Health Status and Behaviours of Australian Farming Men

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The Sustainable Farm Families (SFF) program in Australia has been researching the state of health of farming men and women over the last six years throughout Australia's agricultural industries. Health data gathered have been instrumental in providing industry partners with insights into the current health status and relevant health issues of farming men and women. This paper focuses on the outcomes of research relative to the male cohorts and their clinical indicators over the course of the research. Male participants across varying ages and farming sectors gained information and knowledge, and received clinical assessments and intervention in the course of the research. Positive effects were experienced by male farmers of different ages and across farming industries. The qualitative and quantitative results reveal that regardless of prior attitudes, both

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men and women learned and changed the way they think about and act upon their health, wellbeing and safety.

Keywords: men's health, farmers, agriculture, families, Australian men

Introduction

The current health issues affecting men in Australia appear to be glibly accepted as normative. For the last two decades, even with "men's health" on the healthcare radar and the release of the Australian National Men's Health Policy[1] efforts to address health disparities amongst men have achieved little in addressing the disparity of life expectancy or morbidity of Australian men compared with women living in rural areas. The reported statistics relating to the health of men across the nation are discouraging, with lifestyle related diseases such as heart disease, diabetes and cancers becoming more common.[2] Health issues affecting rural men are even more disconcerting, as highlighted by the Australian Institute of Health and Welfare (AIHW): "The general health of rural people is, by urban standards, very poor. Rural populations have above average rates of premature mortality through heart disease, cancer and suicide."[3] The Australian Federal Government reports that obesity rates within Australia are now increasing, in particular for male youth between the ages of 15-24 years. This is a demographic where exposure to alcohol and drugs, decreased physical activity, and poor nutrition are prevalent.[4] Obesity rates in adults have also risen to record levels, with the greatest increase in weight for males between the ages of 35-44.[5] Lifestyle related diseases in men, including diabetes, coronary heart disease and hypertension, are also at levels placing extra burden upon the health industry and the economy.[6]

Further examination of relevant data indicates higher rates of clinical conditions such as cardiovascular disease, diabetes and hypertension in men compared with women and with a significant disparity existing between rural and metropolitan men. The National Rural Health Alliance reports that "rural and remote areas have ageing populations with high rates of chronic disease, health workforce shortages, an extensive drought and other problems affecting the social, economic and environmental sustainability of their communities."[7]

The development of the National Men's Health Policy by the Australian Federal Government has acknowledged the significant issues relating to men's health, their unique needs, and the requirement for appropriate access to healthcare for all men.[8] This was also emphasised at the 10th National Rural Health conference in Cairns, where the Department of Health and Ageing summarised their key areas of focus with the release of the National Men's Health Policy. Their statement notes: "Specific health status measures illustrate the generally poorer health of people living in rural and remote areas. Life expectancy decreases with increasing remoteness . . . Life expectancy in regional areas is 1-2 years lower and for remote areas it is up to 7 years lower." The Government also stated it would focus on men with the lowest levels of health including rural men, lower socioeconomic and marginalised men within locations or by occupation.[9]

International studies of both rural health and men's health reflect a similar trend across the world [10,11,12]. The health of men within an agricultural setting has yet to be fully explored and thus warrants investigation. To date, national data collection services such as the Australian Bureau of

Statistics (ABS) have failed to differentiate between a rural male and the rural male farmer in their reporting process, and the lack of evidence relating to farmer health has been the norm. Researchers such as Todd (2004) reports: "Farming families are unique and exhibit specific characteristics that identify them within their industry. [They are] working harder, longer, and increasingly rely on family members to provide the extra labour needed to survive in today's environment of climatic change and agricultural strain".[13] Even political sources highlight this situation: "Farmers experience higher death and morbidity rates than the Australian population, they are over represented in injury statistics, and have varying levels of socio-economic disadvantage."[14] Psychiatric mortality is also an issue of serious concern with farming men and farm managers implicated in twice the rate of suicide as compared to their urban or rural counterparts.[15,16]

These data on male farmers' health prompted the authors of the current paper to research and report on the current health status and resultant health changes made in relation to an education and assessment program, Sustainable Farm Families (SFF). Research was carried out over a period of three years. Although previous publications and reports have highlighted the significant health outcomes and benefits relating to this program[17,18,19,20 ,21], this paper aims to highlight the specific health issues relating to the male cohort of four projects initiated within dairy, broad acre, remote, sugar, and cotton farmers in Victoria, South Australia, New South Wales, Queensland, Northern Territory and Western Australia.

Background

The SFF projects are initiatives developed by the Western District Health Service in Hamilton, Victoria, through a process of intersectoral collaboration involving health services, universities, agricultural agencies, training bodies and farming communities. Partners in this collaboration have joined to address the health, wellbeing and safety of farming families across Australia, including dairy, broadacre, remote, and sugar and cotton farmers. The four projects were coordinated and delivered over the period of 2003-2008 with funding received from five bodies: the Joint Research Venture on Farm Health and Safety (managed by the Rural Industries Research and Development Corporation (RIRDC), the Department of Health and Ageing, (DoHA), the Gardiner Foundation (Dairy Industry), the Department of Primary Industries Victoria, and WestVic dairy.

The SFF program provides participants with information on personal health, wellbeing and safety whilst exploring attitudes to personal health and providing opportunities for improving health and farm safety outcomes[20]. The program aims to address the health disparities within rural and farming populations through education and assessments over the course of the research. This process linked with peer education and industry collaboration provides participants with the opportunity to learn with and from others in kindred industries and in a supportive environment.

Participants were self-selected and recruited via collaborative linkages with industry partners within each agricultural sector. All participants consented to the project and were found to be willing supporters of the research. Ethics approval was granted from the South West Health Care Multidisciplinary Ethics committee and areas of clinical significance were outlined and complied with.[22] Rec-

ommendations included the need to refer participants with fasting cholesterol or blood glucose levels greater than or equal to 5.5 mmols to their general practitioner and to use the Heart Foundation's (2002) minimal requirements for exercise.[23]

The SFF projects were designed by two health professionals with nursing, agriculture and gender studies backgrounds in collaboration with a social science academic supporting the development of adult learning and education programs. The two health professionals who facilitated the sessions remained on the team from the commencement of the program. Participant retention rates of farmers who completed all workshops ranged from 72% for participants in the remote farming sectors to 76% for the broad acre farming sector, 72% for Dairy farmers, and 85% for the cotton and sugar industry.

Theoretical Framework

The SFF programs were developed using theories and frameworks from the health promotion and adult learning literature that aimed to inform and obtain valid information from the participant sample. The education content and delivery modes were specific to the industry and intended to assist the learning of the participants. Azjen and Fishbein's (1980) theory of "reasoned action and planned behaviour" was used to guide the learning experienced by participants in the SFF projects.[24] Their theory focuses on the belief that behaviour changes occur when individuals and groups:

- share values and beliefs;
- share a common commitment to their new found knowledge;
- discuss with peers how best to respond to the information delivered in their daily lives; and
- share an understanding of the possible negative effects of poor health behaviours within their business.

Kolb's (1984) model allows participants to become active members of the learning cycle by experiencing the concept, reflecting on the learning, comprehending and then planning to use this new information within their life which becomes part of their experience base[25]. This type of learning model is integral to the project, worked well with men, and enabled learning through different mediums such as videos, training models, and experiential learning examples. All learning styles are catered to on this model including of those participants who have minimal linguistic and writing skills. Working in groups aimed to assist the learning process so that participants could learn from each other, especially from other farmers with similar agricultural interests, share new information, and conceptualise how the new health information could be used in the context of farm family and business.

Physical Assessment

One of the most successful aspects of the project (which may have also contributed to the high retention rate) was the "one on one" physical assessment process. Participants were offered an initial five-minute assessment where fasting blood samples were taken and anthropometric indicators measured. An individual thirty-minute "one on one" assessment followed the first day of the program and focused on the initial indicators measured. A more in-depth full physical assessment was also undertaken. Pivotal in the adult learning process was the individual assessment. It allowed participants to reflect on what their results meant and to discuss openly in a private and confidential manner, key areas of health concern. This also provided a focus for individuals to develop an action plan to address any health concerns for the forthcoming year.

The initial physical assessment took place on arrival of the farming participants following a minimum of ten hours of fasting to aid in accuracy of the testing procedures and included the following recorded tests:

- Fasting total cholesterol and blood glucose
- Weight and height measurement
- Body mass index
- Body fat percentage
- Blood pressure and pulse
- Waist and hip circumference measurement

Table 1: SFF workshops and data collection description

Variable	Base line [A]	12 month [A]	24 month [A]
Body weight (Body Mass index)	✓	✓	✓
Height	✓	✓	✓
Waist circumference	✓	✓	✓
Hip circumference	✓	✓	✓
Blood pressure	✓	✓	✓
Pulse rate	✓	✓	✓

Fasting blood glucose	✓	✓	✓
Fasting blood cholesterol	✓	✓	✓
Kessler K 10 psychological distress		✓	
Farm Safety Survey	✓	✓	✓
Behaviours and conditions survey	✓	✓	✓
Focus Group	✓	✓	✓
Pre and Post knowledge	✓	✓	✓

A "one on one" private assessment was offered to all participants in the workshop to allow for follow-up of the initial 3-5 minute screening. This fuller assessment took up to thirty minutes and included the gathering and discussion of the following information:

- Genetic evaluation and family history assessment
- Respiratory assessment
- Skin and integumentary assessment
- Cardiovascular assessment
- Sexual and reproductive health
- Gastrointestinal, social and mental health assessment
- Discussion of results and referral

Risk factors and health indicators of concern or within the ethically determined range requiring intervention were referred to their nominated health professional or medical practitioner for follow-up.

Results

In all 257 men participated in the SFF program from 2003-2008. Both men and women participated

and a total of 54% of the overall participants were males. Health and demographic data from the men within provides insight into the current health and behavioural status of the male farmer samples. In each of the cohorts the majority of men were Australian-born with the exception of a small sample of men within the sugar industry who were of Italian descent.

Smoking rates were below the Australian average within all four cohorts, with remote farming men having the highest rate of 18%.[26] The average age of farming men was between 47-49 years, which is younger than the current reported average age of farmers reported by the ABS.[5]

Table 1. General Health Demographics for Men across SFF Project.

Factor Year 1 comparisons only Total sample 257 men	*SFF (Broadacre) Men n=70 (27%)*	*SDFF (Dairy) Men n=109 (42%)*	*CSFF (Cotton/Sugar) Men n=28 (11%)*	*Remote Men n=50 (19%)*
Australian born (%)	97	93	96	94
Speak English at home (%)	100	98.2	100	100
Average Age (years)	48	49	47	47
Currently smoke (%)	6	8.3	3.6	18
Drink alcohol once per week (%)	86	67	71.4	90
Drink at high-risk levels at least once a month (%)[27]	54	44	46.5	76
Retention rates over program course* = 3 years	76*	72*	85	72

Ninety percent of men consumed alcohol at least monthly with ten percent indicating they did not consume alcohol. 77% of men reported drinking alcohol at least weekly; 56% reported drinking at high risk, short term, at least monthly (as defined by the National Health and Medical Research Council) [27] with rates varying between 44% and 76% for the cohorts. National health data reveal that this rate of alcohol consumption is higher than the Australian average of 31% for men and 17% for women.[27]

Table2. Clinical indicators and range for all male participants n =257.

Statistics for all male participants	*Mean indicator* *Indicator maximum and minimum*
Age	**48.37 (range 20 - 76)**
Waist circumference cm Ref: less than 102cms[29]	**98.65 (range 72 - 135)**
Body Mass Index (Weight in Kilograms/ (Height in Meters x Height in Meters) Less than 25.[28]	**27.76 (range 19.6 - 45.2)**
Cholesterol level (mmols) less than 5.5[22]	**5.08 (range 3.50 - 7.90)**
Blood glucose level (mmols) less than 5.5. [29]	**5.26 (range 3.6 - 15.7)**
Blood Pressure (Systolic) (mmHg)less than 140. [22,23]	**131.16 (range 100 - 170)**
Blood pressure (diastolic) (mmHg) less than 90. [22,23]	**82.51 (range 60 - 105)**

Clinical findings highlighted in Table 2, give the reference ranges for all clinical indicators assessed within the sample of men and also highlight the upper and lower values recorded across male participants.

The baseline clinical indicators taken in the assessment highlight the prevalence of indicators outside the ideal and recommended healthy range and are shown in Table 3

Table 3. Clinical Indicators for Participants at Risk in Baseline Year

Clinical indicators for male participants at risk in baseline	% of participants
Body mass index ≥25 (n= 201)	78.2
Total cholesterol > 5.5mmol (n=85)*	33.1
Total blood glucose > 5.5 mmols (n=67)	26.1
Waist circumference > 102cm (n=76)	29.6
Blood pressure (systolic) > 140 (mm Hg)(n= 99)	38.5
Blood pressure (diastolic) > 90 (mm Hg) (n=81)	31.5

* Four of these 85 men had previously been prescribed lipid lowering medication and a further 13 not included in this group were also prescribed lipid lowering medication.

Elevated BMI readings of ≥25 were found in 79% of the men, with a total of 202 men above the recommended level indicated by the World Health Organisation.[3] Ten-hour fasting total cholesterol and blood glucose samples were recorded for all men, with 33% (cholesterol) and 26% (glucose) of men recording levels above the ethically recommended and approved levels requiring further referral and assessment.[23] Lipid lowering medication was already being taken by 17 men in the baseline year of which 4 had elevated cholesterol at assessment.

Systolic and diastolic blood pressures were recorded on two separate occasions during the assessment phase of the program with an average result recorded for each participant. Greater than 31% of men had readings elevated for both systolic and diastolic pressures.

Table 4 shows clinical indicators for participants at risk in the first year and their indicators assessed over the following two years. A paired test was undertaken with clinical indicators of those who had attended two years of the program with P>0.05 being significant. All indicators other than blood glucose showed statistically significant (p>0.05) improvement over the course of the research period and were sustained during that time. Blood glucose had reduced but was not significant. Most significant values were found for systolic blood pressure and fasting blood cholesterol levels.

Table 4. Clinical Indicators for Participants at Risk at Baseline and Year 1 Who Returned

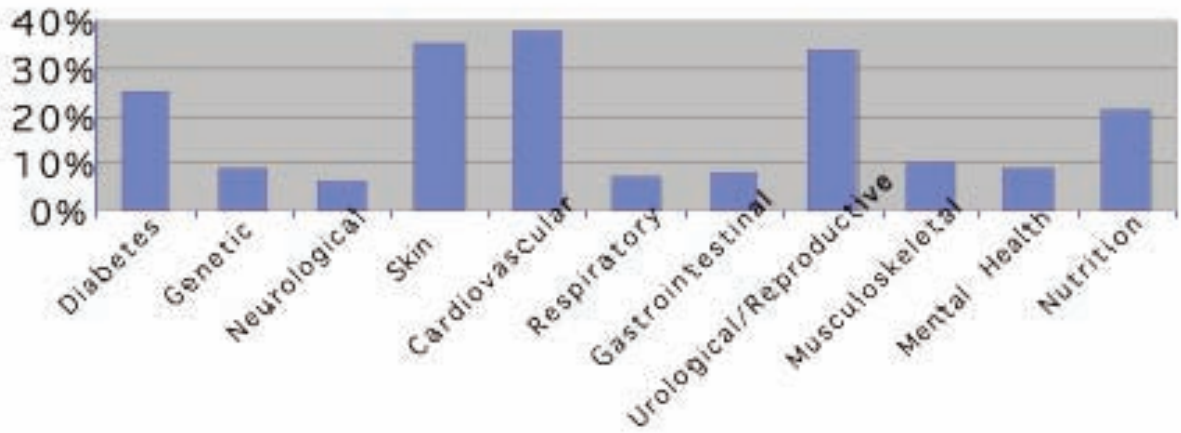
Clinical indicators for male participants at risk	Mean (+standard error)
Body mass index ≥25 (n=169)_	**-.205 (.0744) ****
Total cholesterol ≥5.5 mmols (n=78)	**-.631 (.104)*****
Total blood glucose≥5.5 mmols (n=52)_	**-.135 (.091)**
Waist circumference≥102cm Men (n=63)	**-2.09(.652)****
Blood pressure (systolic) ≥140 (mm Hg)(n=89)	**-7.19 (1.036)*****
Blood pressure (diastolic) ≥90 (mm Hg) (n=72)	**-5.23(.741)*****

Significance values *** p ≤ 0.001, ** p ≤ 0.01, *p ≤ 0.05 (based on two-tailed significance tests)

Participant referral rates and reasons for referral were also measured, with 74% of the men requiring referral in year one, reducing to 67% in year 2, and 38% in the final year of assessments.

Table 5 indicates the primary reason for referral in percentage terms. Participants were referred for multiple indicators over the course of the project and, as noted, the most common indicators requiring referral included skin and integumentary, cardiovascular risk (such as elevated cholesterol or blood pressure) diabetes risk, sexual and reproductive issues, and diet and nutrition assessment.

Table 5. Reason for Referral for Participants in Baseline Year.



Discussion

The results obtained relating to men's health, and in particular, farming men across Australia, reveal significant areas of concern. Anthropometric measures including weight and body mass index were found at levels above national and global recommendations for the general population[28]. Body mass results ≥ 25 were recorded in over 78% of the sample with 22.4 % of this group having BMI's ≥30, placing them in the obese range. Indicators with the potential for clinical conditions and disease development are also of interest, in particular diabetes, cardiovascular disease (stroke and heart attack through hypertension and elevated cholesterol), and weight-related cancers linked to abdominal adiposity.

The level of alcohol consumption was also of concern, especially the level reported amongst remote farming men. Self-reported data indicated that 71% of men drank alcohol at high-risk levels at least once per month. These data were calculated using the National Health and Medical Research Councils 2001 recommendations, which have since been revised to lower consumption guides.[24] Smoking rates in three of the industry groups were reported below the Australian average.

In terms of responding to the educational and assessment intervention, there were positive results revealed by the data. Table 4 highlights the level of risk reduction for key health indicators for men noted to be at risk in year one. As noted, all indicators including systolic and diastolic blood pressure, body mass, waist measure and cholesterol were statistically significantly reduced over the course of the project.

Reduction in indicators relating to diabetes, cardiovascular, and nutrition education (such as blood glucose level (BGL), cholesterol, blood pressure and BMI) was very positive. What surprised the research team was the need for referral for other health issues including integumentary issues, reproductive health and incontinence. These referral indicators were similar across the four projects with the need for mental health counselling required in areas where environmental hardship such as drought and floods had been evident.

The clinical indicators for health obtained from the farming men, should be of interest to health workers, policy makers, rural professionals and the medical profession. For many of the participants this was their "first ever physical assessment" and was reported as the most thorough assessment process they had experienced. Men felt informed and empowered with the new knowledge that came with the assessment and education process, which appears to have supported significant changes in the clinical indicators over the research period. Retention rates were impressive over the course of the research, with rates of greater than 80% returning for the two and three year timelines. Men also showed their support with 100% of them recommending the programme to others within the agricultural sector.

Family units (husband and wife) participating in the program reported benefits in completing the program as a family unit rather than on their own. An independent external evaluation of the program undertaken in 2010 (eight years since the commencement of the program) measuring a randomised sample of broad acre and sugar and cotton producers, confirmed that the men subse-

quently pursued regular check-ups in order to maintain their current level of health, and to mitigate the risks associated with increasing age .[34]

Limitations of the Study

A limitation of the study was that participants were a self-selected sample and that the program was preaching to the "worried well." With referral levels being greater than 75% in the baseline year this appears non-conclusive given the clinical health needs of these men. The baseline measures for weight, body mass index and waist measures do place the sample group at high risk, especially for preventable lifestyle diseases. Conversely, given the lack of bulk billing in rural communities and access, it is also possible that those with the greatest risk factors and the most unwell attended. This could be the subject of further research.

Finally, due to relatively small sample size these results have not been age standardised, and as such the result many not be transferable across all farming groups.

Conclusion

The clinical health indicators revealed by the SFF program illustrate the need for both concern and celebration. Concern should be directed at the raised health indicators above both National and International clinical indicator levels. These results need to be taken into account when considering policy, program development and interventions related to farming men across all sectors of agriculture.

Celebration may be justified from the evidence supporting the effective intervention of education, assessment, and group learning with appropriate and timely referrals to improve and sustain positive outcomes of health in farming men. The SFF approach of working with industry and other partners, using education, empowerment through knowledge and a structured review process, reveals potential for future initiatives in the area of rural men's health.

As the data presented have demonstrated, men across rural and farming industries are at significant risk for lifestyle related diseases However, as the program has shown, men can be successfully engaged in personal health assessment, improvement and remediation. Changes in key health indicators achieved by the program have shown that the health of farming men can be improved. Such an approach merits broader and more comprehensive investigation. Farming men were interested in their own health, their partner's health, and the ultimate health of their families and farms. The Sustainable Farm Families program has demonstrated that men are willing to address health concerns and maintain positive health behaviours through education, assessment, and group learning practices.

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