distribution of WHR in adults aged 18 years and older by districts and gender in Eastern Cape*

8.3 Individual Dietary Diversity

A variety of foods in the diet is needed to ensure an adequate intake of essential nutrients. Dietary diversity can be used as a proxy measure of the nutritional quality of a population's diet, as well as an indicator of the access dimension of household food security (Kennedy, 2009). Populations consuming a diet of low dietary diversity are nutritionally vulnerable (Kennedy, 2009).

In this survey, adult participants, and caregivers of children aged 6 months-5 years were asked to recall all foods and drinks they or their child had consumed the previous day. These food items were then allocated to specific food groups. A dietary diversity score (DDS) was calculated by summing the number of food groups from which food had been consumed; the nine food groups were cereals, roots and tubers; vitamin A-rich vegetables and fruit; vegetables other than vitamin A-rich; fruit other than vitamin A-rich fruit; meat, poultry, and fish; eggs; legumes; dairy products; and foods made with fats or oils. Each food group was counted only once. A DDS below four is low and is associated with dietary inadequacies (Steyn et al., 2006). The mean dietary diversity score (DDS) for children aged 0-5 years residing in Eastern Cape (n=1004) was 4.14, which is indicative of an adequate dietary diversity (Table 63).

Table 60 also shows that while children in four of the eight districts have an adequate dietary diversity (DDS >4), those in the remaining four districts (Alfred Nzo, Chris Hani, Joe Gqabi and Nelson Mandela Bay) reported a low dietary diversity (DDS <4). However, there were no significant differences in mean DDS at a district level.

Table 63: Dietary diversity scores for children aged 0-5 years in Eastern Cape Province

	Dietary Diversity Score		Dietary Diversity Score category				
			0-3		4-9		
	Mean	95% CI	%	95% CI	%	95% CI	n
Age (months)							
0-24 months	3.96	[3.10-4.82]	57.4	[44.1-69.7]	42.6	[30.3-55.9]	417
25-60 months	4.30	[3.90-4.70]	39.4	[31.7-47.7]	60.6	[52.3-68.3]	587
Gender							
Male	4.53	[3.70-5.36]	43.1	[32.2-54.8]	56.9	[45.2-67.8]	488
Female	3.68	[3.37-3.98]	53.5	[46.2-60.7]	46.5	[39.3-53.8]	516
District							
Alfred Nzo	3.74	[3.19-4.29]	44.4	[27.6-62.6]	55.6	[37.4-72.4]	141
Amathole	4.26	[3.43-5.09]	45.7	[32.0-60.1]	54.3	[39.9-68.0]	114
Buffalo City	4.00	[3.60-4.40]	52.5	[38.6-66.0]	47.5	[34.0-61.4]	124
Chris Hani	3.81	[3.38-4.25]	47.0	[35.6-58.7]	53.0	[41.3-64.4]	116
Joe Gqabi	3.80	[3.21-4.38]	49.0	[36.0-62.1]	51.0	[37.9-64.0]	150
Nelson Mandela Bay	3.77	[2.82-4.71]	50.8	[32.0-69.3]	49.2	[30.7-68.0]	107
O.R.Tambo	4.58	[3.56-5.59]	46.6	[31.7-62.1]	53.4	[37.9-68.3]	156
Sarah Baartman	4.61	[3.62-5.59]	43.6	[26.3-62.6]	56.4	[37.4-73.7]	96
Total	**4.14**	**[3.70-4.58]**	**47.9**	**[41.0-54.8]**	**52.1**	**[45.2-59.0]**	**1,004**

Figure 100 illustrates the proportion of the children aged 0-5 years in the Eastern Cape Province and in the various districts who have low and acceptable DDS. Overall, slightly more than half (52.1%) of children in the Eastern Cape Province reported an adequate DDS, while 47.9% have a low DDS. No significant differences were reported for both a low DDS nor high DDS at an age, gender and district level.

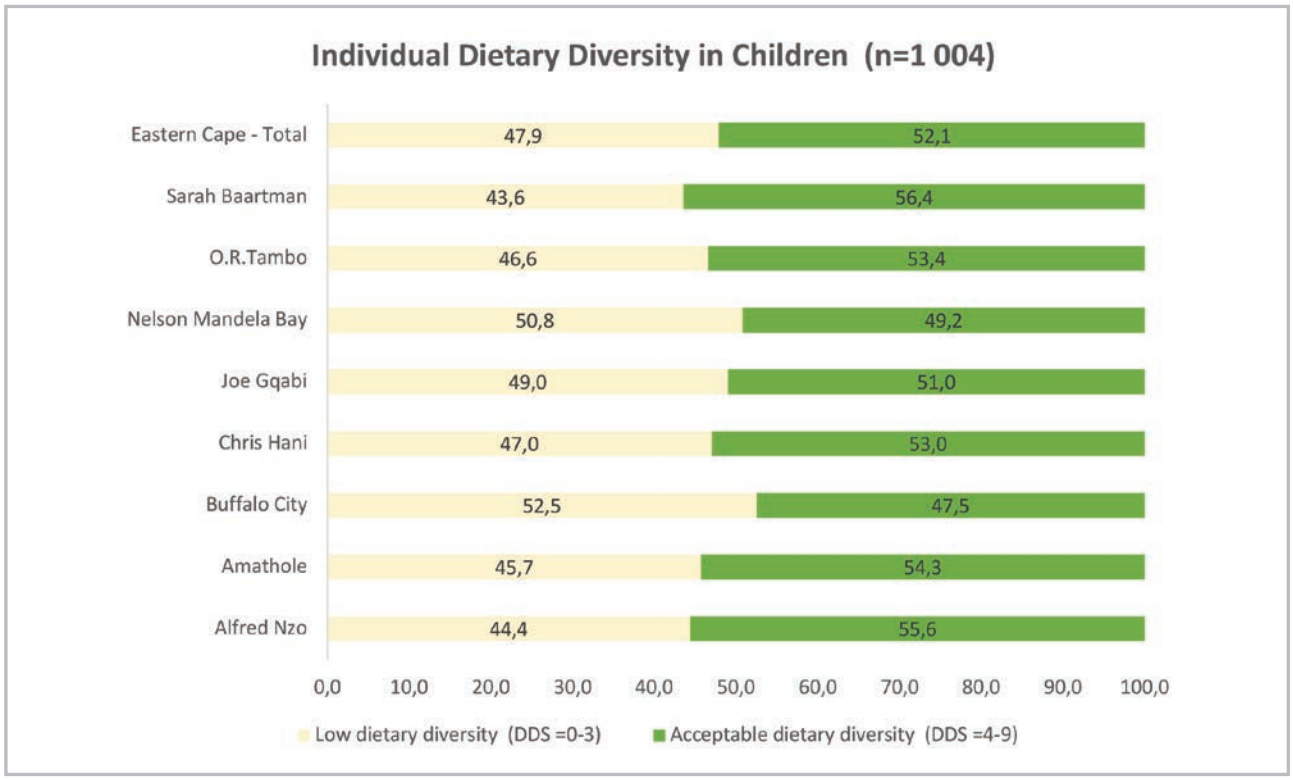


Figure 100: *Comparison of the distribution of DDS in children aged 0-5 years by districts in Eastern Cape*

The mean dietary diversity score (DDS) for adults residing in the Eastern Cape Province (n=6192) was 4.75, which is indicative of an adequate dietary diversity (Table 64). There were no significant differences between genders nor between age groups. District comparisons showed that Sarah Baartman had the highest mean DDS (5.43) compared to Joe Gqabi District which had the lowest (4.22). Table 64 shows that individuals in all the eight districts have an adequate dietary diversity (DDS >4), with Sarah Baartman having a significantly higher mean DDS (5.43) than four other districts, Alfred Nzo, Amathole, Chris Hani, and Joe Gqabi (range: 4.22-4.46).

Table 64: Mean dietary diversity scores for adults in Eastern Cape Province

	Dietary Diversity Score		Dietary Diversity Score category				
			0-3		4-9		
	Mean	95% CI	%	95% CI	%	95% CI	n
Age group							
18-24	5.01	[4.56-5.46]	27.7	[21.4-35.2]	72.3	[64.8-78.6]	573
25-34	4.71	[4.39-5.03]	36.9	[31.9-42.1]	63.1	[57.9-68.1]	1,106
35-44	4.74	[4.44-5.05]	33.1	[28.7-37.9]	66.9	[62.1-71.3]	1,144
45-54	4.81	[4.59-5.03]	33.4	[29.4-37.8]	66.6	[62.2-70.6]	1,054
55-64	4.67	[4.47-4.87]	32.3	[28.3-36.6]	67.7	[63.4-71.7]	1,115
>=65	4.32	[3.97-4.67]	40.2	[32.5-48.4]	59.8	[51.6-67.5]	1,210
Gender							
Male	4.62	[4.41-4.83]	35.7	[31.6-39.9]	64.3	[60.1-68.4]	2,018
Female	4.82	[4.64-5.01]	32.7	[29.7-35.8]	67.3	[64.2-70.3]	4,174
District							
Alfred Nzo	4.32	[3.95-4.68]	38.5	[29.6-48.2]	61.5	[51.8-70.4]	873
Amathole	4.46	[4.21-4.72]	38.1	[31.9-44.6]	61.9	[55.4-68.1]	715
Buffalo City	4.84	[4.45-5.23]	30.4	[22.9-39.0]	69.6	[61.0-77.1]	817
Chris Hani	4.34	[4.08-4.60]	35.9	[30.1-42.3]	64.1	[57.7-69.9]	679
Joe Gqabi	4.22	[3.96-4.48]	40.4	[34.6-46.6]	59.6	[53.4-65.4]	709
Nelson Mandela Bay	4.94	[4.57-5.30]	29.3	[23.2-36.3]	70.7	[63.7-76.8]	849
O.R.Tambo	4.90	[4.44-5.35]	35.0	[28.5-42.1]	65.0	[57.9-71.5]	742
Sarah Baartman	5.43	[5.10-5.76]	30.1	[26.1-34.4]	69.9	[65.6-73.9]	818
Total	**4.75**	**[4.59-4.91]**	**33.7**	**[31.1-36.4]**	**66.3**	**[63.6-68.9]**	**6,202**

Figure 101 illustrates the proportion of the adult population in the Eastern Cape Province and in the various districts who have low and acceptable DDS. Overall, 66.3% of adults in the Eastern Cape Province reported an adequate DDS, while 33.7% have a low DDS. While Nelson Mandela Bay District reported the lowest proportion of people with low DDS (29.3%), this was not significantly different in comparison to the other districts. However, there was a significant difference, where Sarah Baartman had a higher prevalence of those with an acceptable dietary diversity (69.9%) and a lower prevalence of low dietary diversity (30.1%) compared to Joe Gqabi (59.6% and 40.4%, respectively).

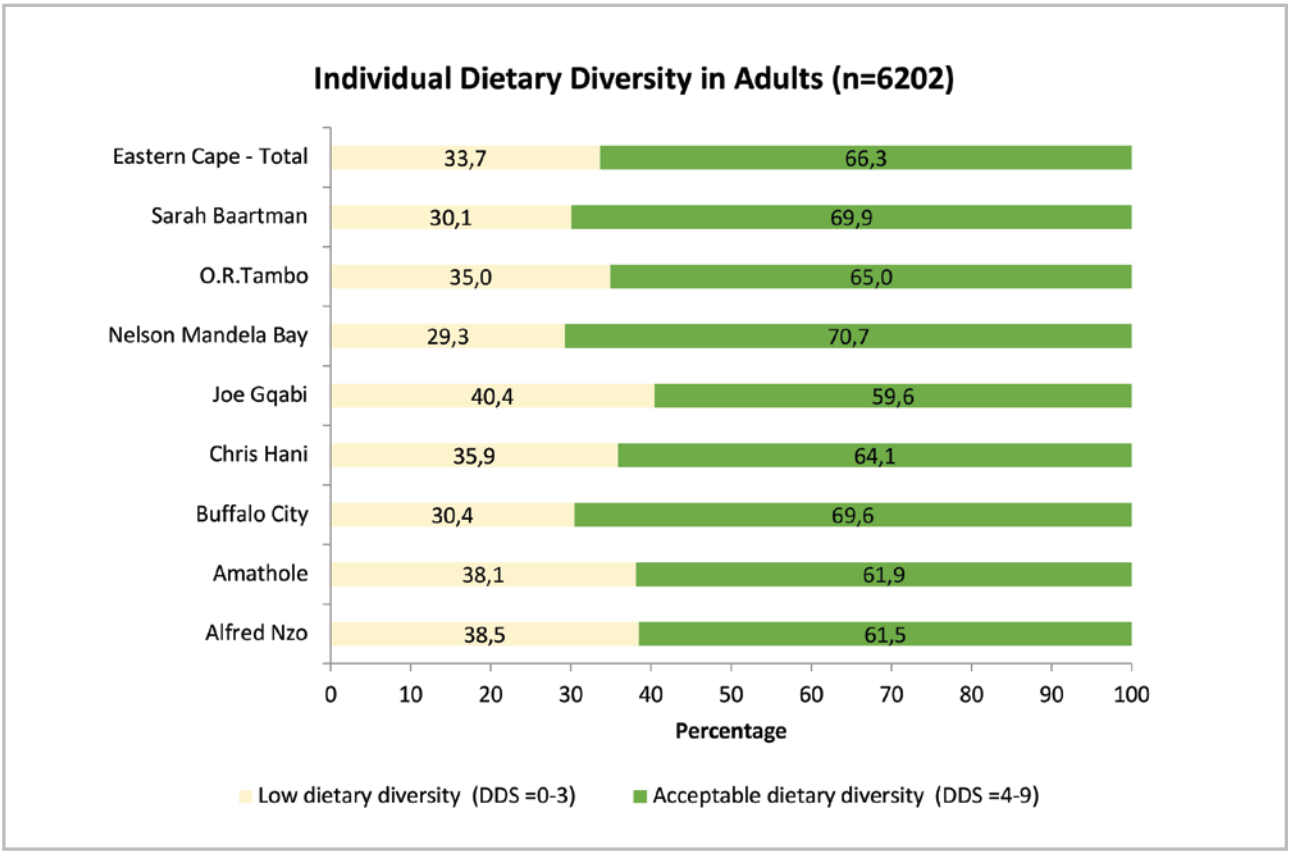


Figure 101: *Comparison of the distribution of DDS in children aged 0-5 years by districts in Eastern Cape*

8.4 Relationship of Household Food Insecurity and Malnutrition

Table 67 presents the associations between nutrition indicators and food security status, based on the Household Food Insecurity Access Scale (HFIAS). In the Eastern Cape Province, there was no significant relationships between food security and three of the nutrition indicators (stunting, wasting and overweight) for children aged 0-5 years. The relationship between food security and underweight was, however, significant. Table 65 shows that the prevalence of household food insecurity was higher among households that had at least one child under 5 years who was underweight (96.0%) than among households that did not have a child under 5 years who was stunted (85.8%) ($p<0.01$).

For adults, there were significant relationships between household food security and all nutrition indicators. The prevalence of household food insecurity was significantly higher among households that had at least one adult who was underweight (83.1%), than among households that did not have an underweight adult (76.1%) ($p<0.01$). Conversely, the prevalence of household food insecurity was significantly lower in households that had at least one adult who was overweight (75.4%), than among households that did not have an overweight adult (78.8%) ($p<0.05$). There was a significant relationship between household food security and an elevated waist hip-ratio (WHR), which is a risk factor for non-communicable diseases (NCDs). Persons with an elevated waist-hip ratio, that is WHR of >1 in males or >0.85 in females, are considered as being at increased risk of NCDs. The prevalence of household food insecurity was higher among households that had at least one adult with an elevated WHR (78.8%), than among households that did not have one adult with an elevated WHR (75.0%) ($p<0.01$). The prevalence of food insecurity was also significantly higher (85.3%) in households that had at least one person who had a low dietary diversity (DDS <4) compared to households in which everyone had acceptable dietary diversity (67.3%) ($p<0.01$).

Table 65: Relationship between Household Food Insecurity and Malnutrition indicators in Eastern Cape Province

Variables	Categories	Food security status based on the Household Hunger Scale (%)		t / Chi-square tests
		Food secure	Food insecure	
0-5 years				
Stunting	Yes	11.1	88.9	
	No	14.2	85.8	
Wasting	Yes	15.6	84.4	
	No	13.4	86.6	
Underweight	Yes	4.0	96.0	***
	No	14.2	85.8	
Overweight	Yes	15.7	84.3	
	No	12.8	87.2	
Adults				
Underweight	Yes	16.9	83.1	***
	No	23.9	76.1	
Obesity / Overweight	Yes	24.6	75.4	**
	No	21.2	78.8	
Increase risk of NCDs (Waist / hip ratio)	Yes	21.2	78.8	***
	No	25.0	75.0	
Individual Dietary Diversity	Low	14.7	85.3	***
	Acceptable	32.7	67.3	

* p<0.10, ** p<0.05, ***p < 0.01

Table 65 demonstrates South Africa's double burden of malnutrition. While on the one hand South Africa experiences higher levels of undernutrition, it also experiences higher levels of overweight and obesity (FAO et al., 2021).

8.5 Discussion

Infant feeding practices

Exclusive breastfeeding has been adopted as one of the key, and crucially important, components of the Infant and Young Child Feeding Policy which was developed in 2007 (DoH, 2011). Promotion, protection, and support of breastfeeding are a key focus area of infant and young child feeding of the Integrated Nutrition programme of the Department of Health.

The results of the current study indicate that 80.1% of children under 2 years were breastfed at some point in their lives, which is slightly lower than the national results reported in the SADHS in 2016 (84%).

Furthermore, the results of the current study indicate that nearly 68.8% of children aged 0-2 years in the Eastern Cape Province were introduced to breastfeeding immediately after birth with a total of 79.7% being breastfed within an hour of birth. These results are slightly lower than the national results reported by the SAHANES in 2012 (83.0%) and higher than the national results reported by the SADHS in 2016 (67%).

Exclusive breastfeeding in the Eastern Cape Province was reported to be 24.4%. This should be interpreted with caution due to the small sample size. However, 24.4% is about three times higher than the national reports in the 2003 SADHS (8.3%) and SANHANES 2012 (7.5%) and more in line with that reported by Shisana et al. in 2008 (25.7%) but lower than the 2016 SADHS (30%).

In 1998, 2003, and 2016, the SADHS reported an average duration of breastfeeding of 15.6 months, 16.6 months, and 12.2 months, respectively. SANHANES, however, showed a much lower average duration of breastfeeding (5.9 months). The average duration of breastfeeding for those who were not currently breastfed during this study was 6.8 months, which is more in line with what the SANHANES reported compared to the SADHS.

Overall, the first drink other than breastmilk was mainly introduced at 0-1 months. This occurred in more than half (58.5%) of children. We can assume that this is most likely the introduction of infant formula, for mothers who may be unable to breastfeed. At 2 months, other drinks were introduced in a further 9.1% of children. Less than a fifth of children (16.7%) were first introduced to other drinks at the age of 6 months/ older. Regarding the type of drink that was first introduced, nearly half (43.7%) indicated infant formula while 19.1% indicated plain water and 26.9% indicated gripe water.

After 6 months, infants should be introduced to solid foods as breastmilk is no longer sufficient to meet the nutritional requirements. However, results of this study indicates that complementary feeding is initiated slightly earlier than the anticipated 6 months at 4.7 months. This is like the results of the SANHANES 2012 (4.5 months). The most common food introduced is commercial cereal/ porridge (60.9%) and homemade cereal/ porridge (23.9%), with only 2.1% introduced to pureed/mashed vegetables/fruit.

Anthropometry (0-5 years)

In 2012, the SANHANES reported a national stunting prevalence of 28.6% in children 0-5 years, and a provincial prevalence of 33.5% in the Eastern Cape Province. Four years later in 2016, the SADHS reported a slightly lower stunting prevalence at the national (27.0%) level but a much lower prevalence at the provincial (25%) level. The results of the current study appear to indicate that the stunting prevalence in the Eastern Cape Province is more aligned to the SANHANES results and is much higher than the SADHS provincial prevalence with a current prevalence of 31.4% in children of the same age group. These results indicate that stunting has decreased slightly over the last 10 years and as such the proportion of children experiencing chronic undernutrition in the Eastern Cape in 2021 has decreased. The SADHS reported that stunting was more prevalent nationally in the age group 18-23 months. The results of this provincial analysis indicate that children in the younger age groups have a higher prevalence of stunting than those in older age groups in the Eastern Cape; however, there were no significant differences in overall stunting across age groups. Furthermore, the SANHANES and SADHS has reported that stunting is more prevalent in male children than female children at a national level. This study does not indicate any significant differences between genders but does show that slightly more males are overall and moderately stunted, but that a slightly higher proportion of females are severely stunted compared to males. At a district level, the current study reported that stunting is more prevalent in the Nelson Mandela Bay District, with two fifths of the children reported to be stunted (40.3%); this was not significantly higher than the Alfred Nzo District (15.9%).

The national prevalence of wasting was reported to be 3.7% in 2012 (SANHANES), with a slightly lower provincial prevalence in the Eastern Cape of 2.0%. In 2016, similar national results were presented in the SADHS (3.0%); however, a provincial prevalence was not reported at the time. The current study has reported a similar provincial prevalence of wasting in the Eastern Cape of 4.1%, thereby indicating that the proportion of children experiencing acute undernutrition in 2021 has remained the same over the past 10 years. It also appears that those younger than 17 months, as well as females experience a higher prevalence of wasting than their counterparts. At a district level, the current study reported that wasting, while not significant, is more prevalent in Buffalo City (10.5%) compared to the other districts (range 1.2% to 6.7%).

The prevalence of underweight in the Eastern Cape in the current study (7.7%) is similar to the provincial prevalence of underweight reported by the SANHANES in 2012 (8.3%). A lower prevalence was reported at the national level in 2012 (6.8%) and 2016 (6%).

In 2016, the SADHS reported a national prevalence of overweight of 13% in children 0-5 years. SANHANES reported a higher prevalence in females than in males across all age categories at a provincial level. The current study found a much higher prevalence (21.9%) of children were overweight and that females had a higher prevalence of overweight than males, though the differences between genders were not significant.

The above trends across time seem to indicate that over the last 10 years, chronic undernutrition has decreased slightly, while acute undernutrition in children in the Eastern Cape Province has remained more or less the same. At a district level, it appears as if the Nelson Mandela Bay and Buffalo City districts have the highest prevalence of chronic undernutrition, however, Buffalo City also has the highest prevalence of acute undernutrition.

Anthropometry (18 years and older)

At a national level, the mean BMI in females were reported to be 28.9kg/m^2 in 2012 and 29.2kg/m^2 in 2016. For males, there was no change in mean BMI between 2012 and 2016 as both the SANHANES and the SADHS reported a mean BMI of 23.6kg/m^2. A similar mean was reported for BMI in the Eastern Cape for females (28.6kg/m^2) and a slightly lower mean for males (22.9kg/m^2) in 2012. Similar results were reported in 2016 (females 29.5kg/m^2 and males 23.3kg/m^2). The current study reported slight increases compared to the SANHANES for both females (29.3kg/m^2) and males (24.2kg/m^2) in the Eastern Cape.

Based on BMI cut off points, SANHANES reported a national prevalence of overweight and obesity of 64.0% in females and 30.7% in males 10 years ago. The SADHS reported similar results in 2016, 67.5% in females and 31.3% in males. The provincial prevalence of overweight and obesity in the Eastern Cape was like the national estimates for females (63.5%) and lower estimates for males (24.3%) in 2012. In 2016, the SADHS reported a similar provincial prevalence in the Eastern Cape in females (69.2%) and a lower prevalence in males (25.6%). Ten years later, the results of this study report a slightly higher provincial prevalence of overweight and obesity in females (68.0%) and males (34.3%) compared to the SANHANES. Compared to the SADHS, results for females seem to appear unchanged while the prevalence seems to have increased slightly for males.

The current study also reported a slightly higher proportion of females (49.4%) and males (9.1%) regarding a waist hip ratio larger than 0.85 and 1.0 respectively, compared to previous studies. For females, SANHANES reported 47.1% and 46.1% at a national and provincial level respectively. For males SANHANES reported 6.8% and 3.9% at a national and provincial level respectively.

Dietary Diversity

A diet that is sufficiently diverse reflects nutrient adequacy. This statement is because no single food contains all required nutrients for optimal health. Consequently, the more food groups included in a daily diet, the greater the likelihood of meeting nutrient requirements (Kennedy, 2009). Monotonous diets, based mainly on starches such as maize, rice, and bread, have been closely associated with food insecurity. Dietary diversity is an outcome measure of food security at the individual or household level (Kennedy, 2009). Apart from reflecting on food security, a low DDS has also been associated with low weight and stunted growth (Rah, Akhter, Semba et al., 2010), as well as other health issues.

In the present survey, the mean dietary diversity score of the adult population was 4.75 with 33.7% of the population having a score less than 4. The mean DDS was in the current survey is higher than that of the NCFS in 2009 (4.02) and that reported in SANHANES nationally in 2012 (4.2). However, the proportion of those with a low DDS was lower than that reported in both the SANHANES in 2012 (40%) and the NFCS in 2009 (38%). The current study further found that children have a lower mean DDS of 4.14 with a larger proportion (47.9%) of children having a score of less than 4.

9 Wellbeing and Associated Shocks

9.1 Household health status, chronic illnesses, and diseases

The study sought to establish the disease burden and health experiences of household heads and members in the preceding year to the study and as expected the population experienced a wide range of diseases (Table 66). Most household heads reported having experienced coughs/colds/chest infections at 25.5% followed by fever/malaria (16.6%), hypertension (13.10%), headache 11.9%, diabetes (7.9%) and HIV/AIDS (5.3%) in that order. Cough/cold/chest infections accounted for 25.6% of household members and the order of ailments for family members generally follows that of household heads. These are commonly reported ailments some of which are simply symptoms rather than confirmed diseases. Nonetheless, the level of access to food and especially nutritious food predisposes individuals to a multitude of diseases and to the ability to prevent and indeed recover when such diseases are contracted. Specific diseases such as diabetes, for example, require specific diets as part of managing them and it is there important that such household have access to diverse food stuffs including medically prescribed diets.

Table 66: Disease experienced by household heads and members a year prior to the survey in Eastern Cape Province

	Household heads		Household members	
Disease	**n**	**%**	**n**	**%**
Cough/cold/chest infection	1,668	25.5	5,709	25.6
Fever/malaria	862	16.6	2,857	13.0
Hypertension	1,289	13.1	1,802	7.9
Headache	631	11.9	1,776	8.0
Diabetes	799	7.9	1,096	4.8
HIV/AIDS	373	5.3	735	3.2
Other disease	429	4.5	759	3.3
Abdominal pains	308	3.8	636	2.8
Asthma	255	3.6	439	2.0
Eye infection	183	3.3	300	1.4
Toothache or mouth infection	125	2.1	410	1.8
Diarrhoea	89	1.3	265	1.2
TB	123	1.2	224	0.9
Paralysis	123	1.0	221	1.0
Vomiting	52	0.8	178	0.8
Skin rash	52	0.6	164	0.7
Bronchitis/pneumonia/chest pain	49	0.5	86	0.4

Unweighted n and weighted % reported and descend sorting done based on household heads %

The study found low prevalence of chronic illness (a disease that lasts for more than 3 months) at both the household head (5.3%) and household member (3.9%) levels (Figure 102). The significance of this finding is that food and nutrition security is vital to managing most chronic diseases (such as TB, diabetes, and others)

as the nutritious status of foods that people eat assists in controlling recovery processes. The prevalence of chronic diseases adds to the need for ensuring that most households are food secure and eat a diverse range of foods.

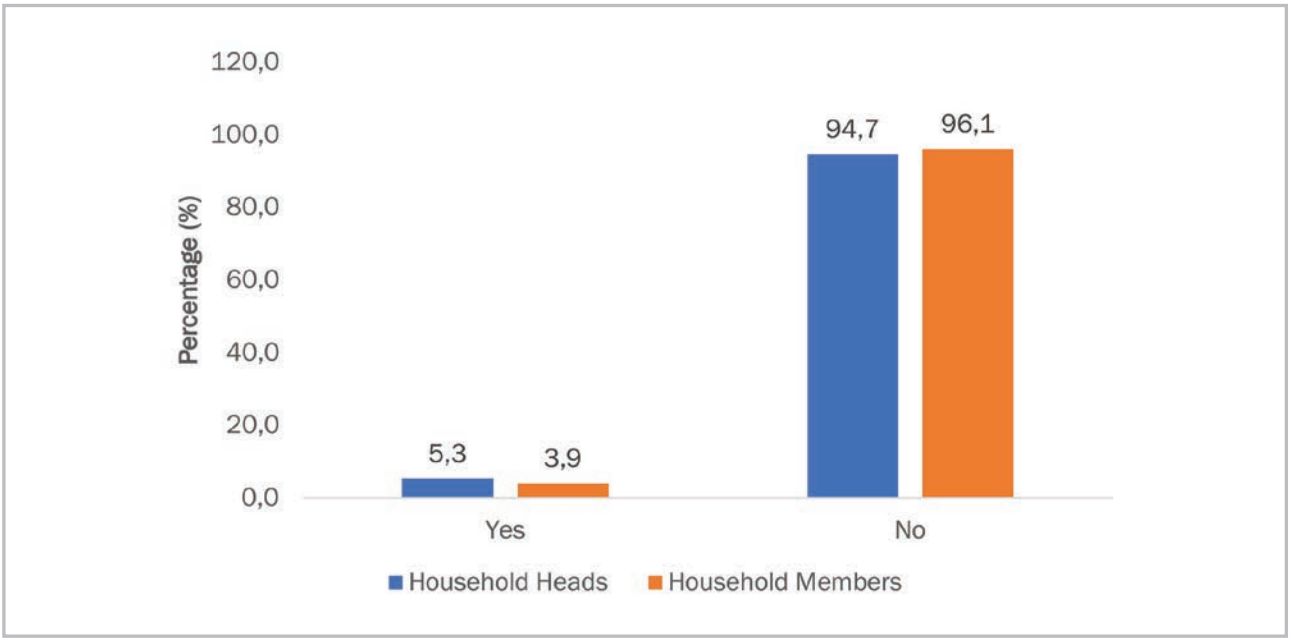


Figure 102: *Household heads and members reported to having been continuously ill, for at least 3 months in the last 12 months prior to the survey*

There was generally no difference in the reported or perceived health status of household heads by sex and district, but noticeable differences are observed particularly by age (Table 67). Those aged 55 years and above reported significant levels of poor or fair health compared to those younger. Amathole District had the highest percentage (16.7%) of household heads who perceived their general health status as poor or fair. This was followed by Buffalo City District 13.9%, Chris Hani at 11.8%, and Afred Nzo (11.1%). All these differences are masked in the provincial figure of 10.9% (which is notable at population level).

Table 67: Household heads' perceived health status disaggregated by sex, age, and district in Eastern Cape Province

	Poor/Fair		Good		Very good/Excellent		Total
	%	95% CI	%	95% CI	%	95% CI	n
Sex							
Male	9.0	[7.3-11.1]	51.9	[46.9-56.8]	39.1	[34.2-44.3]	2,637
Female	12.6	[10.8-14.5]	53.4	[48.7-58.0]	34.1	[30.0-38.4]	2,918
Total	**10.9**	**[9.6-12.5]**	**52.7**	**[49.8-55.6]**	**36.4**	**[33.5-39.3]**	**5,555**
Age group							
18-24	6.0	[2.7-12.9]	44.4	[33.8-55.6]	49.6	[39.6-59.7]	174
25-34	2.4	[1.4-4.1]	49.2	[41.7-56.7]	48.4	[40.8-56.1]	575
35-44	6.5	[3.7-11.3]	53.8	[49.4-58.1]	39.7	[34.2-45.5]	915
45-54	10.2	[7.2-14.1]	61.7	[57.8-65.4]	28.2	[23.2-33.8]	1,134
55-64	18.7	[15.6-22.2]	59.9	[53.7-65.7]	21.4	[17.6-25.8]	1,217
65+	36.0	[31.6-40.6]	52.3	[45.9-58.7]	11.7	[8.7-15.5]	1,540
Total	**10.9**	**[9.6-12.5]**	**52.7**	**[49.8-55.6]**	**36.4**	**[33.5-39.3]**	**5,555**

	Poor/Fair		Good		Very good/Excellent		Total
	%	95% CI	%	95% CI	%	95% CI	n
District							
Alfred Nzo	11.1	[7.8-15.7]	40.2	[31.7-49.3]	48.7	[42.0-55.4]	782
Amathole	16.7	[12.6-21.7]	53.2	[45.7-60.5]	30.2	[24.4-36.6]	637
Buffalo City	13.9	[10.8-17.8]	48.9	[43.1-54.7]	37.2	[31.6-43.1]	688
Chris Hani	11.8	[9.3-14.8]	55.0	[46.8-63.0]	33.2	[25.4-42.0]	634
Joe Gqabi	8.5	[6.2-11.4]	58.6	[51.5-65.4]	33.0	[26.1-40.6]	671
Nelson Mandela Bay	8.0	[6.1-10.4]	49.8	[44.0-55.6]	42.3	[36.2-48.6]	742
O.R.Tambo	10.3	[6.5-16.0]	59.9	[53.2-66.2]	29.8	[24.3-35.9]	692
Sarah Baartman	7.9	[5.5-11.4]	57.7	[47.8-66.9]	34.4	[26.9-42.8]	709
Total	**10.9**	**[9.6-12.5]**	**52.7**	**[49.8-55.6]**	**36.4**	**[33.5-39.3]**	**5,555**

A similar pattern is observed across household members by sex, age, and district (Table 68). Unsurprisingly, the elderly (55-64 years and 65 years and older) reported the highest percentage of household members who were having poor or fair health status with 20.0% and 35.1% respectively. Buffalo City had the highest percentage of household members who were reported as having poor or fair health status with 10.0%, while O.R. Tambo had the least in this category with 5.5%.

Table 68: Household members reported perceived health status by sex, age, and district

	Poor/Fair		Good		Very good/Excellent		Total
	%	95% CI	%	95% CI	%	95% CI	n
Sex							
Male	5.9	[5.3-6.6]	52.3	[50.3-54.3]	41.8	[39.8-43.9]	9,748
Female	8.7	[8.1-9.4]	53.0	[51.1-54.8]	38.3	[36.4-40.2]	11,908
Total	**7.4**	**[6.9-8.1]**	**52.7**	**[50.9-54.4]**	**39.9**	**[38.2-41.7]**	**21,656**
Age group							
0-14	1	[0.7-1.5]	48.4	[45.8-51.0]	50.5	[47.9-53.1]	6,318
15-24	1.7	[1.2-2.3]	50.6	[48.1-53.1]	47.7	[45.2-50.3]	3,839
25-34	2.7	[2.1-3.5]	55.4	[52.6-58.3]	41.8	[39.0-44.7]	3,076
35-44	5.7	[4.6-7.0]	56.5	[53.7-59.4]	37.8	[34.9-40.7]	2,387
45-54	10.4	[9.0-12.1]	58.6	[56.0-61.2]	30.9	[28.4-33.6]	2,037
55-64	20.0	[17.9-22.3]	58.7	[56.0-61.3]	21.3	[19.0-23.6]	1,803
65+	35.1	[32.3-38.0]	50.2	[47.2-53.1]	14.7	[12.6-17.1]	1,860
Total	**7.4**	**[6.9-8.1]**	**52.8**	**[51.0-54.6]**	**39.8**	**[38.0-41.6]**	**21,320**

	Poor/Fair		Good		Very good/Excellent		Total
	%	95% CI	%	95% CI	%	95% CI	n
District							
Alfred Nzo	6.0	[4.9-7.3]	48.4	[45.1-51.8]	45.6	[42.0-49.2]	3,098
Amathole	9.4	[7.9-11.2]	54.1	[49.7-58.4]	36.5	[31.8-41.4]	2,581
Buffalo City	10	[8.4-11.9]	53.6	[49.3-57.8]	36.4	[32.1-41.0]	2,661
Chris Hani	7.9	[6.6-9.6]	52.8	[47.9-57.6]	39.3	[35.0-43.7]	2,340
Joe Gqabi	6.7	[5.5-8.1]	52.3	[47.8-56.8]	41.0	[36.1-46.0]	2,599
Nelson Mandela Bay	6.8	[5.7-8.1]	52.5	[47.8-57.3]	40.7	[35.7-45.8]	2,763
O.R. Tambo	5.5	[4.2-7.1]	53.2	[48.4-58.0]	41.3	[37.2-45.5]	2,948
Sarah Baartman	7.5	[6.1-9.1]	53.9	[48.8-59.0]	38.6	[33.5-44.0]	2,760
Total	**7.4**	**[6.8-8.0]**	**52.7**	**[51.0-54.4]**	**39.9**	**[38.1-41.6]**	**21,750**

Figure 103 shows that Mnquma, Ndambe, Emalahleni, Buffalo City, Mbashe, and Raymond Mhlaba local municipalities were under the highest category (9.4% to 11.4%) of household members with reported poor or fair health status. Local municipalities that fell under the lowest category (4.5% to 6.0%) were Great Kei, Nyandei, Mhlontlo, Ngquza Hill, and Mbizana. Ngqushwa had none.

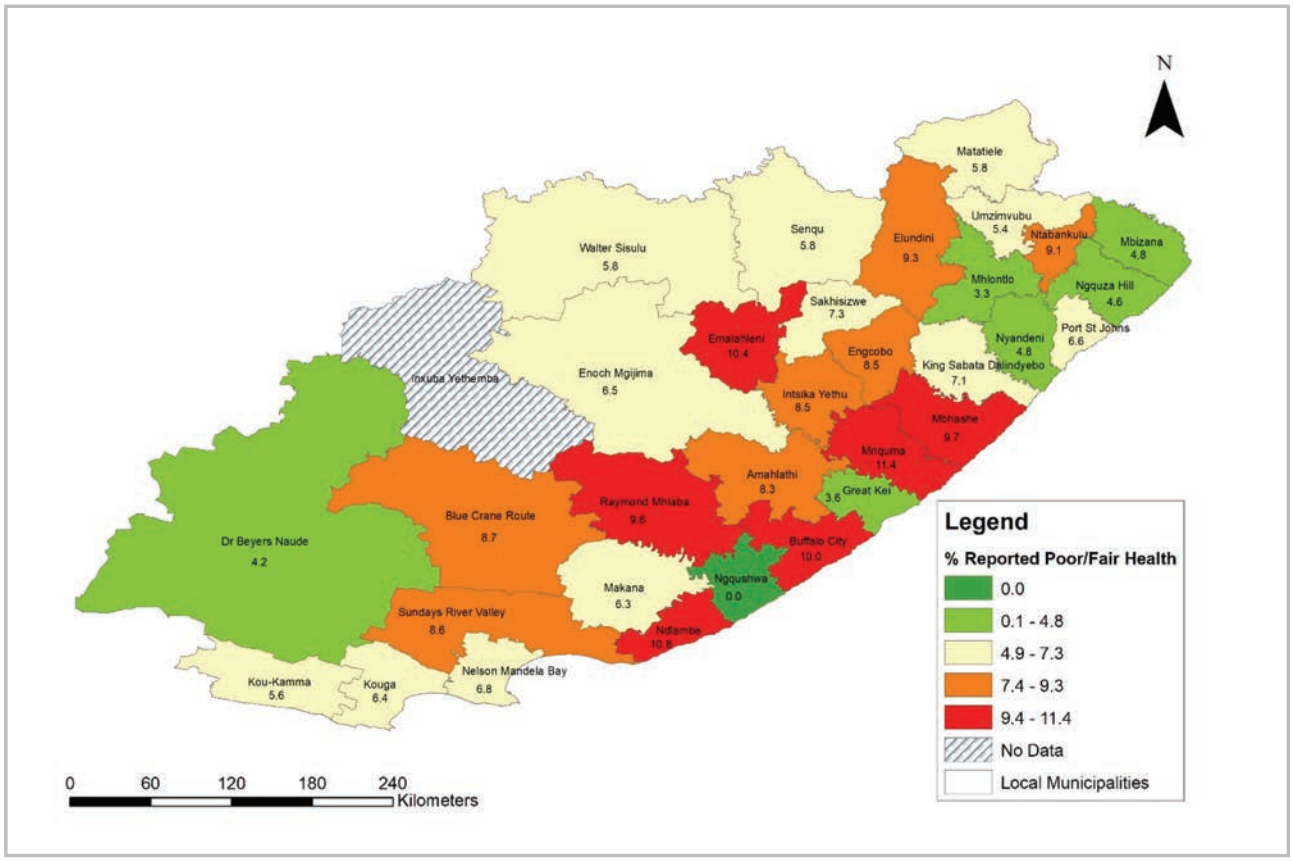


Figure 103: *Household members reported perceived health status by local municipality in Eastern Cape Province*

9.2 Shocks, Covid-19 coping strategies and their associated effect on food availability and access

This section covers some of the shocks and their associated effects on household food availability. The Covid-19 coping strategies are also covered in this section bearing in mind that the survey was conducted three weeks after the first Covid-19 lockdown which affected household food access and availability in the study area.

9.2.1 Drought and water shortage

Shocks due to flood were reported to be low across the eleven districts of the Eastern Cape Province. Within the province, the three districts of Buffalo City, Alfred Nzo, and Chris Hani are the ones which have experienced the highest level of flooding shocks, with 19%, 16%, and 12%, respectively (Figure 104). Very few households in the other remaining eight districts reported to have experienced low levels of flooding in the previous 12 months (note that survey was conducted in 2022). It should be noted that the Eastern Cape Province is prone to flooding events; normally, its rainfall is influenced by weather systems from both the midlatitudes and tropics such as the tropical temperate troughs, cut-off lows, and ridging anticyclones. The Eastern Cape did experience severe thunderstorms on the 08th January 2022 which resulted in severe flooding in Buffalo City Metro and other rural areas such as Duncan Village in East London and Dutwya.

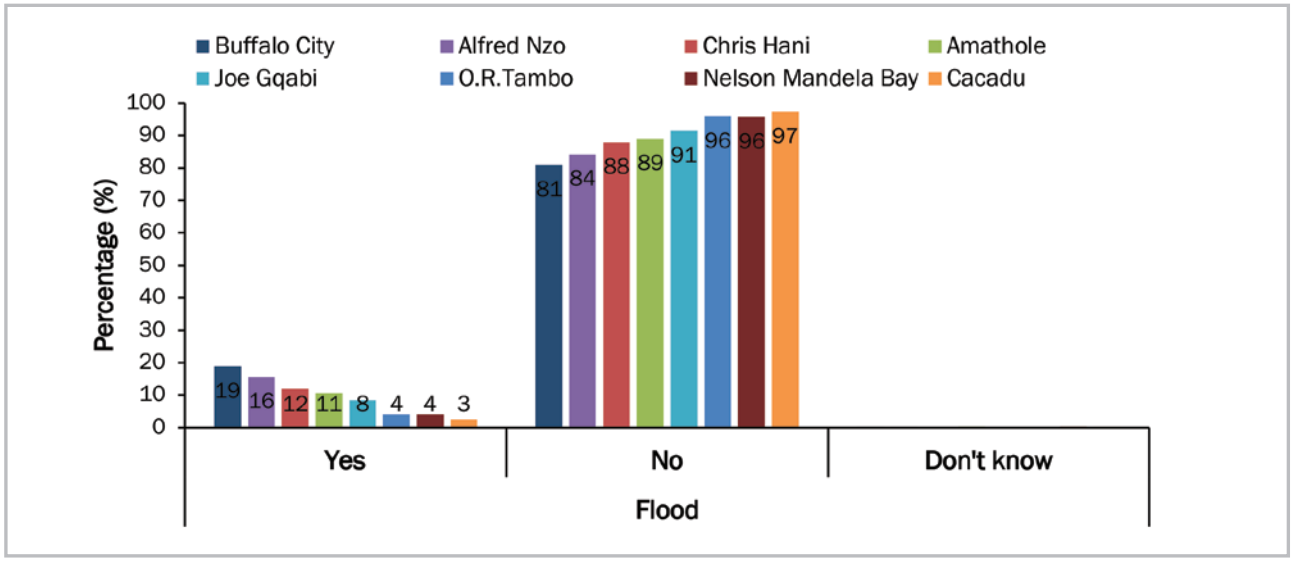


Figure 104: *Household that experience floods in the last 12 months in Eastern Cape Province*

Overall, the Eastern Cape Province experiences inter annual variability when it comes to drought. It experiences years with wet wi nters, and neutral and dry seasons as shown on Figure 105 which only a handful of households in the province experienced drought shock during the study period. The province has been experiencing multi-year droughts from 2015-2019. It should be noted that the survey was undertaken in the year 2022 and, during that year, the province had been struggling with dry conditions.

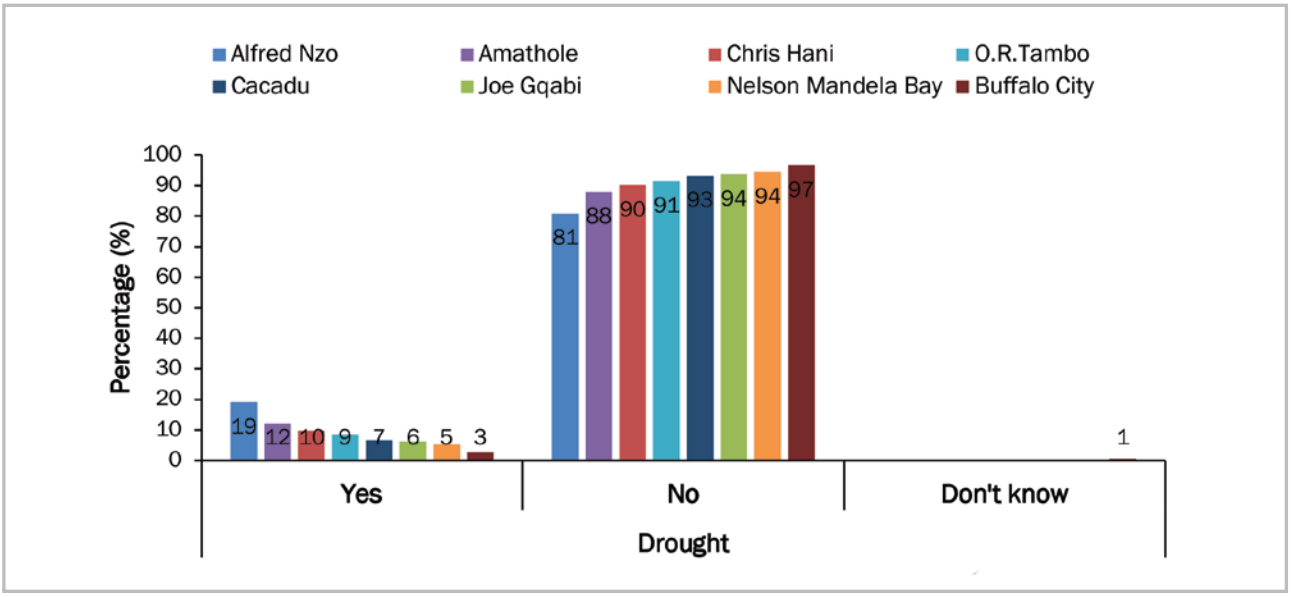


Figure 105: *Household that experience drought shock by district in the last 12 months in Eastern Cape Province*

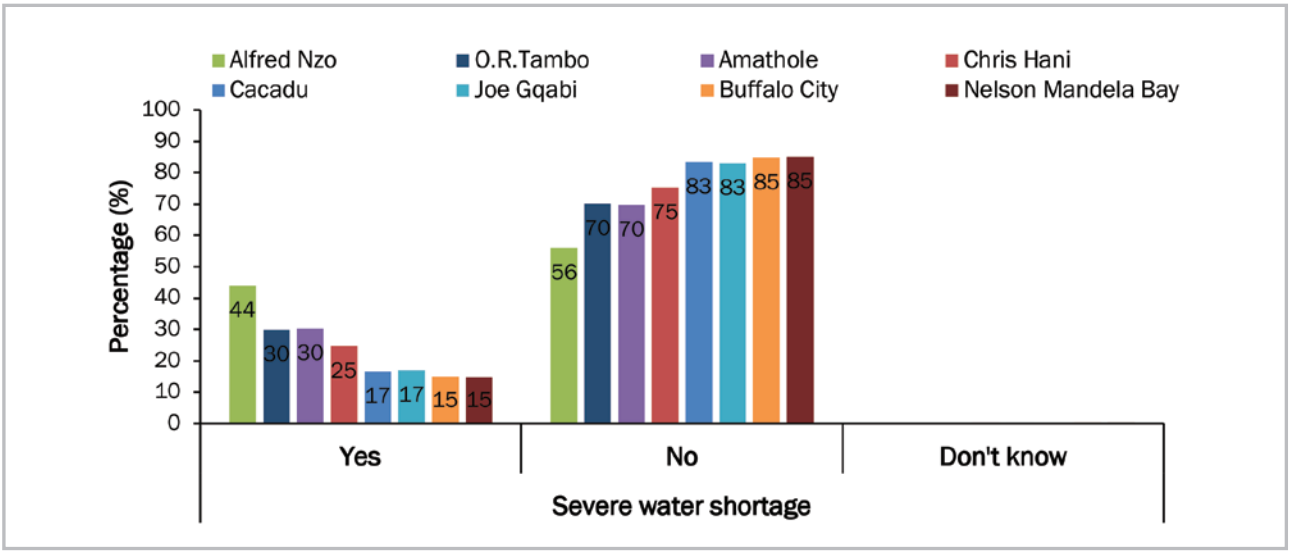


Figure 106: *Household that experience severe water shortage shock by district*

Severe water shortage is one of the shocks that was reported in most of the districts in the province (Figure 106). The province has been struggling with drought and dilapidated water infrastructure.

Crop failure and emergence of crop diseases were barely reported across the districts, with only 5% of the households in Amathole reporting that they experienced it the most (Figure 107).

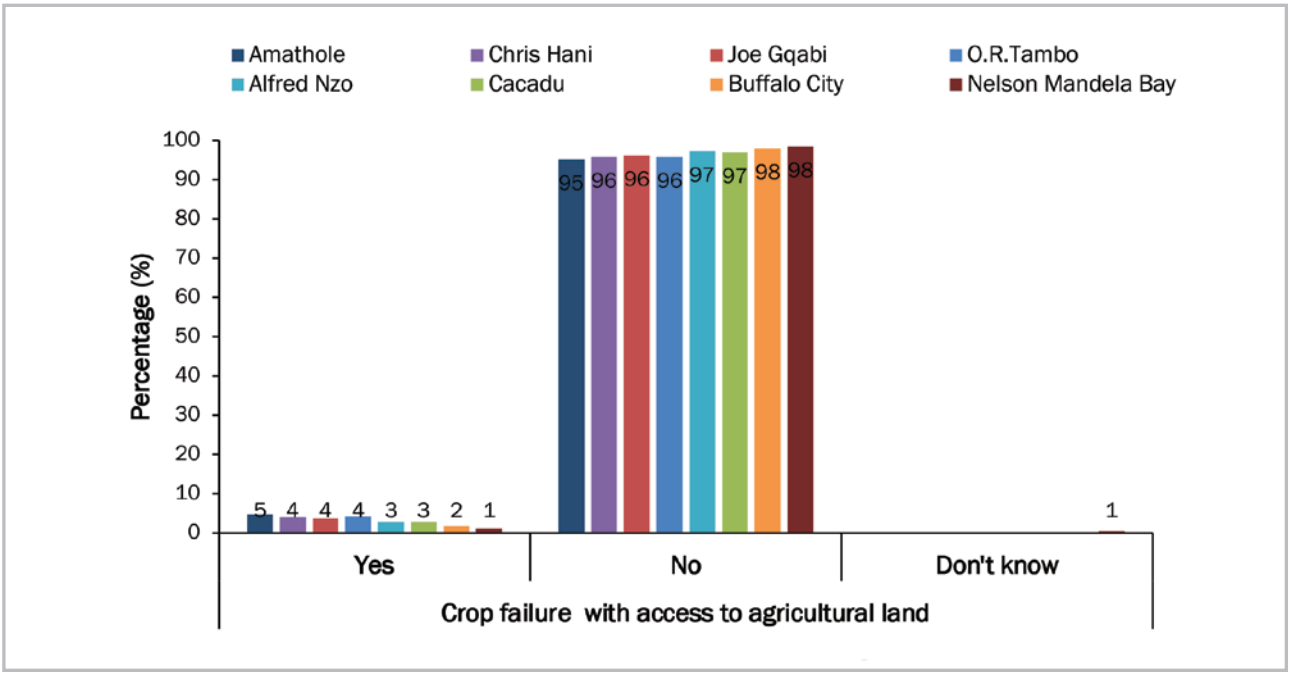


Figure 107: *Household that experience crop failure shock by district*

The dwindling number of crop failure recorded in the Eastern Cape are closely related to the fact that crop production is not hugely practised in that area across all the districts (Figure 18). On average, all the districts are less involved on agricultural production activities, hence the extremely dwindling number of crop failure and disease.

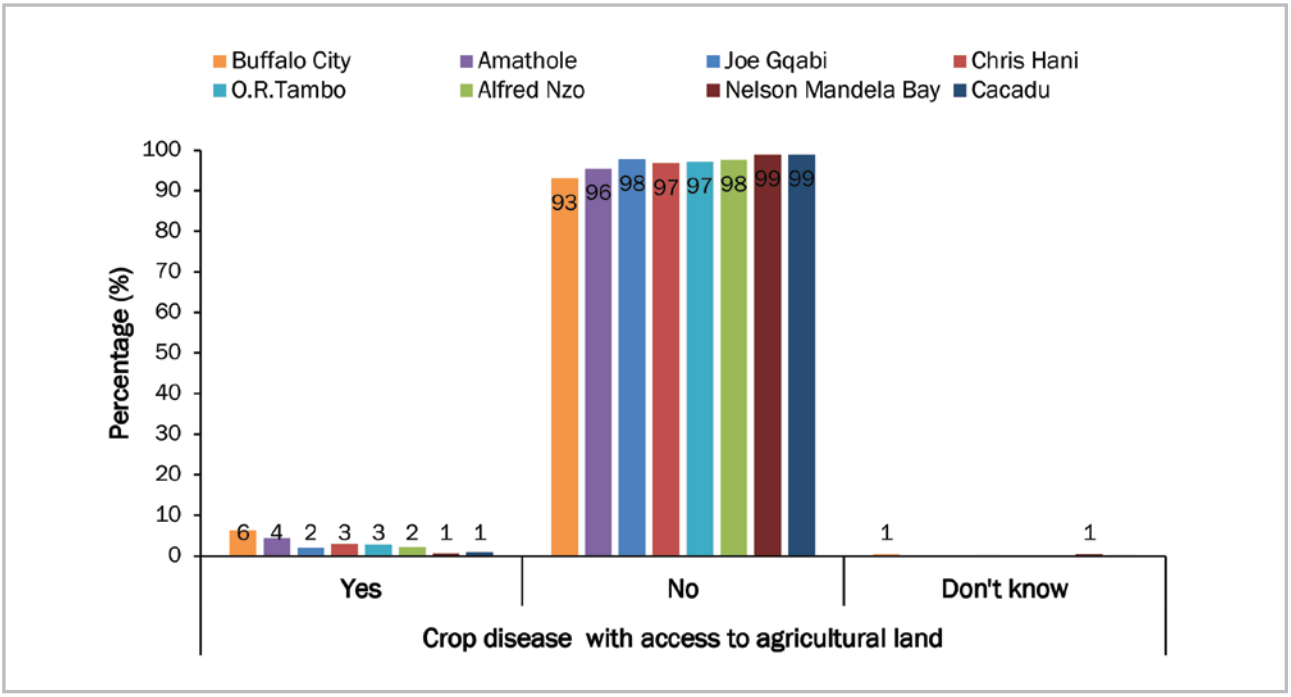


Figure 108: *Household that experience drought and water shortage shock by district*

9.2.2 Increase in inputs and food Prices

The increase in food prices was the biggest shock experienced across all the eleven districts in the province. The highest shocks were experienced in Alfred Nzo, O.R. Tambo and Cacadu, with 74%, 73%, and 72% respectively. This is attributable to global crisis with limited food production triggered by shocks such as the COVID-19 pandemic which led to both prices increases and the description of supply chains.

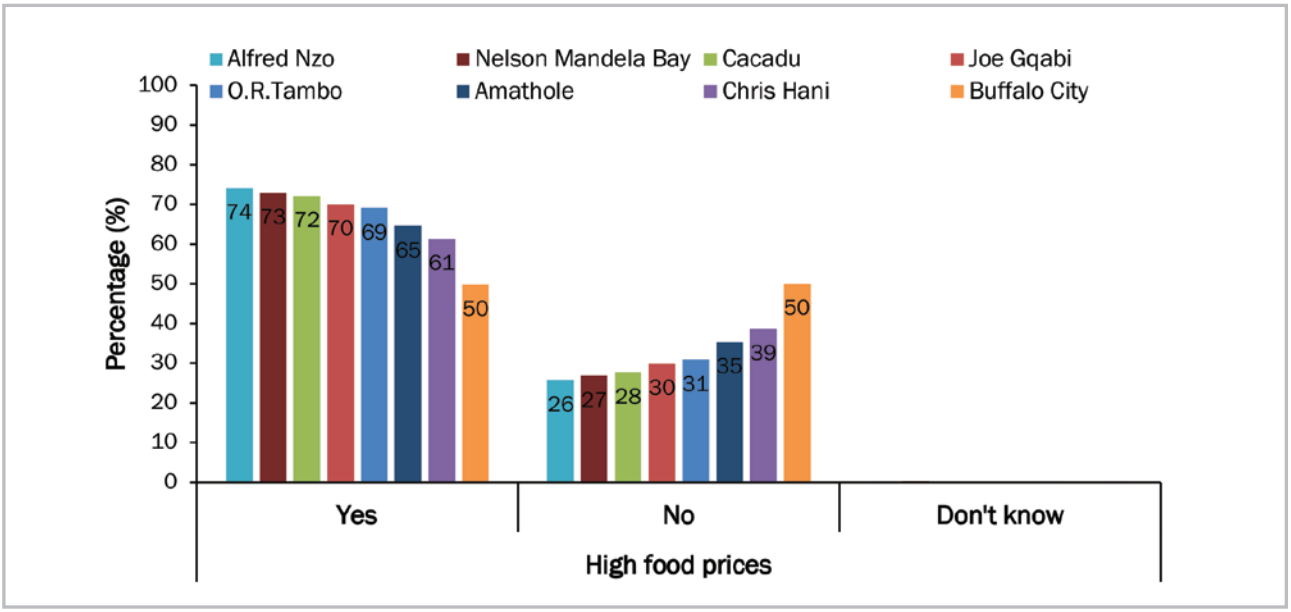


Figure 109: *Household that experience high food prices shock by district*

The increase in input prices were modest to low in almost the eight districts (Figure 110). Only Cacadu and Alfred Nzo reported higher percentage of increase in input prices, with 39% and 37%, respectively. The modest percentage of households who reported to have felt the increase in input cost is related to the fact that the households are not highly involved in agricultural production. The increase in input prices also has a direct effect on the increase in food process costs, hence this justifies the reported increases in food prices across the four districts (Figure 110).

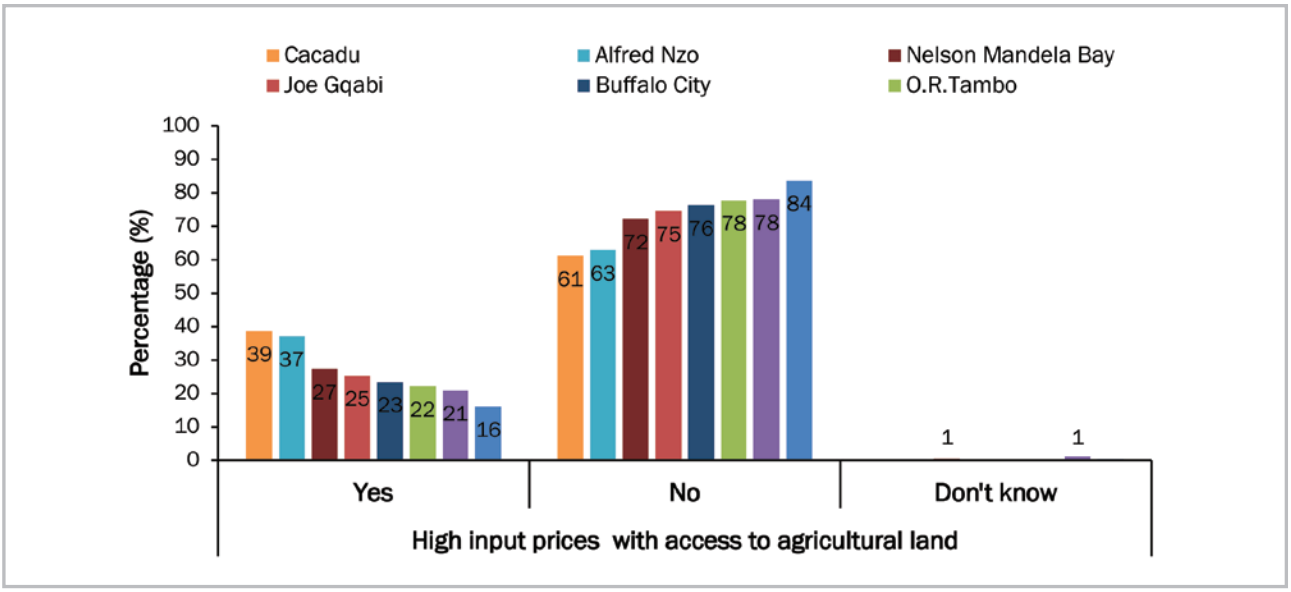


Figure 110: *Household that experience high input prices shock by district*

9.2.3 COVID-19 shocks and associated coping strategies

The Covid-19 pandemic resulted in serious disruptions of food supply chains and production systems. O.R. Tambo District had the highest percentage (62 %) of households who were sometimes worried about their food running out before they can get money to buy some more food. Alfred Nzo had the highest percentage (34.2%) of households who reported that their food often time runs out and they did not have money to buy more (Tables 69 to 71).

Table 69: Households that worried their food would run out before we got money to buy more in Eastern Cape Province

District	We worried our food would run out before we got money to buy more							
	Never		Rarely		Sometimes		Often	
	%	N	%	N	%	N	%	N
Cacadu	15.1	110	15.6	112	38.5	322	30.8	231
Amathole	8.1	76	17.2	110	46.6	342	28.1	203
Chris Hani	11.9	92	16.9	127	54.1	353	17.1	130
Joe Gqabi	6.6	86	16.3	123	57.1	393	20.0	129
O.R.Tambo	10.0	112	8.0	87	62.0	426	20.1	122
Alfred Nzo	13.6	114	10.7	114	41.5	382	34.2	247
Buffalo City	23.6	158	22.8	137	30.1	249	23.5	175
Nelson Mandela Bay	19.1	162	15.3	132	38.2	299	27.4	213

Table 70: Households whose food did not last, and they did not have money to get more in Eastern Cape Province

District	The food that we bought just did not last, and we did not have money to get more							
	Never		Rarely		Sometimes		Often	
	%	N	%	N	%	N	%	N
Cacadu	18.2	149	17.7	124	39.6	327	24.6	175
Amathole	11.3	105	19.6	130	44.8	326	24.3	170
Chris Hani	13.0	109	26.2	176	45.1	306	15.6	111
Joe Gqabi	8.0	106	21.9	167	54.4	361	15.7	97
O.R.Tambo	10.9	131	10.4	125	63.5	400	15.2	92
Alfred Nzo	16.0	145	15.0	154	47.9	401	21.1	159
Buffalo City	29.0	188	23.0	146	28.3	251	19.7	135
Nelson Mandela Bay	25.3	208	15.6	139	35.4	298	23.7	161

Table 71: Households who could not afford sufficient and nutritious food because the price of food increased in Eastern Cape Province

District	We couldn't afford sufficient and nutritious food because the price of food increased							
	Never		Rarely		Sometimes		Often	
	%	N	%	N	%	N	%	N
Cacadu	16.0	118	15.8	148	43.0	321	25.2	188
Amathole	9.7	91	18.5	132	48.0	333	23.8	176
Chris Hani	10.7	87	18.9	148	53.1	344	17.3	121
Joe Gqabi	7.4	94	20.2	146	55.8	385	16.6	106
O.R.Tambo	11.8	134	10.8	124	62.1	398	15.4	93
Alfred Nzo	15.5	134	20.6	157	36.4	365	27.5	205
Buffalo City	26.0	174	21.6	143	32.0	258	20.4	145
Nelson Mandela Bay	21.7	177	18.3	167	38.9	302	21.1	160

During the Covid-19 period, most households were unable to eat healthy and nutritious foods as shown in the table below (Table 72) where 20.9% of the respondents in the Nelson Mandela Bay Metro reported that they often were unable to eat healthy and nutritious food (Table 72).

Table 72: Households which were unable to eat healthy and nutritious food in Eastern Cape Province

District	You were unable to eat healthy and nutritious food							
	Never		Rarely		Sometimes		Often	
	%	N	%	N	%	N	%	N
Cacadu	15.7	115	15.0	144	44.8	326	24.5	191
Amathole	10.6	96	15.6	111	52.0	346	21.8	181
Chris Hani	11.0	90	18.5	136	54.4	360	16.1	118
Joe Gqabi	7.8	98	21.0	140	53.6	384	17.6	111
O.R.Tambo	10.4	122	11.1	118	63.0	410	15.5	98
Alfred Nzo	15.0	125	16.1	131	41.2	392	27.7	213
Buffalo City	26.9	172	23.2	151	30.4	248	19.5	149
Nelson Mandela Bay	21.1	176	17.5	159	40.6	314	20.9	157

Table 73: Households which could not access the cheap and affordable food market, because they were shut down due national lockdown restrictions in Eastern Cape Province

District	We couldn't access the cheap and affordable food market, because they were shut down due national lockdown restrictions							
	Never		Rarely		Sometimes		Often	
	%	N	%	N	%	N	%	N
Cacadu	18.9	136	26.0	224	33.1	245	21.9	170
Amathole	17.6	145	26.0	198	39.5	270	16.9	120
Chris Hani	26.8	198	19.7	145	42.1	284	11.4	75
Joe Gqabi	19.8	197	19.3	144	45.5	307	15.4	83
O.R.Tambo	17.8	224	21.4	101	44.9	344	15.9	79
Alfred Nzo	18.4	160	21.5	211	32.9	287	27.2	203
Buffalo City	28.9	205	27.9	182	29.5	224	13.7	109
Nelson Mandela Bay	22.6	196	24.5	210	37.3	273	15.6	126

Most households across the districts reported that sometimes they could not access cheap and affordable food markets since they were shut down because of Covid-19 national lockdown restrictions. However, this was mostly experienced in Amathole District (Table 74).

Table 74: Household heads who were hungry but did not eat in Eastern Cape Province

District	You were hungry but did not eat							
	Never		Rarely		Sometimes		Often	
	%	N	%	N	%	N	%	N
Cacadu	40.1	334	31.8	213	21.6	166	6.5	58
Amathole	36.9	299	24.6	174	30.6	188	7.9	69
Chris Hani	39.9	296	24.6	178	30.4	186	5.2	40
Joe Gqabi	45.6	336	21.5	183	26.6	170	6.4	41
O.R.Tambo	34.3	370	25.1	158	34.7	188	5.8	31
Alfred Nzo	47.2	407	17.6	189	27.5	219	7.7	45
Buffalo City	53.5	356	17.4	133	19.6	144	9.6	86
Nelson Mandela Bay	47.1	418	22.1	182	20.8	145	10.1	62

Table 75: Household head who had to skip a meal in Eastern Cape Province

District	You had to skip a meal							
	Never		Rarely		Sometimes		Often	
	%	N	%	N	%	N	%	N
Cacadu	28.4	262	30.2	208	27.7	205	13.7	100
Amathole	30.4	257	25.6	176	32.8	210	11.1	90
Chris Hani	32.0	236	24.8	189	35.4	220	7.8	59
Joe Gqabi	34.0	249	25.2	194	32.4	226	8.4	62
O.R.Tambo	21.1	261	22.2	173	50.2	270	6.4	45
Alfred Nzo	37.6	333	17.9	182	34.4	270	10.1	77
Buffalo City	48.6	325	19.5	139	21.7	165	10.2	88
Nelson Mandela Bay	44.0	362	18.6	163	26.8	195	10.6	84

Although skipping a meal was least reported in all the districts of the Eastern Cape Province, in Cacadu households' heads did report that they often skipped a meal, and it was the highest percentage (13.7%) compared to other districts. In Nelson Mandela Bay Metro Municipality, 44% of Household heads never had to skip meals. This is also attributable to the fact that these are not major food crop producing districts since they mostly rely on formal employment in the commercial agricultural sector, services sector, aviation, manufacturing, mining, and tourism. Hence households would rely entirely on buying food which was limited due to restricted markets and high food price.

Table 76: Households who ran out of food in Eastern Cape Province

District	Your household ran out of food							
	Never		Rarely		Sometimes		Often	
	%	N	%	N	%	N	%	N
Cacadu	34.7	298	25.4	190	23.5	182	16.5	103
Amathole	30.4	250	30.7	184	27.0	209	11.9	88
Chris Hani	38.9	282	23.5	169	32.2	207	5.5	44
Joe Gqabi	42.4	320	21.7	175	28.5	192	7.3	46
O.R.Tambo	30.6	349	17.3	145	46.0	221	6.1	32
Alfred Nzo	42.6	393	16.6	167	25.8	216	15.0	85
Buffalo City	46.8	318	18.2	138	23.6	166	11.4	97
Nelson Mandela Bay	42.0	376	20.8	166	24.3	169	12.9	95

Covid-19 was expected to increase the number of households who are food insecure in developing countries. In the Eastern Cape Province, in Buffalo City about 46.8% of the households did report that they never ran out of food, with 16.5% the households in Cacadu District reporting to have often ran out of food.

Table 77: Household heads who went without eating for a whole day in Eastern Cape Province

District	You went without eating for a whole day							
	Never		Rarely		Sometimes		Often	
	%	N	%	N	%	N	%	N
Cacadu	58.1	468	21.0	155	15.6	98	5.3	47
Amathole	54.4	427	21.2	129	18.2	121	6.2	51
Chris Hani	62.0	418	18.4	143	16.1	108	3.5	24
Joe Gqabi	59.5	456	17.8	142	17.3	99	5.4	30
O.R.Tambo	50.0	454	14.6	117	30.1	155	5.4	17
Alfred Nzo	67.8	592	6.9	80	21.3	147	3.9	38
Buffalo City	62.4	438	13.8	104	18.7	121	5.1	54
Nelson Mandela Bay	64.3	551	12.2	97	15.6	104	7.9	51

The results show that it was exceedingly rare for the household heads to go without eating for the entire day (Table 77). However, in Nelson Mandela Bay the household heads (7.9%) reported that they often went a full day without consuming food during the Covid–19 pandemic.

10 Key Findings and Policy Recommendations

Food security is one of the strategic imperatives for South Africa as outlined in many governments policy documents, including the Constitution and the National Development Plan. The right to have access to sufficient food by all citizens is enshrined in the Constitution of the country. This survey provides a baseline assessment of the food and nutrition security situation of households in the Eastern Cape Province. The findings presented in this report provide insights regarding the food and nutrition security status across the four dimensions of food and nutrition security in the province.

Demographics characterisation

More than half of the household heads (53.6%) were males, and black Africans were the dominant racial group in the Eastern Cape Province. About 84.6% and 86% of the household heads and household members were black Africans, respectively, whilst only 4.8% of the household heads were white. Among household heads secondary school education accounted for 39.3%, followed by those with matric qualification at 22.0%. The older household heads, those aged 65 years and older and those aged 55 years to 64 years, had higher percentages of no schooling with 17.8% and 8.4%, respectively. There were, generally, very high unemployment levels in the sampled areas, particularly among the young, females, and female-headed households. For example, 93.7% of the household members aged 15-24 years old were unemployed whilst those aged between 55 and 64 years old had the highest unemployment rate of 75.0% for household heads. The highest percentage (35.0%) was recorded among households which earned between R1501 and R3000, followed by those which earned more than R6000 with 20.3%. Unsurprisingly, salaries and wages were the main source of income, followed by social welfare grants, which plays an important role as a crucial socio-economic safety net among poor households. Many households were recipients of CSG and OAG, and female-headed households were more reliant on social grants than male-headed h ouseholds. While most of the households had access to social grants, the amounts received are not enough to eradicate hunger, food insecurity, and malnutrition. Slightly above a third of the households (33.7%) were registered as indigents. Households, generally, had moderately good levels of access to basic services such as safe drinking water, housing, energy, and improved sanitation.

Socio-economic status, health, and well being

This survey has revealed that socio-economic challenges that include limited food production at household level, high dependencies on salaries and wages, social grants, acute unemployment, especially among women and youth, and dwindling household incomes exposes households to food and nutrition insecurity. There was limited burden of diseases and illneses with mostly coughs, cold, chest pains, fever, and hypertension being reported although with less than a quarter of the respondents. This may have been because of the Covid-19 infections which manifested with similar symptoms. However, there was limited burden of chronic illnesses.

Access to land and agriculture production

Subsistence farming in most rural parts of the Eastern Cape Province has been limited by climate change and inadequate support and services (such as extension, information, and infrastructure), and was further exacerbated by the Covid-19 pandemic which had accumulated effects on food and nutrition security.

The involvement in agriculture was generally low especially in crop and fruit production and this is in line with national agricultural production statistics. The households that engage in farming produce food from small plots resulting in low production that are unable to sustain them with adequate food supply. However, livestock production especially sheep, goats, and poultry were predominant. Livestock sale was a common source of income across all wealth groups in most of the livelihood zones in the Eastern Cape Province. 'Better-off' households with larger pieces of land sold most of their produce only for them to purchase food including staples (selling of un-milled own produced grain rather than own grain consumption was preferred and purchasing of mealie meal for consumption), further exposing even the 'better-off' households to market related shocks. The purchases still made up the largest proportion of people's sources of food; mostly for 'very poor' and 'poor' households and thus exposing them to market related shocks.

Food security indicators

Several food security indicators (such as the Household Food Insecurity Access Score (HFIAS), Household Hunger Score (HHS), Food Consumption Score (FCS), and Household Dietary Diversity Score (DDS)) indicated that many households were facing food access challenges in the Eastern Cape Province. The HFIAS revealed that 73.4% of the households were food insecure, with 20.2% of the households being severely food insecure. Severe food insecurity was more prevalent among households headed by younger heads, and in Alfred Nzo (20%) and Sarah Baartman (23%) districts. Male-headed households had better food security experiences than female-headed households. Most of the households (78.2%) experienced no hunger to little hunger when food access was measured through HHS. Households in the Eastern Cape Province consumed more than 7 out of 12 food groups, which suggests above-average dietary diversity levels. However, this does not always mean that households consumed healthy foods with required micro-nutrients. Further analysis indicated that households mostly consumed food groups such as cereals, condiments, sugars, and oils/ fats, and there was limited consumption of food groups such as fruits, pulses and nuts, eggs, and fish and seafood. The The Food Consumption Score (FCS) revealed that most households (61.6%) were consuming adequately (acceptable) diversified diets, and about 23.6% of households are at the borderline and could fall into unacceptable diversity of foods if no actions are taken to help them improve their diets. Additionally, 14.8% households in the province are also consuming poor diets. The results further indicate that male-headed households had slightly more acceptable diets compared to female-headed households. About 63% of the male-headed households were found to have consumed acceptable diets compared to 60% of the female-headed households.

Nutrition indicators

Infant feeding practices

Exclusive breastfeeding has been adopted as one of the key, and crucially important, components of the Infant and Young *Child Feeding Policy* which was developed in 2007 (DoH, 2011). Promotion, protection, and support of breastfeeding are a key focus area of infant and young child feeding of the Integrated Nutrition programme of the Department of Health.

The results of the current study indicate that 82.6% of children under 2 years were breastfed at some point in their lives, which is slightly higher than the national results reported in the SADHS in 2016 (84%).

Furthermore, the results of the current study indicate that nearly 75.5% of children aged 0-2 years in the Eastern Cape Province were introduced to breastfeeding immediately after birth, with a total of 89.8% being breastfed within an hour of birth. These results are slightly higher than the national results reported by the SAHANES in 2012 (83.0%) and far higher than the national results reported by the SADHS in 2016 (67%).

Exclusive breastfeeding in the Eastern Cape Province was reported to be 22.4% for the 0-6 months. This should be interpreted with caution due to the small sample size. However, 22.8% is far higher than the national reports in the 2003 SADHS (8.3%) and SANHANES 2012 (7.5%), and more in line with that reported by Shisana et al. in 2008 (25.7%), but lower than the 2016 SADHS (30%).

In 1998, 2003, and 2016 the SADHS reported an average duration of breastfeeding of 15.6 months, 16.6 months, and 12.2 months, respectively. SANHANES, however, showed a much lower average duration of breastfeeding (5.9 months). The average duration of breastfeeding for those who were not currently breastfed during this study was 5.8 months, which is more in line with what the SANHANES reported compared to the SADHS.

Overall, the first drink other than breastmilk was mainly introduced at 0-1month (58.5%), followed by 6 months (11.2%). We can assume that this is most likely the introduction of infant formula, for mothers who may be unable to breastfeed. The same pattern was followed for children aged children aged 12-24 months, where other drinks were first introduced at 0-1 months (58.7%) and 6 months (11.4%).

After 6 months, infants should be introduced to solid foods as breastmilk is no longer sufficient to meet their nutritional requirements. However, results of this study indicate that complementary feeding is initiated slightly earlier than the anticipated 6 months - at 4.9 months. This is similar to the results of the SANHANES 2012 (4.5 months). Commercial infant cereal was the first semi-solid food given to most children aged 0-24 months (60.9%), followed by homemade infant cereal/porridge (23.9%) and bottled/canned baby foods (3.6%). Only 3.5% of infants had cereal/ porridge supplied by the clinic as their first semi-solid foods, while 3.4%, 2.1% and 1.2% of mothers reported other foods, pureed/ mashed fruit/ vegetables and traditional baby foods as their infants first food, respectively.

Anthropometry (0-5 years)

In 2012, the SANHANES reported a national stunting prevalence of 28.6% in children 0-5 years, and a provincial prevalence of 25.9% in the Eastern Cape Province. Four years later in 2016, the SADHS reported a slightly lower stunting prevalence at the national (27.0%) level but a much higher prevalence at the provincial (34%) level. The results of the current study appear to indicate that the stunting prevalence in the Eastern Cape Province is significantly above both the SANHANES and SADHS results and is slightly lower than the SADHS provincial prevalence with a current prevalence of 31.4% in children of the same age group. These results indicate that stunting has remained more or less the same over the last 10 years and, as such, the proportion of children experiencing chronic undernutrition in 2021 has slightly increased although not significantly different from the SADHS provincial average of 34%. The SADHS reported that stunting was more prevalent nationally in the age group 18-23 months. The results of this provincial analysis indicate that children aged corroborates this, as children aged 30-41 months had the highest prevalence of stunting in the Eastern Cape Province; however, this was not significantly higher than the stunting prevalence in other age categories. Furthermore, the SANHANES and SADHS reported that stunting is more prevalent in male children than female children at a national level. This study shows slightly different results with females being more stunted compared to males. At a district level, the current study reported that stunting is more prevalent in Nelson Mandela Bay (40.3%) and Buffalo City (38%) districts.

The national prevalence of wasting was reported to be 3.7% in 2012 (SANHANES), with a slightly lower provincial prevalence in the Eastern Cape Province. In 2016, similar national results were presented in the SADHS (3.0%); however, a provincial prevalence was not reported at the time. The current study has reported a similar provincial prevalence of wasting in the Eastern Cape Province of 4.1%, thereby indicating that the proportion of children experiencing acute undernutrition in 2021 has remained the same over the past 10 years. It also appears that those aged 6-17 months and 42-53 months, as well as males, experience a higher prevalence of wasting than their counterparts. At a district level, the current study reported that wasting, while not significant, is more prevalent in Buffalo City (10.5%) and Alfred Nzo (6.7%) districts.

The prevalence of underweight in the Eastern Cape Province in the current study (7.7%) is like the provincial prevalence of underweight reported by the SANHANES in 2012 (8.3%). A lower prevalence was also reported at the national level in 2012 (6.8%) and 2016 (6%).

In 2016, the SADHS reported a national prevalence of overweight of 21.9% in children 0-5 years. SANHANES reported a higher prevalence in females than in males across all age categories at a provincial level. The current study found a slightly higher prevalence (21.9%) of children were overweight and that females had a higher prevalence of overall overweight (23.3%) compared to males (20.5%).

The above trends across time seem to indicate that over the last 10 years, both chronic and acute undernutrition in children in the Eastern Cape Province has remained the same.

Anthropometry (18 years and older)

At a national level, the mean BMI in females were reported to be 28.9kg/m^2 in 2012 and 29.2kg/m^2 in 2016. For males, there was no change in mean BMI between 2012 and 2016 as both the SANHANES and the SADHS reported a mean BMI of 23.6kg/m^2. Similar results were reported in 2016 (females 29.2kg/m^2 and males 23.8kg/m^2). The current study reported similar results to SANHANES for both females (29.3kg/m^2) and males (24.2kg/m^2) in the Eastern Cape Province.

Based on BMI cut-off points, SANHANES reported a national prevalence of overweight and obesity of 64.0% in females and 30.7% in males 10 years ago. The SADHS reported similar results in 2016, 67.5% in females and 31.3% in males. The provincial prevalence of overweight and obesity in the Eastern Cape Province was slightly higher than the national estimates for females (68.0%) and lower for males (33.9%) in 2012. Ten years later, the results of this study report a similar provincial prevalence of overweight and obesity in females (68.5%) and a far higher prevalence in males (43.1%) compared to the SANHANES.

The current study in the Eastern Cape Province also reported that a far greater proportion of females (49.4%) had a high WHR compared to only 9.1% of males. For females, SANHANES reported 47.1% and 43.3% at a national and provincial level, respectively. For males SANHANES reported 6.8% and 6.7% at a national and provincial level, respectively.

Dietary Diversity

A diet that is sufficiently diverse reflects nutrient adequacy. This statement is based on the fact that no single food contains all required nutrients for optimal health. Consequently, the more food groups included in a daily diet, the greater the likelihood of meeting nutrient requirements (Kennedy, 2009). Monotonous diets, based mainly on starches such as maize, rice and bread, have been closely associated with food insecurity. Dietary diversity is an outcome measure of food security at the individual or household level (Kennedy, 2009). Apart from reflecting on food security, a low DDS has also been associated with low weight and stunted growth (Rah et al., 2010), as well as other health issues.

In the present survey, the mean dietary diversity score of the adult population was 4.75 with 33.7% of the population having a score less than 4. The mean DDS was in the current survey is higher than that of the NCFS in 2009 (4.02) and that reported in SANHANES nationally in 2012 (4.2). However, the proportion of those with a low DDS was lower than that reported in both the SANHANES in 2012 (40%) and the NFCS in 2009 (38%). The current study further found that children have a lower mean DDS of 4.14 with a larger proportion (47.9%) of children having a score of less than 4.

11 Recommendations

- The results have shown relatively high levels of access to land, and low participation of households in farming activities. Most households depend on food purchases, crop production, and livestock. These results suggest that addressing food insecurity in the Eastern Cape Province should focus on strategies to increase agriculture production systems among households. However, the focus group discussion showed opportunities in intensive food production activities such as vegetables, dairy, and poultry. Agro-processing and value addition have a potential of increasing the participation of youths in agri-food value chains since cereal and horticultural crops are produced though at a subsistence level.
- Water shortage and recurrent drought emerged as part of major shocks. This implies that there is need for a well-thought-out water provision programme in the Eastern Cape Province for household use and for agriculture production purposes. Possible interventions could be construction of dams for irrigation and domestic water reticulation systems at the household level. There is also a need to cushion households against the shock of high food prices since it emerged as one of the major shocks.
- Promotion of projects and programmes that encourage good hygiene practices such as use of latrines and washing hands with soap after using the toilet is crucial.
- Breastfeeding promotion, growth monitoring for improved case detection in children who need care, appropriate referrals, and management of acute malnutrition, coupled with appropriate messages on complementary feeding, remain key interventions that need to be done. There is a need to scale-up multiple micronutrient supplementation during pregnancy, calcium supplementation to mothers at risk of low intake, promotion of maternal balanced nutrition, use of iodised salt, deworming, and vitamin A and zinc supplementation for children under 5.
- Nutrition assessment of children under-five at all points of contact should be strengthened. More focus should be given to the first 1 000 days of a child's life Nutrition assessment during pregnancy and appropriate management of pregnant women who are underweight or with poor weight gain should be strengthened during basic antenatal care services.
- Households need support in some months of the year (mainly January and June) to avoid negative consumption reduction practices and incidence of seasonal hunger. Interventions that seek to help households budget and save in anticipation of lumpy expenditures are crucial to ensure year-round food security.
- Enlightenment about the importance of micro and macro nutrient consumption as a crucial, food security programmes that must be formulated to focus on the production and consumption of foods aimed at improving the identified deficient micro-nutrient at the household level. Interventions on food preparation, meal planning and nutrition advice to support home production of fresh produce is required for improved dietary diversity in the households.
- These interventions, together with full scale implementation of other nutrition sensitive programmes and approaches such as school feeding, agriculture and food security enhancement programmes, social safety network, early childhood nutrition, women empowerment, child protection water, sanitation and hygiene, and other health and family planning services, in an enabling environment will greatly reduce morbidity and mortality in childhood, incidence of obesity and non-communicable diseases, while on the other hand contributing to the improvement of cognitive, motor socio-emotional development, school performance and learning capacity, adult stature, and work capacity and productivity.

- Promotion of domestic food production: This will involve encouraging families to produce their own food to ensure food security at household level by way of providing inputs and market opportunities. In the Eastern Cape Province, most families rely on food purchased from supermarkets, and formal and informal traders. This is unsustainable and makes households more vulnerable to food insecurity.
- Focused investment and the establishment of food banks: Creating an enabling environment for commercial food production - There is need to increase agricultural production in each district through focused food production and agro-processing investments. These can be distributed through fruit and vegetables markets that can be strategically located close to vulnerable households in all districts of the province. The markets may also serve as food banks where items imported elsewhere can be sold at affordable prices.
- Focus on employment creation: Targeted intervention through an agric-sector employment creation drive - A combination of high levels of unemployment and dwindling incomes means that vulnerability to food insecurity will always remain high.
- Land redistribution and restitution: Although most households reported relatively high levels of access to land, there is a need for deliberate land apportionment to empower the vulnerable group, especially the youth. Competing priorities for land pose a threat to agriculture production, considering this, the government is tasked to provide priorities of land. People seem to prefer obtaining big pieces of land and use it to build houses rather than for food production. This will increase and sustain agricultural production in rural areas of South Africa. It has potential to allow agriculture to serve as significant sources of income for households.
- Investment in post-harvest agro-processing: Although some households were found to be involved in agricultural activities, these are not sustainable enough to ward off household vulnerability to food insecurity. A food system that encourages and enables households to process and consume what they produce locally is needed. Households need support in some months of the year (mainly January) to reduce consumption patterns and incidence of seasonal hunger. Interventions that seek to help households budget and save in anticipation of lumpy expenditures are crucial to ensure year-round food security. Awareness raising to enlighten households about the importance of dietary diversity for improved nutrition is crucial. Implementation of nutrition sensitive food security programmes by all sectors should be initiated.
- Enhancing food safety: Informal traders and small businesses that trade in agricultural products need assistance to help them improve the quality of their services through quality assurance and extend the lifespan of their products. Covid-19 has irreversibly transformed human perception of food and food safety. As a result, people have realized the importance of consuming safe and healthy food, not only to boost one's immune system but also to prevent the spread of diseases. As revealed in this study, people do not have equal access to safe and healthy food. For most poor people, informal traders are the main source of food. It is for this reason that a proposal to integrate food safety and quality standards in the operations of informal traders and small to medium enterprises is here being made. This will improve the quality of food items traded and increase the profits of informal traders.

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