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### Relationship between psychological distress and metabolic syndrome in the farming community

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## **BACKGROUND:**

Metabolic syndrome co-morbidities such as obesity, diabetes and cardiovascular disease are prevalent in rural Australia<sup>1</sup>. Psychological distress is known to trigger physical and biochemical changes that increase an individuals risk of establishing metabolic syndrome<sup>2</sup>. The impact that psychological distress has on metabolic syndrome co-morbidities in the Australian farming community has not been thoroughly investigated.



## **METHODOLOGY:**

**RESULTS:** 

**Objective:** This study aimed to identify the effect of psychological distress on metabolic syndrome comorbidities in an Australian farming community.

**Design:** This cross sectional study was conducted using the anthropometric, biochemical, clinical, psychological (K.10) and survey data collected from the Sustainable Farm Families (SFF) programs<sup>3</sup> conducted between 2004 and 2008. A total of 1,813 consenting adult farm men (n=968) and farm women (n=845) average age 48.9 years (SD ±11.1, range 18-79) from 97 locations across Australia were recruited for this study.

**Data analysis:** Individual measurement data collected during the SFF programs were stratified into categories using cut-off values based on National Cholesterol Education Program guidelines<sup>4</sup>. Prevalence of clinical conditions was age and gender standardised to Australian general population.



Table 1: The relationship of the mental health status and anthropometric, biochemical and other characteristics

		All age groups (18-79 years)			Mature Age (≥50 years)		
		Not distressed n (%)	Psychologically distressed <sup>a</sup> n (%)	p <sup>b</sup>	Not distressed n (%)	Psychologically distressed n (%)	Рb
Gender	Men	422(56.2)	308(49.0)	0.007*	240(60.2)	153(53.1)	0.066
	Women	329(43.8)	321(51.0)		159(39.8)	135(46.9)	
Body Mass Index	Obese/overweight	504(67.4)	426(67.8)	0.858	273(68.4)	222(77.4)	0.010*
	Not obese	244(32.6)	202(32.2)		126(31.6)	65(22.6)	
Abdominal obesity (Waist circumference - WC)	Obese	440(58.6)	361(57.4)	0.01*	239(61.1)	202(72.4)	0.02*
	Not obese	286(38.6)	187(30.3)		152(38.9)	77(27.6)	
Hypertension Risk <sup>c</sup>	Hypertensive	440(58.6)	361(57.4)	0.654	291(72.9)	209(72.6)	0.916
	Not hypertensive	313(41.4)	268(42.6)		108(27.1)	79(27.4)	
Diabetic risk <sup>d</sup>	Diabetes risk	221(29.5)	180(28.7)	0.743	147(36.9)	111(38.7)	0.643
	No diabetes risk	529(70.5)	448(71.3)		251(60.1)	176(61.3)	
Cholesterol risk <sup>e</sup>	Cholesterol risk	202(31.8)	156(29.7)	0.452	142(39.8)	108(43.2)	0.399
	No cholesterol risk	434(68.2)	368(70.3)		215(60.2)	142(56.8)	
Metabolic syndrome <sup>f</sup>	MS confirmed	106(14.1)	95(15.1)	0.604	76(19)	76(26.4)	0.022*
	Not MS confirmed	645(85.9)	534(84.9)		322(81)	212(73.6)	
Body fat %	High body fat %	358(52.6)	325(56.2)	0.194	230(63.2)	194(71.9)	0.022*
	Not high body fat %	323(47.4)	253(43.8)		134(36.8)	76(28.1)	
Body pain	Yes	190(25.4)	246(39.5)	0.000*	106(26.8)	123(43.3)	0.000*
	Νο	558(74.6)	376(60.5)		290(73.2)	161(56.7)	

<sup>a</sup> Psychologically distress was characterised as K.10 score >15 or previously diagnosed mental illness. <sup>b</sup> Probability (p) values calculated using Pearson chi-square test (two tail). <sup>c</sup> Hypertension was assumed if the BP ≥130/85 or previously diagnosed hypertension. <sup>d</sup>Diabetes risk was assumed if FBGL ≥5.5 mmol/l or previously diagnosed diabetics. <sup>E</sup>Cholesterol risk was assumed if FBC ≥5.5 mmol/l or on hypolipidemic medication. <sup>f</sup> Metabolic syndrome was assumed according to NCEP (ATP111) criteria. \* Significance was determined when p≤0.05

# **Conclusion:**

There is an increased prevalence of Metabolic Syndrome risk factors in this farming community. Psychological distress has a direct influence on

Prevalence of CVD risk factors in farming population compared with Australian National population data (1)

60%

50%

#### Metabolic Syndrome risk factors, particularly in older age groups.

#### **References:**

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**Figure 1: Sustainable Farm Families Metabolic Syndrome risk factors compared to National averages.** Farmers participating in the SFF program (n=1813) have higher rates of metabolic syndrome risk factors than the Australian population average<sup>1</sup>. Our studies reveal these risk factors are linked to psychological distress and negatively impact health and wellbeing outcomes in rural Australia.