

Skeleton in the
university closet...

Food insecurity among students at the UFS

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DEFINITION:

Food insecurity exist:

- when the availability of **nutritionally adequate and safe food**,
- or the ability to acquire **acceptable food** in **socially acceptable** ways is **limited or uncertain**

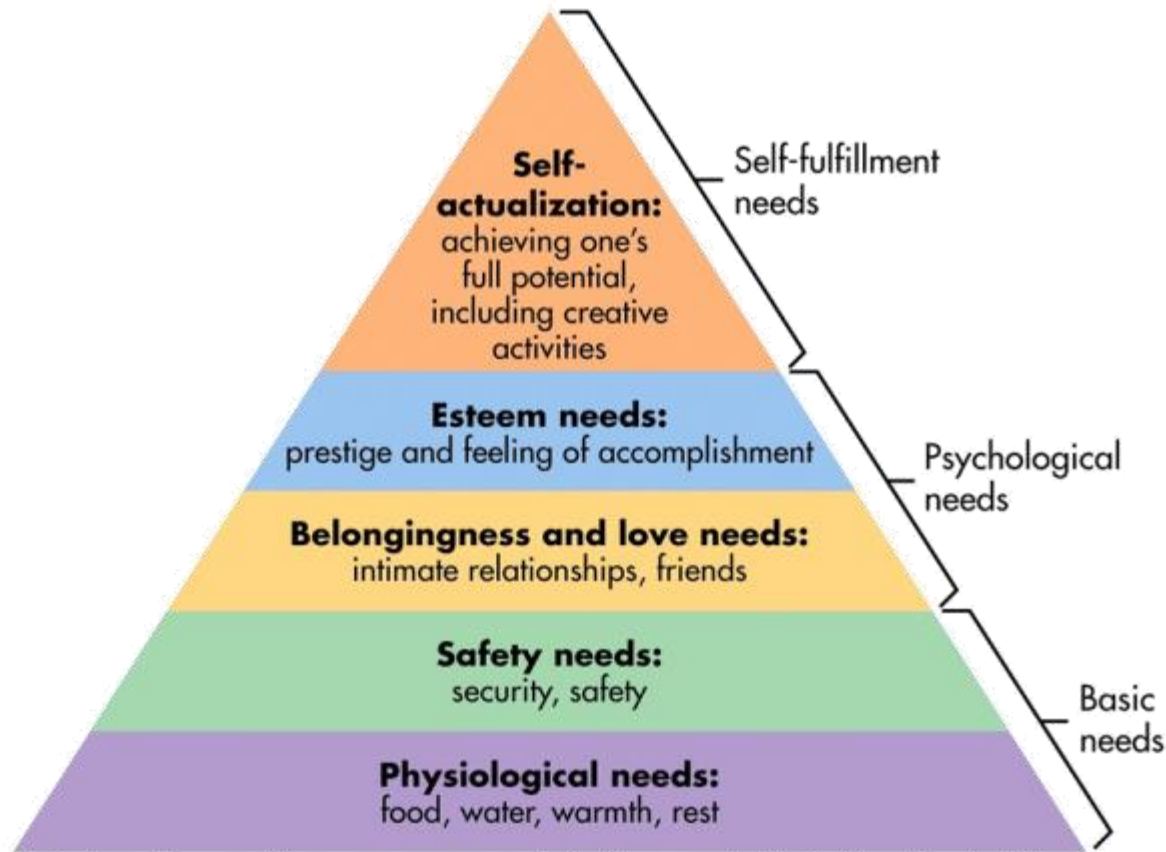
USDA, 2006

TRANSLATION:

- **Not** having **sufficient** food;
- experiencing **hunger** as a result of **running out of food** and being **unable to afford** more;
- eating a **poor-quality diet** as a result of **limited food options**;
- **anxiety** about **acquiring food**;
- or having to **rely on food relief**.



Hunger crisis among students...surely not?



Maslow's Hierarchy of Needs

SANHANES-1 (2012):

54% of SA households were NOT food secure:
(28.3% were at risk of hunger and 26.0% experienced hunger)

Province	At risk of hunger	Exper. Hunger	NOT FOOD
	28% At risk for hunger	26% HUNGER	
Northern Cape	22.8%	20.7%	43.5%
Free State	31.9%	28.8%	60.7%
Gauteng	24.8%	19.2%	44.0%
KwaZulu Natal	34.4%	28.3%	62.7%
Eastern Cape	32.4%	36.2%	68.6%
Limpopo	27.3%	30.8%	58.1%
Mpumalanga	15.5%	29.5%	45.0%
North West	30.5%	29.5%	60.0%

South African Students?

At the beginning of 2013:

**THERE WAS NO
PUBLISHED
INFORMATION ...**



FOOD-AID



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Aim & Objectives

To describe the **prevalence** of **food insecurity** among students of the UFS

1. Explore **biographical** and **socio-demographic** attributes that may **predispose** students to food insecurity



2. Explore **food procurement measures**
3. Explore **coping mechanisms** students adopt to deal with food insecurity

Methods



Study design:

Descriptive observational survey



Study population, inclusion criteria:

All student registered for 2013 at UFS with valid student numbers



Exclusion criteria:

Students studying through correspondence



Web-based questionnaire:

- Food Insecurity Scale
- Questions on socio-demographic factors
- Questions on coping skills regarding food security

Made available via **student portal** and **QRcodes** for 3 weeks in May 2013



Intensely promoted



Limitations, validity & reliability

Foreseen limitations:

- Capturing the **complexity of food insecurity** with **self-administered questionnaires** is well recognised
- Addressed by analysing responses in terms of **two validated** tools:
 - a **single-item measure**
 - and a more sensitive **multi-item measure**



Hughes *et al*, 2011



SINGLE-ITEM MEASURE used in **Australian National Food Security Survey**, as well as among **Australian university students**

Hughes *et al*, 2011



MULTI ITEM MEASURE “hunger scale” / “food insecurity scale” calculated from responses to “**10 question scale**”

Adapted for student population according to methodology of Hughes et al, 2011

**United States Department of Agriculture (USDA)
Community Food Security Assessment Toolkit**

Cohen, 2002





Validity

Validated measure
of food security

All questions based
on an **in-depth**
literature review



Reliability

Guaranteeing
confidentiality

Making
questionnaire
equally available and
appealing to all
students

Statistical analysis:



**Department of
Biostatistics:**
SAS[®] software

Descriptive statistics

- Frequencies & percentages
- Means & SD

Chi square analysis:

- used to compare food security measures: a range of categorical variables

Logistic regression

- Used to test the combined interaction between variables and FI

RESULTS & DISCUSSION

N=1416 (4.5% response rate)

Food insecurity



Single-item measure (N=1394)

Food secure: 35.5%

Food insecure: **64.5%**



5X higher than that reported in the
Australian university survey (12.7%)

Hughes *et al*, 2011



Multi-item measure

15.6% food secure

24.8% food insecure 'without hunger'

59.6% food insecure 'with hunger'



>2x the prevalence than reported among the Australian students (25.6%)

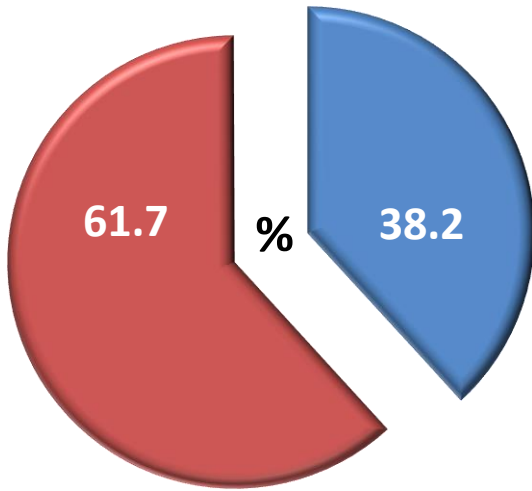
Hughes *et al*, 2011

Biographics & socio-demographics that may predispose to food insecurity

**Looking to see which variables
tested were significantly associated
with being FI**

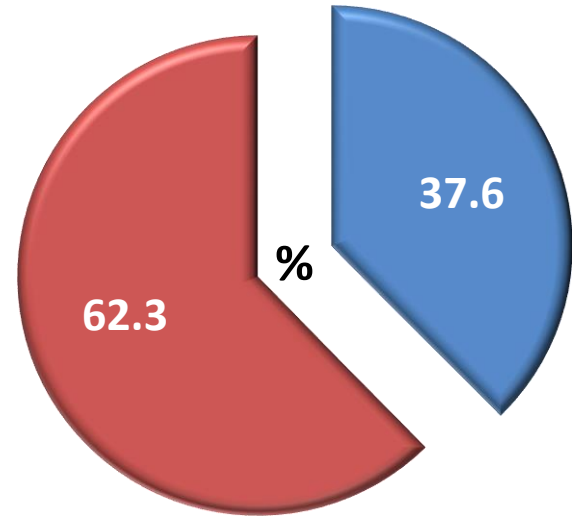
UFS 2013 Student Body (N=31014)

Respondents (n=1382)



Gender

P<0.001*



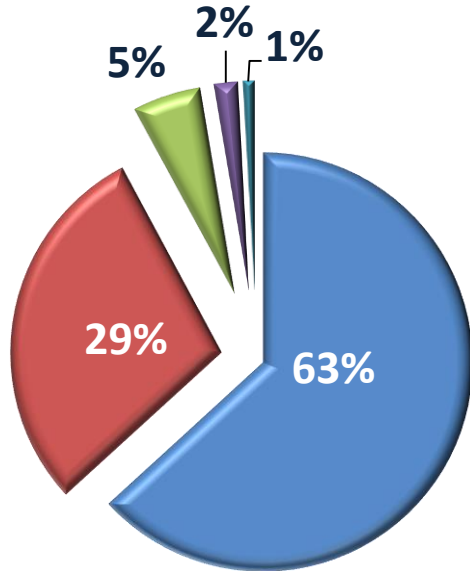
		Multi-measure FI		P < 0.0001*
		"with hunger"	"without hunger"	
Male	65.8%*	60.5%	24.6%	
Female	50.7%	47.1%	27.9%	

Considered statistically significant if P<0.001*

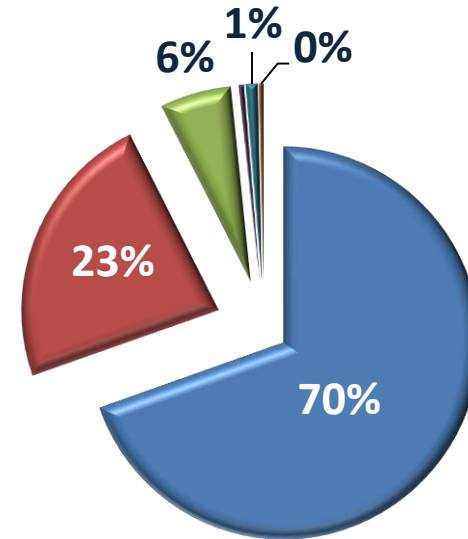


UFS 2013 Student Body (N=31014)

Respondents (n=1388)



Ethnicity

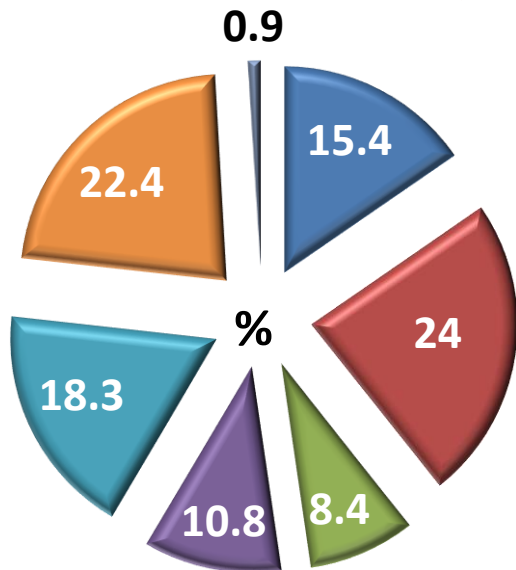


	Single measure FI	Multi-measure FI	
		"with hunger"	"without hunger"
■ African ■ White ■ Coloured ■ Indian ■ Asian	79.0%* 23.6% 65.6% 25.0% 20.0%	71.7% 25.4% 56.8% 25.0% 20.0%	22.5% 32.0% 23.5% 25.0% 40.0%

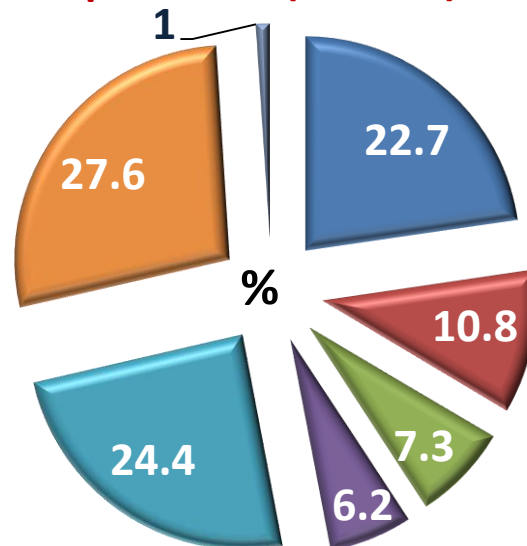
P < 0.0001*

Considered statistically significant if P<0.001*

UFS 2013 Student Body (N=31014)



Respondents (n=1400)



Field of study

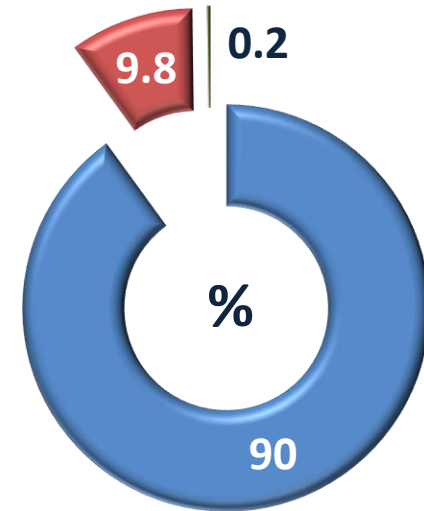
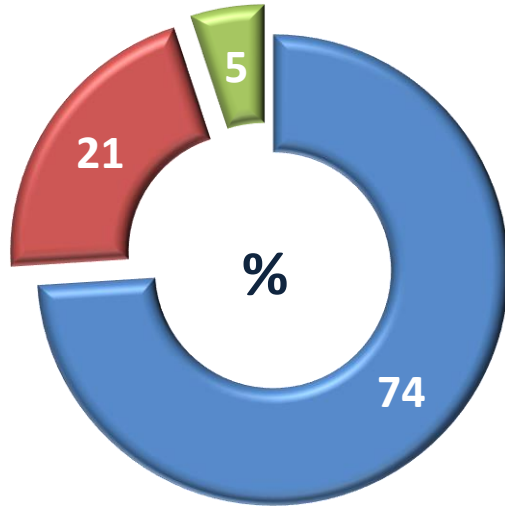
Field of Study	Single measure FI	Multi-measure FI		P-value
		"with hunger"	"without hunger"	
Economics & Management Science	66.1%	56.9%	27.0%	P < 0.0001*
Education	66.4%	63.8%	23.6%	
Health Sciences	38.4%	33.7%	29.7%	
Law	58.3%	60.5%	25.6%	
Natural & Agricultural Sciences	70.2%	63.6%	23.8%	
Humanities	65.6%	62.4%	23.5%	
Theology	50.0%	50.0%	21.4%	

Considered statistically significant if P<0.001*



UFS 2013 Student Body (N=31014)

Respondents (n=1392)



Level of study

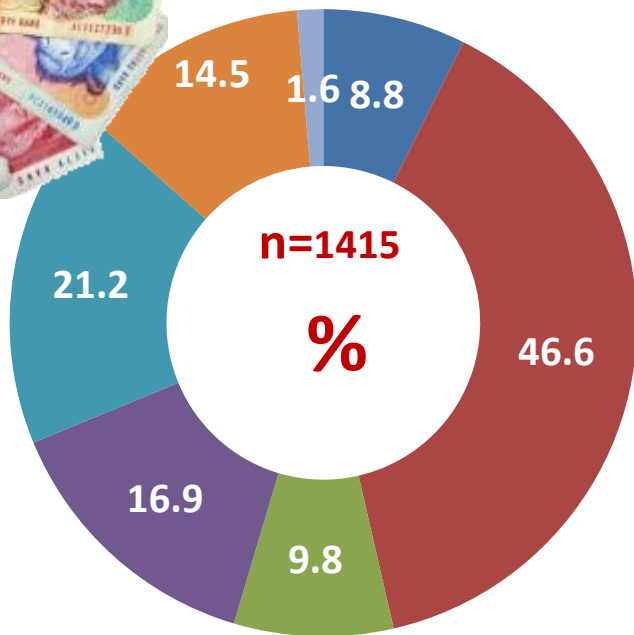
	Single measure FI	Multi-measure FI		P < 0.0001*
		"with hunger"	"without hunger"	
Undergraduates →	65.8%*	60.5%	24.6%	
Postgraduates →	50.7%	47.1%	27.9%	
Occasionals →				

Considered statistically significant if P<0.001*





Ways studies are paid for



Multi-measure FI

Single measure FI

"with hunger"

"without hunger"

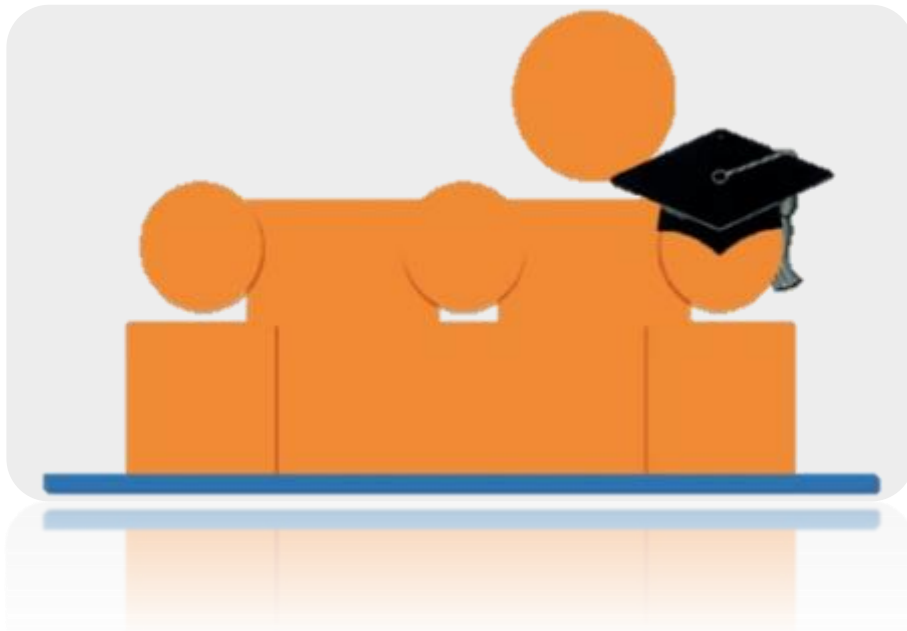
	Single measure FI	"with hunger"	"without hunger"
Self	65.5%	58.2%	25.5%
Parents/relatives	60.5%	55.8%	25.4%
Bank loan	68.3%	63.1%	18.5%
Other loan	80.5%	74.7%	21.1%
Bursary	70.5%	63.6%	26.8%
Merit bursaries	60.6%	52.5%	33.7%
Employer	45.5%	45.5%	18.5%

MOSTLY NSFAS

P < 0.0001*

Considered statistically significant if P<0.001*





First generation students

		Multi-measure FI	
	Single measure FI	"with hunger"	"without hunger"
43% NO	27.4%	52.4%	24.6%
57% YES	72.6%	66.8%	24.6%

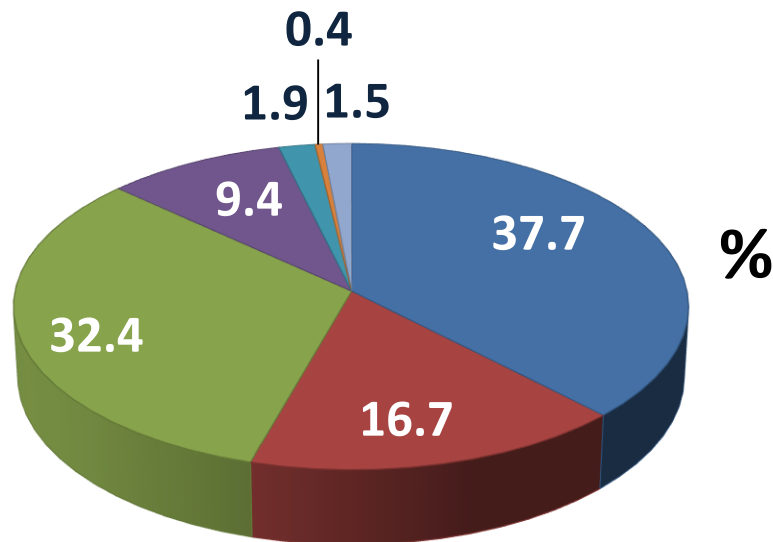
P < 0.0001*

Considered statistically significant if P<0.001*



Residency

n=1404



	Single measure FI	Multi-measure FI		P < 0.0001*
		"with hunger"	"without hunger"	
University residence	69.3%	66.0%	28.8%	
Parents/guardian	44.4%*	39.3%	23.5%	
With students/friends in house/flat	70.1%	67.1%	23.0%	
Alone in house/flat	56.2%	56.4%	21.8%	
Informal settlement	100%	89.0%	7.4%	
Hostels off campus	60.0%	80.0%	0.0%	
Other				

Considered statistically significant if P<0.001*



n= 1415



21.6% reported that they support somebody else financially

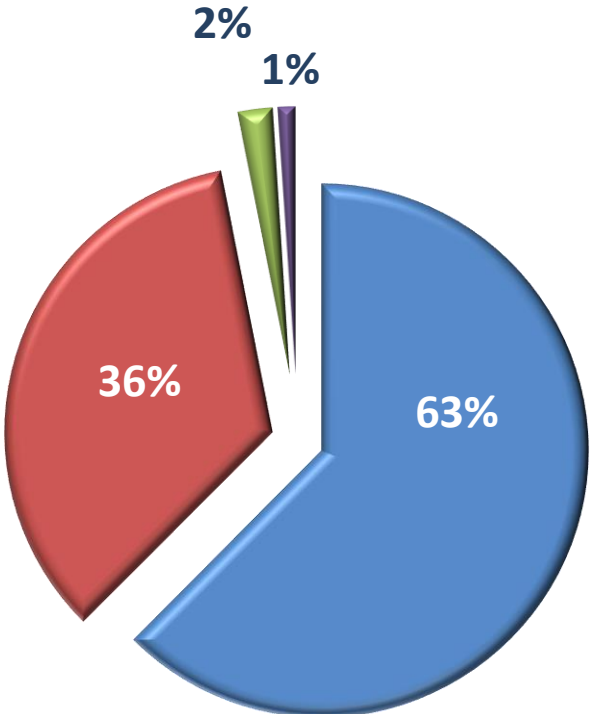
Mostly parents, siblings and children
(22.8% have children)

		Single measure FI	Multi-measure FI		
			"with hunger"	"without hunger"	
NO	➡	63.2%	57.6%	25.5%	
YES	➡	69.5%	66.2%	21.3%	P=0.04

Considered statistically significant if $P < 0.001^*$

Relationship status

(n=1382)



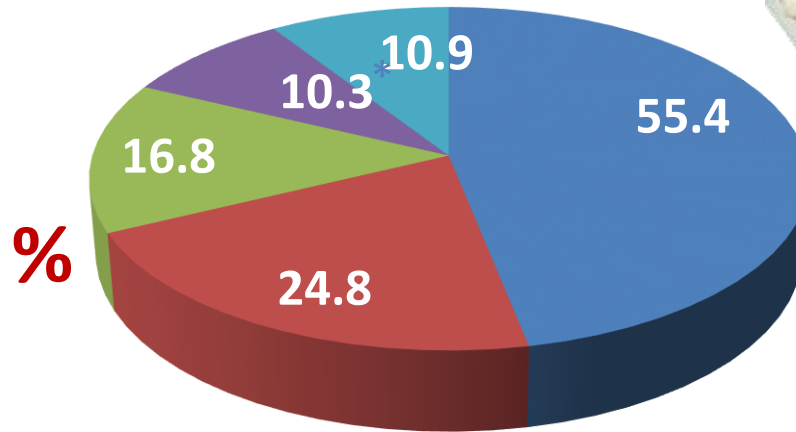
		Multi-measure FI		P < 0.0001*
		Single measure FI	"with hunger"	
Single	→	67.4%*	62.2%	23.7%
In a relationship	→	61.3%	55.1%	26.2%
Married	→	34.5%	50.0%	33.3%
Other	→	25.0%	25.0%	37.5%

Considered statistically significant if P<0.001*



Food procurement measures

How do you pay for food?

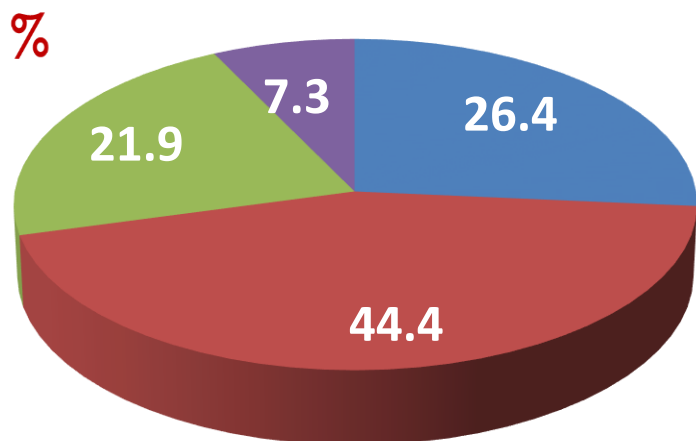


		<u>Single measure FI</u>	<u>Multi-measure FI</u>	
			<u>"with hunger"</u>	<u>"without hunger"</u>
■ Parents	➡	61.9%	55.1%	24.8%
■ Allowance	➡	56.7%	56.4%	24.5%
■ Bursary	➡	67.0%	57.3%	30.5%
■ Study loan	➡	75.0%*	70.8%	23.6%
■ Salary	➡	57.1%	54.6%	20.8%

P < 0.0001*

Considered statistically significant if P<0.001*

Do you have enough money to buy food?



Always



19.8%

Sometimes only part of the month



76.0%

Often only part of the month



84.4%

Never



91.8%*

Multi-measure FI

"with hunger" "without hunger"

17.4%

35.5%

69.2%

25.4%

81.2%

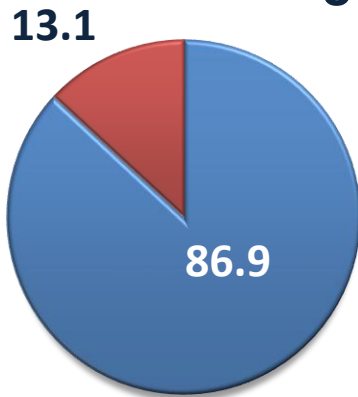
14.5%

88.0%*

10.0% **P < 0.0001***

Considered statistically significant if $P < 0.001^*$

Do you prepare own food?



YES →

NO →

Single measure FI

66.8% *

48.4%

Multi-measure FI

"with hunger"

61.5%

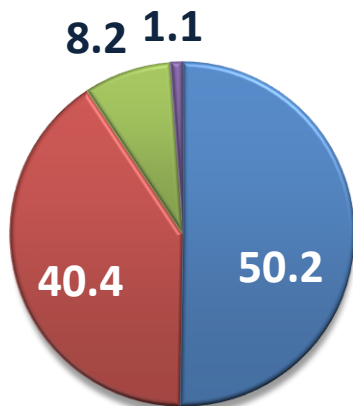
45.6%

"without hunger"

24.9% **P < 0.0001***

23.1%

How do you rate your cooking skills?



Good →

Can help myself →

Not good →

Can't cook at all →

Single measure FI

66.4%

60.5%

73.9% *

40.0%

Multi-measure FI

"with hunger"

60.4%

56.5%

67.2%

46.7%

"without hunger"

25.3%

25.4%

20.7%

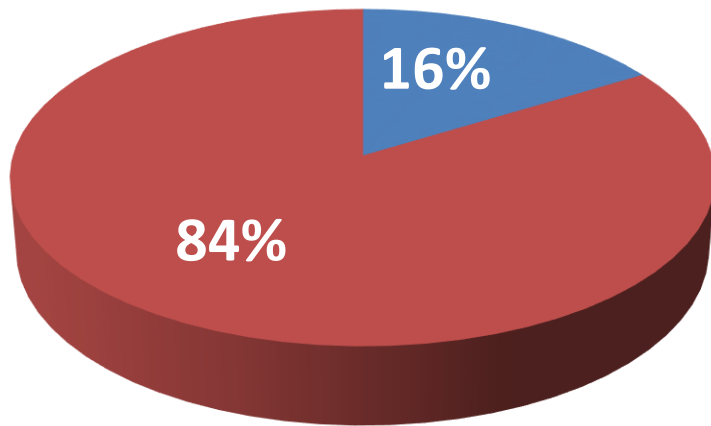
20.0%

P < 0.01

Considered statistically significant if $P < 0.001^*$



Coping strategies and emergency measures



■ Employed →
■ Not

Mean:
 19 hours /week
 R3343/ month



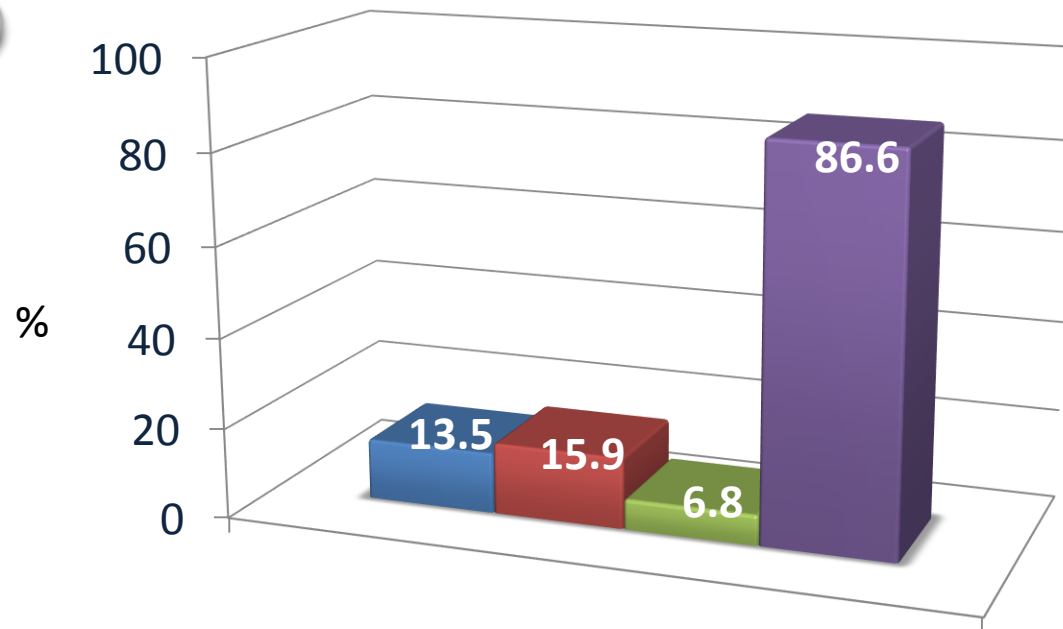
Does their job reduce time for academic work/studying :

27.7% → often
 34.2% → sometimes
 38.1% → never

Employment

		Multi-measure FI		P < 0.0001*
		Single measure FI	"with hunger"	
EMPLOYED	→	51.3%	50.3%	25.3%
NOT	→	66.1%*	60.8%	22.2%

Considered statistically significant if P<0.001*



70.7% said they had borrowed money for food

Borrowed money from

Multi-measure FI

Single measure FI **“with hunger”** **“without hunger”**

NO

YES

26.7%

79.4%*

24.2%

73.9%

34.3%

20.5%

P < 0.0001*

Parents



63.5%

56.7%

30.7%

Relatives



85.1%

81.5%

16.8%

Spouse/partner



83.9%

77.8%

15.9%

Friends

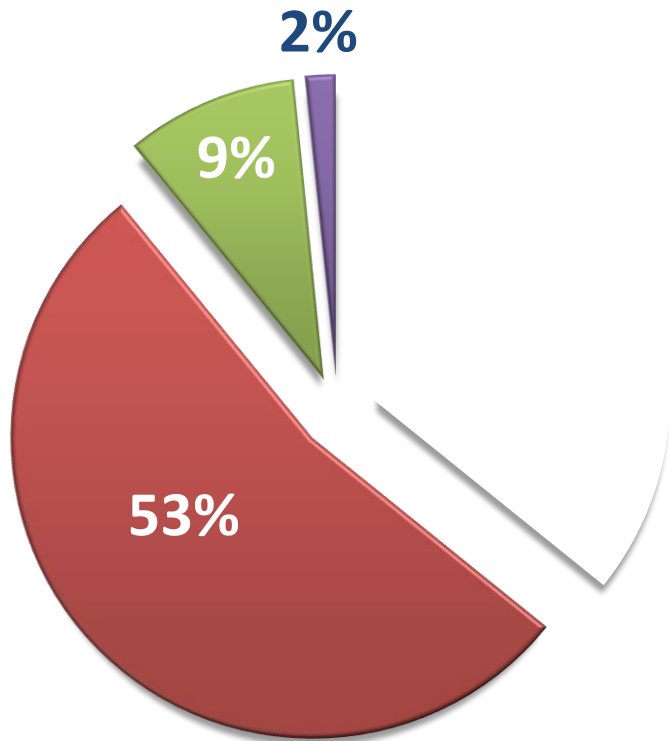


75.8%

19.4%

P < 0.0001*

Emergency measures



- Have asked someone to give me food
- Have sold my stuff for food
- Have stolen food

Single measure FI

→	83.9% *
→	97.7% *
→	90.9% *

Multi-measure FI "with hunger" "without hunger"

82.4%	15.2% P < 0.0001*
95.5%	4.6% P < 0.0001*
93.1%	6.1% P < 0.01

Considered statistically significant if $P < 0.001^*$



Best predictors of severe FI

Logistic Regression Results:

Biographics & socio-demographics sets as predictors of FI

	By MULTI-ITEM MEASURE	By SINGLE-ITEM MEASURE
	P-value for Wald χ^2	
Gender	0.0026	0.0022
Race	<0.0001	<0.0001
Relationship status	0.2754	0.0775
Study level	0.0411	0.0608
Being a first generation student	<0.0001	<0.0001
Being employed	0.2875	0.2492

*P < 0.01

Logistic Regression Results:

Food related-items sets as predictors of FI

*P < 0.01

	By MULTI-ITEM MEASURE	By SINGLE-ITEM MEASURE
	P-value for Wald χ^2	
Prepare own food	0.3087	0.0617
Do not have enough money for food	<0.0001	<0.0001
Have had to borrow money for food:	0.287	0.9811
From parents	0.0032	0.0059
From friends	0.1704	0.4916
Have had to ask others for food	<0.0001	<0.0001
Have had to sell possessions for food	0.3066	0.7103

Discussion

Food insecurity at the UFS is **almost double** that of tertiary institutions in developed countries ...



Most likely to go hungry:



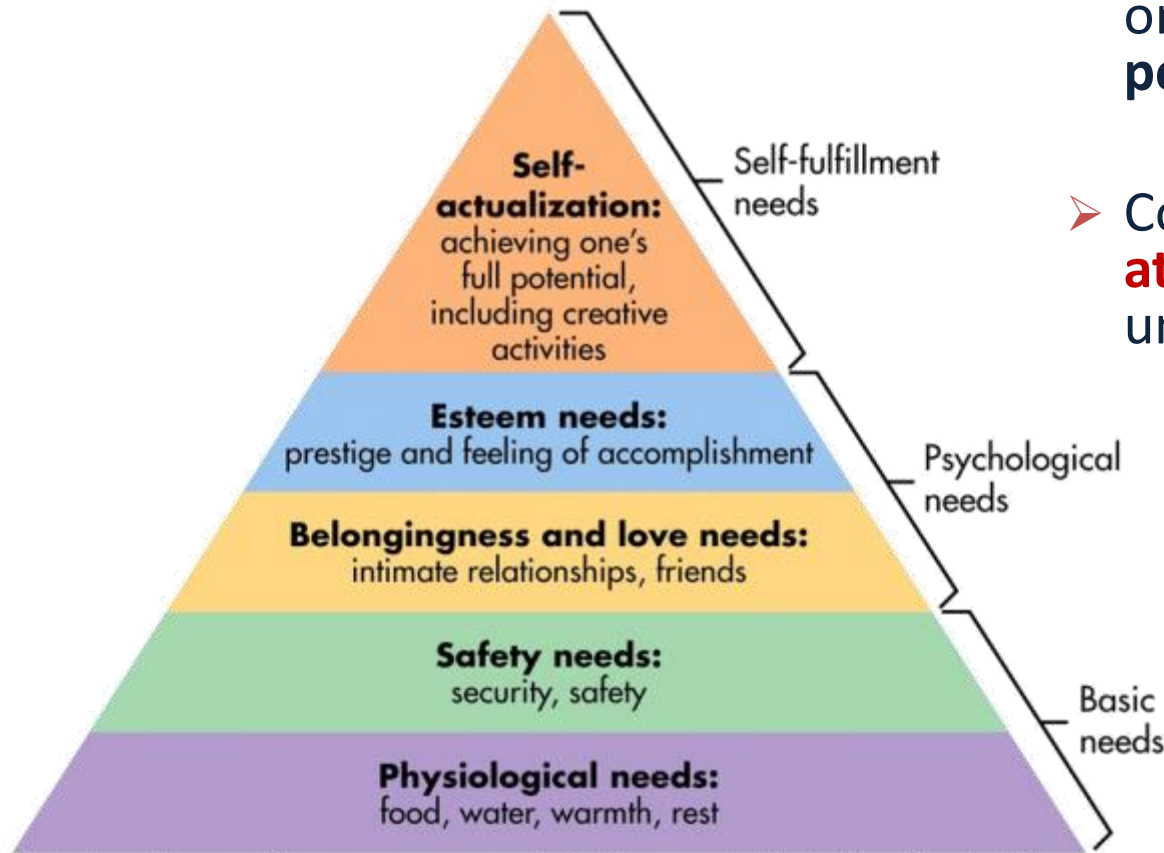
- Single
- Male
- Black or Coloured
- First generation students
- Undergraduate
- Pays studies and food from loan/bursary
- Not employed
- Not living with parents/guardian
- Support someone else financially
- Prepares own food
- Is not confident about own cooking skills
- Seldom/never have enough money for food
- Has to borrow money for food
- Has to ask for food / sell stuff / steal food

SANHANES-1 (2012):

54% of SA households were food NOT food secure:
(28.3% were at risk of hunger and 26.0% experienced hunger)

Province	At risk of hunger	Exper. Hunger	NOT FOOD SECURE
Western Cape	25.6%	16.4%	42.0%
Northern Cape	22.8%	20.7%	43.5%
Free State	31.9%	28.8%	60.7%
Gauteng	24.8%	19.2%	44.0%
KwaZulu Natal	34.4%	28.3%	62.7%
Eastern Cape	32.4%	36.2%	68.6%
Limpopo	27.3%	30.8%	58.1%
Mpumalanga	15.5%	29.5%	45.0%
North West	30.5%	29.5%	60.0%





Maslow's Hierarchy of Needs

Food insecurity:

- **Negatively** impacts on **academic performance**
- Contributes to **high attrition rates** at SA universities (50%)

Conclusions



- Revise the **NSFAS bursary/loans scheme**
- **Private funding** for food aid
- Reinstitute **catered food hall**
- Make **nutritious** food **convenient** and **accessible**, and **affordable** on campus
- Teach **basic nutrition, food preparation skills** and **financial management skills** to first years
- **Practical support** – eg cooking videos, student cookbook, etc



Acknowledgements:

University of the Free State

Respondents

R van Heerden

M du Toit

M Hildebrand

WM du Toit

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Thank You!
😊