

Coping with Food Insecurity in Rural South Africa: The Case of Jozini, KwaZulu-Natal

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Abstract

This study set out to determine the extent of hunger and determine how frequently the households of members of an irrigation scheme in the Jozini area of KwaZulu-Natal, South Africa adopted precautionary strategies with regard to food security compared to non-scheme households from the same community. A questionnaire and Focus Group Discussions (FGDs) were used to collect qualitative and quantitative data from 69 irrigation scheme households and an equal number of sampled non-scheme households in the winter of 2013. The study compared the frequency of reported hunger and Coping Strategies Index (CSI) scores. Many households experienced hunger in January and June when children return to school after vacations. Relying on less preferred or inexpensive foods was the most commonly employed strategy, practiced by 88% of the households. Feeding working members at the expense of the non-working was the least commonly practiced strategy (21% of the households). A range of coping strategies were employed, especially during the months of higher incidences of reported hunger. No significant differences were observed between irrigation scheme and non-irrigation scheme households regarding CSI scores. Households in this rural location need to be encouraged to engage more actively in home production. Extension services need to assist in planning these gardens to provide food in months when hunger is widespread. Assistance with savings and household budgeting are essential to help households anticipate and plan for months of inadequate income and high expenditure demands.

Keywords: Food security, coping strategies, hunger and scheme

1. Introduction

South Africa is reportedly nationally food secure but relatively high levels of household and individual food insecurity exist (BFAP, 2013; Hendriks, 2014). Stats SA (2014) reports that 17% of households in South Africa and 20.9% in the KwaZulu-Natal province struggle to access food. In 2013, about 11.4 % and 34.4% of households reported experiencing hunger in South Africa and KwaZulu-Natal province, respectively. More than 6% of South African households and 4% of the KwaZulu-Natal households experience severe inadequate food access situations as measured by questions relating to food consumption practices (Stats SA, 2014). Food security is only achieved when all members of a household consume adequate food to meet their individual dietary needs on a continual basis (FAO, 1996). Sound nutrition is essential for productivity and health. Households adopt precautionary measures when faced with food insecurity (Barrett, 2010).

A high proportion of South Africa's rural households face the risk of experiencing food shortages and adopting coping strategies that could negatively affect their long-term food security situation. Understanding the experience of household food insecurity is essential for improved measurement and assessment of nutritional and social consequences and the design of more appropriate interventions to address the issues and mitigate food insecurity (Norhasmah et al., 2010). The objective of this study was to determine the extent of hunger and the precautionary measures adopted among sample households from an irrigation scheme and non-scheme households from the same community.

2. Review of Related Literature

2.1 The concept of food security

The concept and definition of food security has changed since introduction of the concept in the early 1940s (CFS, 2012; United Nations, 1975). The most careful redefinition of food security was negotiated through an international consultation in preparation for the World Food Summit in November 1996. The revised definition reflected a wider recognition of the

complexities of the technical and policy issues associated with food security (Maxwell, 1996), namely that food security exists “when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences” (FAO, 1996). The 1996 World Food Summit three dimensions of food security include: food availability, accessibility and utilisation (FAO, 1996). Lately it has included stability of supply as a fourth food security dimension (FAO, 2008).

Food availability refers to the supply of food at local, national or international levels (FAO, 1996). Food access refers to the capability of individuals and households to obtain food and addresses the issues of purchasing power and consumption behaviour (FAO, 1996). Food utilisation refers to the biological availability of nutrients for use by the human body (Gross et al. 2000). Sufficient energy and nutrient intake by individuals is the result of good care and feeding practices, safe food preparation and the consumption of diverse foods (FAO, 2008). Food stability refers to the continuous assurance of adequate availability and accessibility of food. Food security is realised if all four dimensions are fulfilled (FAO, 2008). On the whole, the definition of food security implies families and individuals do not need to worry about where their next meal will come from as it rests on food secure households having access to stable sources of food supply or incomes to purchase food for consumption. Food insecurity refers to the lack of food security, which, in extreme cases, results in hunger (Hendriks, 2005). At household level, a household is food insecure if it does not have adequate food to maintain an active and healthy lifestyle for all of its members (Hendriks, 2014).

2.2 *The food security situation in South Africa*

The right to food is entrenched in section 27 of the Constitution of South Africa (RSA, 1996). The Constitution obliges the State to take all necessary steps to meet citizens’ basic food needs, including passing legislation to ensure the right to food security. Section 28(1) of the Constitution further ensures children’s unconditional right to basic nutrition. South Africa has set an ambitious target of eliminating poverty and inequality by 2030 (National Planning Commission, 2012). The National Development Plan (NDP) makes reference to a number of interventions to be implemented to improve food security. These include expanded irrigation; security of land tenure - especially for women; and social protection including nutrition education (NPC, 2012). The NDP provides a framework to inform the actions required to address pervasive hunger (NPC, 2012). The NDP calls for collaboration between government, private sector and citizens to establish self-reliant local food systems that would ensure universal access and utilization over time (DMPE, 2014).

Food insecurity is a constraint to development in South Africa and the focus of many state development programmes and initiatives (Battersby, 2011). South Africa’s food security situation demands serious and urgent attention amidst excessively high unemployment, high inequality and depressed economic growth (Hendriks, 2013). Building on the already existing food security initiatives, the African National Congress (ANC) identified food security as a key focus area in the 2009 General Elections (ANC, 2014) and was included in the national priority outcomes (Medium Term Strategic Framework) (DPME, 2014). Food security in South Africa has to be addressed within the context of various development issues including but not limited to: poverty, increasing fuel and food prices, sources of income, social protection, rural and urban development, changing household structures, land, health, education, water and sanitation (Stats SA, 2014). Despite progressive constitutional rights for citizens and some progress towards clear development targets, the level of food insecurity in South Africa is considerably high (Hendriks, 2013). Currently there are no legislative measures in place to realise the right to food as enshrined in the Constitution (Hendriks, 2014).

South Africa faces serious food security challenges compared to countries with similar income levels such as Angola, Algeria, Brazil, Malaysia, etc. (DPME, 2014). The South African government recognises that food security is a prerequisite for sustained economic growth and poverty reduction (RSA, 2014). In September 2013, the National Policy on Food and Nutrition Security was approved by Cabinet (RSA, 2014). The policy’s goal is to ensure the availability, accessibility and affordability of safe and nutritious food at national and household levels through improved nutritional safety nets, nutrition education, alignment of investment in agriculture, market participation of emerging farmers and risk management.

Numerous national programmes for addressing food insecurity have been implemented and include among others (Hendriks 2014; Abdu-Raheem and Worth 2011):

- Agricultural programmes – e.g. household food production and food preservation
- Social services – e.g. social grants
- Public works programmes
- Nutrition – e.g. school feeding scheme and nutrition education and counselling and
- Free health services (particularly for the children under five years of age).

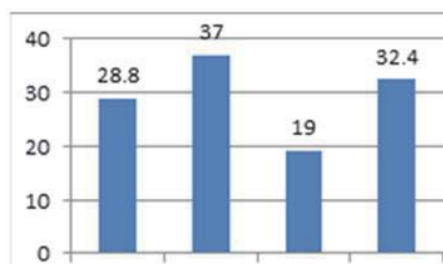


Figure 1: Prevalence of households' experiencing hunger per locality (SANHANES-1 2012 data) (n=6115)

(Shisana et al., 2013)

Figure 1 shows that prevalence of self-reported hunger in South Africa in 2012 as assessed using a Community Childhood Hunger Identification Project (CCHIP¹). More than 30% of households in the country's rural and urban informal areas reported experiencing hunger in the previous year in 2012 (Shisana et al., 2013). The General Households Survey reported that 11.4% and 13.4% of households and individuals respectively in South Africa reported experiencing hunger in the four weeks prior to the General Household Survey of 2013 (Table 1) (Stats SA, 2014).

The results of the GHS (2013) regarding food access, using questions from the Household Food Insecurity Access Scale HFIAS with a 30 day recall period, indicated that the percentage of households reporting limited access to food increased from 21.5% in 2012 to 23.1% in 2013, indicating a 1.6% increase in the number of households with more limited access to food (Stats SA, 2014). However, the percentage of individuals with limited access to food declined slightly from 26.1% to 26.0% between 2012 and 2013 (Table 1). The increase in the number of households with limited access to food clearly indicates that the implementation of the existing food security interventions should be improved (Stats SA, 2014). Table 2 shows the provincial situation with regard to food access and hunger.

Table 1: Hunger and malnutrition situation in South Africa

Stats SA GHS 2013		SANHANES-1 2012	
Variable	%		%
Vulnerability to hunger: households	11.4	Stunting	26.5
Vulnerability to hunger: individuals	13.4	Wasting	2.2
Complex food access: individuals	26.0	Under-weight	6.1
Complex food access: households	23.1		

Sources: Stats SA (2014) and Shisana et al. (2013)

Table 2: Recent food (in)security indicators in South Africa

Stats SA GHS 2013 data	Province of South Africa									South Africa
	EC	FS	GP	KZN	LP	MP	NC	NW	WC	RSA
Food access severely inadequate	7.0	5.4	4.7	4.0	1.7	8.8	9.6	14.7	8.3	6.1
Food access inadequate	22.4	21.1	13.0	20.9	7.0	20.7	21.0	22.6	15.0	17.0
Food access adequate	70.6	73.5	82.3	75.2	91.3	70.6	69.3	62.7	76.8	76.9
SANHANES-1 2012 data	EC	FS	GP	KZN	LP	MP	NC	NW	WC	RSA
Prevalence of the experience of hunger	36.2	28.8	19.2	28.3	30.8	29.5	20.7	29.5	16.4	26.0
Household experience of hunger	32.4	31.9	24.8	34.4	27.3	15.5	22.8	30.0	25.6	28.3
Food secure	31.4	39.3	56.0	37.3	41.9	55.0	56.5	40.4	57.9	45.6

Sources: Stats SA (2014) and Shisana et al. (2013)

¹ The CCHIP index is used internationally for assessing hunger and validated. The CCHIP index is based on eight occurrence questions that represent a generally increasing level of severity of food insecurity (access) and that are related to whether adults and/or children are affected by food shortages, perceived food insufficiency or altered food intake due to constrained economic resources within the household. (Shisana et al., 2013).

Although self-reported experiences of hunger have dropped since 1999, much can still be done to improve the food security situation in country (Table 3). The findings from four national surveys (using the CCHIP index as proxy for food security) indicated that the proportion of food insecure households halved from 1999 to 2008, reducing from 52.3% to 25.9%, while the proportion of households at risk of food insecurity ranged from 23.0% and 27.9% between 1999 and 2005 (Labadarios et al., 2011; Labadarios 2008). However, the data from SANHANED-1 (Shisana et al., 2013) and GHS 2013 suggest no improvement since 2008.

Table 3: Trends in food security status in South Africa: 1999-2012

Variable	NFCS 1999	NFCS 2005	SASAS 2008	SANHANES-1, 2012
	n=2735	n=2413	n=1150	n=6306
	%	%	%	%
Food secure	25	19.8	48	45.6
At risk of hunger	23	27.9	25	28.3
Experiencing hunger	52.3	52	25.9	26.0

Source: Shisana et al. (2013)

Nationally, 26% of boys and 25% of girls aged 1-3 years old were stunted in 2012, an increase over the 2005 NFCS data (Shisana et al., 2013). There is also a growing obesity problem in children aged 2 to 5 years, with 18.9% of girls overweight and 4.9% obese, and 17.5% of boys overweight and 4.4% obese (Shisana et al., 2013). This is indicative of poor diet quality.

3. Food Insecurity in the KwaZulu-Natal Province

The KwaZulu-Natal (KZN) province is a home to 10 457 million people (Stats SA, 2014). Although agricultural support, social grants and school feeding programmes have reportedly improved dietary diversity and improved the intakes of children in the province (D'Haese et al., 2013), hunger and food insecurity are serious challenges facing rural households in the province (Faber et al., 2011). As indicated in Table 2 above, while 37.3% of the households in the province were food secure, SANHANES-1 (2012) data showed, using CCHIP, that 28.3% and 34.4% of the households in the province experienced hunger and at risk of hunger, respectively. Thirty-one per cent of KZN households reported not having enough money to buy food and or clothes in the SANHANES-1 survey of 2012 (Shisana et al., 2013). Among children under 15 years of age, 13.5 % of boys and 14.4% of girls were stunted, wasting for boys of the same age group is 2.4% and underweight for both boys and girls of these under 15 years is 3.4% and 1.5%, respectively in 2012 (Shisana et al., 2013).

3.1 Household food insecurity coping strategies and CSI

Households pursue various precautionary (coping) measures to avoid hunger and starvation (Barrett, 2010; Maxwell et al., 2003). Households attempt to limit the short-term effects of food shortages through progressive stages (Maxwell and Caldwell 2008). Initial responses to food shortages include dietary adjustments (eating less preferred foods or reducing portion sizes). Such consumption coping strategies can include:

- Households may change their diet. For example, households might switch from consuming preferred foods to cheaper and or less preferred substitutes.
- The household can attempt to increase their food supplies using short-term strategies that are not suitable over a long period. Typical borrowing or purchasing on credit. More examples are begging or consuming wild foods, immature crops, or even seed stocks.
- If the available food is still inadequate to meet needs, households can try to reduce the number of people they have to feed by sending some of them elsewhere (for example, sending kids to the neighbour house when those neighbours are eating)
- Most common, households can attempt to manage the shortfall by rationing the food available to the household (cutting certain household members over others, or skipping whole days without eating) (Maxwell and Caldwell, 2008).

These are usually reversible strategies that do not generally damage longer-term livelihood prospects (van der Kam, 2001). Should a food shortage materialise, households may sell off non-productive assets. This could threaten future livelihood sustainability or prospects. The sale of productive assets typically follows if the crisis endures or deepens (Maxwell and Caldwell, 2008). These are erosive strategies that are not as easily reversed (Corbett, 1988). The most extreme strategies include dissolving a household or migration (Maxwell and Caldwell, 2008).

Table 4 presents a summary of studies conducted in the KwaZulu-Natal province regarding the precautionary practices households apply when faced with food insecurity during the summer and winter month(s). Household food insecurity studies conducted in KwaZulu-Natal have generally based survey questions on a set of strategies provided by Maxwell et al. (2003). The application of these strategies is not uniform across communities in the province. Shisanya and Hendriks (2011) and Ngidi (2007) found that crop production did not supply households year-round, leading to food shortages in the Maphaphetheni area just north of Durban. Mjonono (2008) concluded that food insecurity increased the frequency and severity of application of coping strategies employed by the households in the Embo study area near Durban. Nyakurimwa (2011) found that households adopted extreme strategies including migration and engagement in erosive livelihood strategies when faced with food shortages in Ophansi village of ward three in Jozini.

Table 4: Summary of coping strategies study findings for KwaZulu-Natal

Study	Sample size	Season	Method	Analytical tools	Findings
Shisanya and Hendriks (2011) in Maphaphetheni uplands (2006)	53 households	Winter	Household Food Insecurity Access Scale (HFIAS) questionnaire	HFIAS, Spearman's correlation & descriptive statistics	Ate smaller meals than they needed (83% of the households) Ate fewer meals in a day (91% of the households)
Nyakurimwa (2011) at Jozini Ophansi village	44 participants	Summer	Participatory Rural Appraisal (PRA) techniques through a four-day workshop, supplemented with stakeholder interviews Focus group discussions	Historical timeline, seasonal calendar, focus group discussions, transect walk, problem tree analysis	Hunger was commonly associated with "not eating enough" The choices included migration to urban areas in search of employment, women resorting to sex work.
Mjonono (2008) at Umbumbulu (2006)	200 households	Summer	Structured questionnaire	CSI, descriptive statistics & frequencies	Most practiced strategy (67% of households) was consuming seed stock held for next season Selling assets and borrowing money from stokvel were the most used income shock strategies (both used by 52.5% of households)
Ngidi (2007) at Maphaphetheni (2005) and Umbumbulu (2006)	268 households	Summer	Structured questionnaire	CSI, descriptive and spearman correlations	The most used strategy at Maphaphetheni and Umbumbulu was relying on less preferred foods, practiced by 91% and 61% of the households, respectively.

4. Methodological Approach

4.1 Survey site: Jozini Municipality

Jozini is a rural Municipality situated in the Northern KwaZulu-Natal. The area borders Swaziland and Mozambique. Jozini Municipality covers 32% (3057 square kilometres) of the total area of 13859 square kilometres of uMkhanyakude District Municipality. The district has a scattered rural population of about 625, 846 people (IDP, 2014). Jozini Municipality includes six towns (IDP, 2013). Most of the area is rural and associated with a lack of development, poverty and poor service provision (IDP, 2013). Jozini has an estimated number of households of about 38 991, of that 13 806 HHs still do not have access to water (35%). Ninety per cent of the population earns less than R1 600 per capita per month (IDP, 2013). Approximately 49% of the population do not earn incomes, which contributes to the cycle of poverty found in the area (IDP, 2013). The large area of Jozini jurisdiction falls under the ownership of Ingonyama Trust with communal tenure arrangements. Some areas are privately owned by individuals and some owned by State (IDP, 2013).

4.2 Site and sample selection, data collection and analysis

A survey (n=138) was conducted in June 2013 (winter) as part of a multi-purpose study to assess current rain-fed and irrigated production of food crops and its potential to meet all year round nutritional requirements of rural poor people in

South Africa (WRC, 2013) and develop a food security information system as part of a second research programme.

The site at Jozini was selected through a multi-stage sampling process. A review of socioeconomic indicators was conducted to identify the poorest districts in the province. Within the identified districts, the poorest local municipalities were identified using the Heath Systems Trust Deprivation Index (Day et al., 2011). The index is a measure of relative deprivation of populations derived from a set of demographic and socio-economic variables obtained from national survey data. Although not directly a food security indicator, many of the variables included are also indicators of food insecurity and poverty.

The uMkhanyakude District showed the highest level of deprivation and child under-nutrition from available data at the time of the sampling (Day et al., 2011). Therefore, this district was selected for the study in KwaZulu-Natal. The next stage of sampling was identification of the local municipality with the highest level of deprivation and poverty. While the local municipality with the highest proportion of the population that reported experiencing hunger in this district (1999 and 2005 National Food Consumption Surveys (Labadarios et al., 2000; 2008)) was Hlabisa, the proportion of households receiving migrant income in Hlabisa was relatively high. As this would affect household livelihoods and possibly be a disincentive to agricultural production, the second most deprived local municipality (Jozini) was selected for the study.

As part of the larger study was interested in understanding the contribution of crop production to food security status, the selection criteria for households was that there was at least one child aged between 24 and 59 months and their care-giver present in the homestead and willing to participate in the study. The list of members of a large irrigation scheme in uMkhanyakude (407 members) was obtained and the households residing in Jozini (89 members) were identified. Initially a random sample of 50 households was selected from this list of 89 members using computerised random number generation. Due to the inclusion criteria of having a young child in the household and unavailability of caregivers, substitution of additional randomly selected members, all 69 available qualifying households were interviewed from the members of the irrigation scheme residing in Jozini.

Due to the settlement pattern, terrain and distance between the households in the rain-fed areas in Jozini, a systematic sampling technique was used to identify every 4th household from a randomly selected starting point in the two wards where the irrigation scheme members lived (Ingwavuma and Ubombo). Where a selected household did not meet the inclusion criteria, the neighbouring homestead was interviewed. An equivalent number of non-scheme households (69) were interviewed.

Quantitative data was collected through household surveys and qualitative data was collected through Focus Group Discussions (FGDs). Enumerators from the communities with at least 12 years of completed education were identified and recruited for the field work. Training of enumerators was carried out in stages. The training focussed on interview skills, anthropometric measurement, and the use of a Samsung tablet as a tool for our data collection. Role plays were used to assist enumerators in practicing conducting the interviews to reduce surveys errors. The questions and terminology were translated into IsiZulu - the local language in Jozini area - to ensure survey consistency.

Participation in the FGDs was determined by community member availability. The majority of participants were women. FGD questions focused largely on what people in the community do when they have no access to food or money to buy food. The severity of coping strategies was documented for use in calculating the CSI.

The CSI was used to determine levels of food insecurity (Maxwell and Caldwell, 2008). A standard set of simple questions were adopted from Maxwell et al. (2003) to capture basic consumption-related coping strategies to access food in the month prior to the survey. Households were asked how often each strategy had been used in the past 30 days. The frequency was classified as: everyday, pretty often, once in a while, hardly at all and never. For the purposes of calculating the CSI, the responses everyday, pretty often, once in a while, hardly at all and never were valued as 7, 4.5, 1.5, 0.5 and 0 respectively.

Focus groups ranked the coping strategies in order of severity with numbers 1, 2, 3 and 4 representing the least severe, moderate, severe and most severe coping strategies respectively (Maxwell et al., 2003). The CSI was then calculated through multiplying the frequency of application of a strategy reported and practiced by each household by the severity ranking as determined through focus groups. The CSI score was obtained by summing the scores for specific coping strategies. The data were analyzed using the Statistical Package for the Social Sciences (SPSS version 22.0). Analyses included independent t-test samples and Spearman's correlation to analyse relationships.

5. Results and Discussion

The objective of this study was to determine the extent of hunger and determine how frequently households used food consumption coping strategies to mitigate hunger. An overview of the descriptive statistics is presented in Table 5. The minimum household size was one and the maximum was 10, with a mean of 5.40. The minimum and maximum age of

the household heads were 19 and 89 respectively, with a mean of 48.58 years. The level of education of the households' heads ranged from no schooling to 12 years of completed school with post-school diplomas or degrees.

Table 5: Descriptive statistics of the sample (n = 138), Jozini 2013

Variable	N	Minimum	Maximum	Mean	Standard deviation
Household size	138	1	10	5.40	2.27
Age of the head	138	19	89	48.58	15.50
Education of the head	138	0 (No schooling)	>12 years		
CSI score	138	19	176.50	63.51	40.15
CSI score irrigation scheme members households	69	19	167.00	69.27	41.93
CSI score non- scheme households	69	19	176.5	57.75	37.71

The sample households produced: *amadumbe (taro)*, avocado, beetroot, butternut, banana, cabbage, dry beans, gords, green paper, lettuce, maize, onions, pumpkins, spinach, sweet potatoes, sugar cane and tomatoes in the 2012/2013 growing season. Cabbage was grown by most respondents, on an average of 0.4ha per farmer. This was followed by maize, which was planted on an average area of 2ha per farmer. Thirty-one per cent of respondents were involved in poultry farming (chickens), and about 30% in livestock production (cattle, goats, sheep and pigs). Twenty-two per cent of respondents were involved in grain production. About 15% of the respondent households were engaged in fruit and vegetable production, while two per cent of the respondents were engaged in commercial crop production of tea, coffee and cotton.

Forty-seven per cent of household heads were subsistence farmers. Forty-four per cent of household heads reported they were unemployed. Only 10 household heads were formally employed, while 12 were unpaid family workers. Twenty-eight respondents from the non-scheme households were unemployed compared to 16 of the irrigation scheme member households. About 38 respondents from the irrigation scheme member households were subsistence farmers compared to only nine from the non-scheme sample. Eleven members were said to be unpaid family workers from the non-scheme households compared to just one from the irrigation scheme member households.

Households were engaged in home, communal and school gardens and plot production on the irrigation scheme. Households belonging to the irrigation scheme farmed on the scheme plots, while non-scheme households were mainly engaged in home garden activities (see Table 6).

Table 6: Participation in food production, Jozini 2013 (n = 138)

Food production engagement	Non-scheme households		Irrigation scheme households	
	Frequency (n = 69)	%	Frequency (n = 69)	%
Home gardens	31	44.9	10	14.5
Farm land (communal or private)	20	28.9	43	63.6
Communal gardens	0	0	13	18.8
School garden	2	2.9	0	0
Do not farm	9	13.0	1	1.4
Total	69	100.0	69	100.0

Food shortages were reported as common in the second half of each month by members of Focus Group Discussions (FGDs). January, June and July were typically months of hunger. June and July are the winter months when very little was available in gardens and plots in this community. Half the households (both irrigation scheme members and non-scheme members) experienced hunger in January of the previous year, while 18% of the surveyed households (both irrigating scheme members and non-irrigating scheme members) reported that they experienced hunger in the month of June of the previous year (Figure 2).

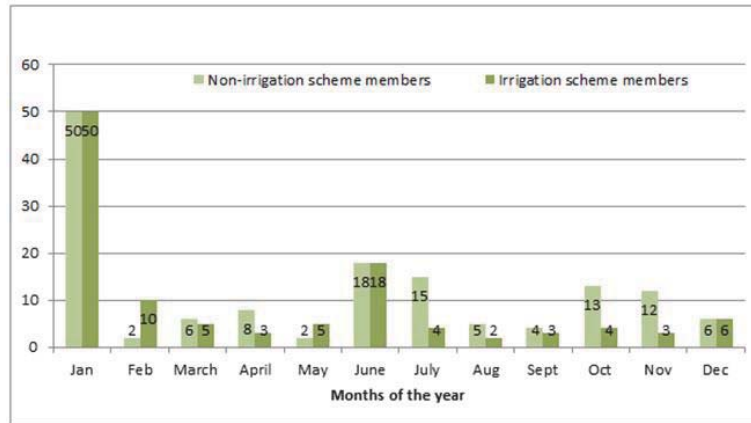


Figure 2: Number of households experiencing hunger over a year, July 2013 (n = 138)

Households used various strategies to mitigate the effects of these food shortages (Table 6). As indicated, this study was carried out during the hunger period (winter) and so the strategies adopted reflect practices during this period. Relying on less preferred and/or inexpensive foods was the most commonly employed strategy - 88.4% of the sampled households reporting using this strategy in the past month prior to the survey. This was followed by borrowing food or money for food and begging from friends or relatives for food (each practiced by 85.5% of the households). The least commonly employed strategy was feeding working members at the expense of the non-working members (practised by only 21.2% of the households). When comparing irrigation scheme members and non-scheme households, about 86% of scheme households relied on less preferred or less expensive foods compared to 91% of the non-scheme households. Feeding working members at the expense of non-working members was the least employed strategy by both irrigation scheme members and non-irrigation scheme members (Table 7). About 71% of the non-scheme households limited their own food intake for the sake of the children compared to 64% from the irrigation scheme households.

Table 7: Percentage of households that employed different coping strategies in Jozini, July 2013 (n=138)

Coping strategy	Households using strategy (%)			Categorisation of the strategy*
	Irrigation scheme members (n=69)	Non-scheme members (n=69)	All households (n=138)	
Rely on less preferred or less expensive foods	✓ 85.5	✓ 91.3	88.4	Dietary change
Borrow food/money for food	✓ 84.1	✓ 87	85.5	Increase short-term household food availability
Purchase food on credit	✓ 52.2	✓ 34.8	43.5	
Gather wild food, hunt or harvest immature crops	✓ 39.7	✓ 34.3	37	
Consume seed stock held for next season	✓ 58.8	✓ 65.2	62	
Limit food portion size at meal times	✓ 79.7	✓ 81.2	80.4	Rationing or managing the shortfall strategies
Limit own intake for children's sake	✓ 63.8.2	✓ 71	67.4	
Reduce number of meals eaten in a day	✓ 79.7	✓ 72.5	76.1	
Skip whole day without eating	✓ 44.9	✓ 24.6	34.3	
Feed working members at the expense of non-working members	✓ 37.7	✓ 4.4	21.2	
Ration money to buy street food	✓ 66.2	✓ 14.7	40.4	
Send household members to eat elsewhere	✓ 69.6	✓ 20.3	44.9	Decrease numbers of people
Beg for food from neighbours or relatives	81.2	✓ 79.4	80.3	
Rely on help from relatives or friends	✓ 85.5	✓ 85.5	85.5	

✓ = Identified as a one of the strategies applied by at least one sample household.

* As per Maxwell and Caldwell's (2008) classification.

Twenty-four per cent of households relied on less preferred or less expensive foods everyday, while about 25%, 21%, 19% reported relying on less preferred or less expensive foods sometimes, hardly, pretty often, respectively. About 12%

never used this strategy (Table 8). Very few households employed a strategy of consuming seed stock held for the next season, skipping whole days without eating, feeding working members at the expense of non-working members, sending household members to eat elsewhere, begging for food from neighbours or relatives, everyday (7 days) of the week. About 36% of the households indicated that they sometimes (1-2 days) relied on help from relatives or friends or begged for food from neighbours or relatives. About 41% of households sometimes employed borrowed food or money for food. None of the respondent households employed the strategy of rationing money to buy street food seven day per week. However, 5.8%, 9.5% and 5.1% used this strategy pretty often, sometimes and hardly at all, respectively (Table 8).

Table 8: Percentage of households that employed different coping strategies in Jozini, July 2013 (n=138)

Coping strategy used by households	Frequency of application (%) of the strategy per week					Severity of the strategy*
	Never	<1 day	1-2 day	3-6 days	7 days	
Feed working members at the expense of non-working members	78.8	5.1	9.5	5.8	0.7	-
Ration money to buy street food	59.6	11.0	17.6	11.8	0.0	-
Purchase food on credit	56.6	11.6	17.4	10.1	4.3	1
Rely on less preferred or less expensive foods	11.6	21.0	24.6	18.8	23.9	2
Limit food portion size at meal times	19.6	19.6	28.3	24.6	8.0	2
Reduce number of meals eaten in a day	23.9	16.7	30.4	24.6	4.3	2
Gather wild food, hunt or harvest immature crops	63.0	8.1	14.1	13.3	1.5	3
Send household members to eat elsewhere	55.1	9.4	15.9	17.4	2.2	3
Beg for food from neighbours or relatives	19.7	26.3	35.8	16.1	2.2	3
Rely on help from relatives or friends	14.5	25.4	35.5	21.0	3.6	3
Limit own intake for children's sake	32.6	19.6	21.0	18.1	8.7	3
Borrow food/money for food	14.5	20.3	41.3	18.8	5.1	4
Consume seed stock held for next season	38.0	16.1	21.9	23.4	0.7	4
Skip whole day without eating	65.7	13.1	10.2	10.2	0.7	4

1= Least Severe coping strategy, 2= moderately severe strategy, 3= Severe coping strategy and, 4 = Most severe coping strategy. - = strategy reported not to be used in the area as per the knowledge of the focus group. * Severity ranking is as per the perceived view of the community.

The severity ranking of coping strategies was determined through focus group discussions held in July 2013. Of the 14 coping strategies, three were undertaken during the most severe situations (Table 8). The most severe strategies included borrowing food or money to buy food, skipping the whole day without eating and consuming seed stock held for next season. Five coping strategies were undertaken during severe situations. The most commonly employed strategy under the severe strategies was relying on help from friends or relatives for food. Another three strategies were undertaken during moderately severe situations. The mostly commonly used strategy under the moderately severe strategies was relying on less preferred or less expensive foods. Only one strategy was undertaken during least severe situations, suggesting that communities view their hunger period coping strategies as not so good.

Although purchasing food on credit was perceived to be a least severe strategy by the FGDs, this credit can have long-term erosive effects on food security, especially if used frequently. Skipping the entire day without eating food might have a negative effect on the health of households, particularly if that household member is on medication. This means that if these rural households employ this strategy often, households are likely to default on their medication. Five per cent of the households borrowed food every day. The FGD participants viewed borrowing food as great source of shame. This strategy is reportedly a source of conflict in the community when households fail to bring back an identical brand of food borrowed. Table 9 indicates frequency of application of the strategies by irrigation scheme members and non-irrigation scheme households.

Table 9: Frequency of application of coping strategies, Jozini, July 2013 (n = 138)

Irrigation scheme member households	Frequency of application (%) of the strategy				
	Never	<1day	1-2day	3-6days	7days
Feed working members at the expense of non-working members	62.3	5.8	18.8	11.6	1.4
Ration money to buy street food	33.8	16.2	33.8	16.2	0.0
Purchase food on credit	47.8	10.1	21.7	14.5	5.8
Rely on less preferred or less expensive foods	14.5	30.4	30.4	21.7	2.9
Limit food portion size at meal times	20.3	23.2	30.4	24.6	1.4
Reduce number of meals eaten in a day	20.3	14.5	34.8	30.4	0.0
Gather wild food, hunt or harvest immature crops	60.3	5.9	14.7	17.6	1.5
Send household members to eat elsewhere	30.4	11.6	23.2	30.4	4.3
Beg for food from neighbours or relatives	18.8	24.6	33.3	18.8	4.3
Rely on help from relatives or friends	14.5	31.9	31.9	18.8	2.9
Limit own intake for children's sake	36.2	21.7	21.7	17.4	2.9
Borrow food/money for food	15.9	17.4	43.5	20.3	2.9
Consume seed stock held for next season	41.2	10.3	29.4	19.1	0.0
Skip whole day without eating	55.9	14.7	13.2	16.2	0.0
Non-scheme households	Frequency of application (%) of the strategy				
	Never	<1day	1-2day	3-6days	7days
Feed working members at the expense of non-working members	95.6	4.4	0.0	0.0	0.0
Ration money to buy street food	85.3	5.9	1.5	7.4	0.0
Purchase food on credit	65.2	13.0	13.0	5.8	2.9
Rely on less preferred or less expensive foods	8.7	11.6	18.8	15.9	44.9
Limit food portion size at meal times	18.8	15.9	26.1	24.6	14.5
Reduce number of meals eaten in a day	27.5	18.8	26.1	18.8	8.7
Gather wild food, hunt or harvest immature crops	65.7	10.4	13.4	9.0	1.5
Send household members to eat elsewhere	79.7	7.2	8.7	4.3	0.0
Beg for food from neighbours or relatives	20.6	27.9	38.2	13.2	0.0
Rely on help from relatives or friends	14.5	18.8	39.1	23.2	4.3
Limit own intake for children's sake	29.0	17.4	20.3	18.8	14.5
Borrow food/money for food	13.0	23.2	39.1	17.4	7.2
Consume seed stock held for next season	34.8	21.7	14.5	27.5	1.4
Skip whole day without eating	75.4	11.6	7.2	4.3	1.4

Consuming less preferred foods was employed everyday by only 2.9% of the irrigation scheme households compared to 44.9% of non-scheme households. About 14% of the non-scheme households limited food portion sizes at meal times and also limited own food intake for the sake children everyday compared 1.4% and 2.9% of irrigation scheme households, respectively. While Table 9 indicates that irrigation scheme households did not reduce the number of meals eaten in a day everyday of the week, but 30.4% and 34.8 of the same households employed the strategy pretty often and sometimes during week. Consuming seed stock set aside for next season was applied pretty often by 27.5% of the non-scheme households compared to 16.2% of the irrigation scheme households. This strategy could have a negative effect on the following season's food production – leading to an even greater problem of food insecurity.

The estimated mean CSI scores for irrigation scheme and non-scheme households were 69.27 and 57.75, respectively. On average, irrigation scheme households had relatively higher levels of food insecurity than non-scheme households. However, an independent samples t-test showed that there was no significant difference between the CIS of irrigation scheme households compared to the non-scheme households ($t = -1.696$, $p = 0.092$). Results from the Spearman's correlation showed a negative significant relationship between CSI scores and five food insecurity coping strategies, including: eating less preferred or less foods ($p = 0.001$), limiting food portion sizes at meal times ($p = 0.037$), consuming seed stocks set aside for next season ($p = 0.034$), reducing number of meals eaten in a day ($p = 0.034$) and begging from neighbours or relatives for food ($p = 0.013$). The negative relationship between CSI scores and application of coping strategies means if households minimise the use of these strategies, their CSI scores also reduce. This leads to a better food security situation for the households because as CSI scores decrease, households decrease on the use of these five strategies.

6. Conclusion and Recommendations

This study investigated the extent of hunger and determined how frequently sampled households used food consumption coping strategies to mitigate hunger in Jozini. No significant differences were found between the two groups, but the use of various strategies to buffer hunger and starvation was common. Some of the coping strategies would compromise diet adequacy and quality. Borrowing food from neighbours caused conflict among community members. Coping strategies like feeding working members at the expense of non-working members undermine household unity and stability. However, generally the coping strategies applied were not erosive albeit focus group participants saw the application of some of these strategies as indicative of severe food insecurity.

Although social grants buffer such households from hunger, there are months of the year that households need support to avoid negative consumption reduction practices and reduce the incidence of seasonal hunger. Interventions that seek to help such households save in anticipation of lumpy payments such as school fees, stationery and uniforms in January and June are crucial to ensure year-round food security. More households need to engage in home gardening to increase food availability. Extension services should assist with planning food production to provide food year-round. Food preparation, meal planning and nutrition advice to support home production of fresh produce is also needed.

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