# Improving farm clients' pathways to health care

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## Abstract

Challenging weather conditions, regulatory changes and uncertain markets as well as limited access to health services may contribute to high rates of mental health issues and suicide within Australian Farm Families.

In response to mental health issues arising from the drought, the NSW Farmers invited key rural mental health stakeholders to a forum in June 2005 to discuss how to best work together to address rural and remote mental health issues. At this meeting the NSW Farmers Mental Health Network was formed.

In May 2006, at a local level, key stakeholders were invited to an inaugural Rural Hunter Service Providers Network meeting held in Scone NSW. A multi-sectored, multi-levelled and multi-method community action plan was developed to improve community linkages, promote information exchange, hold mental health first aid training and conduct health service data mining.

This paper will present and discuss the findings of the Upper Hunter Farm Family Data Mining Project. The Farm Family Data Mining Project analysed electronic client data to report on the pattern and profile of farm family clients' uptake of Health Services in response to six discrete categories which included both service initiatives and major falls of rain. Significantly when client characteristic data was linked to service intervention data a different pattern of service usage for male and female farm clients emerged. The findings of the data mining project are regularly reported back to the Health Service and the Rural Hunter Service Providers Network to improve service planning and performance monitoring.

The evidence gained in this research has challenged previous expectations about farming families and health service and informed changes in practice. This work now has the potential to shape rural health policy development to improve responsiveness to the rural context and to reflect the changing needs of farm families

The farm family data mining project was a finalist at the 2007 Hunter New England Health Quality Awards and was nominated for the 2007 NSW Premiers Awards. The project, along with other Hunter New England Allied Health data mining projects, is soon to be published in a book by the University of Sydney.

## Introduction

This study was undertaken in Hunter New England, in NSW an eastern state of Australia. The study area contains 3 small townships, 2 larger regional centres, 3 small hospitals, 2 multi-purpose health centres and 2 community health centres. This area is dominated by farming communities, mines and wineries. In this setting health workers take a holistic team approach which encompasses physical, psychological and social wellbeing. This involves identifying health problems early, working with the community to promote health by changing influences outside the control of individual people and providing support, counselling or treatment for specific issues affecting health.

At the time of commencement of the study, this area similar to much of Rural Australia was in severe drought. Many of the Hunter families were experiencing the pain and distress associated with being in drought. The impact of drought or "Solastalgia"[1] are generalised distress and feelings of loss and bereavement which may lead to more serious health and medical problems such as drug abuse, physical illness and forms of mental illness. So powerful is the connection between a loved place and the experience of negative transformation, that for some people, suicide is seen as the only form of relief.

## Background

In June 2005, the New South Wales (NSW) Farmers Association invited key rural mental health stakeholders to a forum to discuss how to best work together to address rural and remote mental health issues. A formal NSW Farmers Mental Health Network was formed and a NSW Farmers Blueprint for Maintaining the Mental Health and Wellbeing of the People on NSW farms was developed.[2]

Within this macro context, in May 2006 the Rural Hunter Service Provider (RHSP) Network was established. The RHSP Network's aims was to coordinate and strengthen the local mental health system capacity and referral by linking the Rural Financial counsellors, who have been identified as a first contact for rural people in crisis and the psychological/ social support counselling services.[3]

At the initial meeting of the RHSP Network a number of community service representatives expressed the position that farm families do not access health services. In contrast, health practitioner wisdom concluded that farm families did access health services. However, the available health service activity reports did not provide statistical data to support and quantify the claims of the health practitioners.

In order to quantify our practice wisdom a smaller multidisciplinary multi-levelled data mining project team was established to harness Community Health Information Management Exchange (CHIME) data and report on farm family service uptake of Community Health Services. CHIME is an electronic client data base which records all client contact and clinical notes. Clinical department specific service requests are recorded for each new episode of client contact. A new service request is generated when the episode of client contact has been closed for more than a three monthly interval.

## Literature review

The Australian literature revealed:

- Deaths from suicide of male farmer owners and workers are approximately double that of the Australian male population.[4]
- Farm families are historically perceived to only have a limited uptake of health services.[5]
- There are identified major impediments to improving mental health services in rural and remote areas.[6]
- There are gender implications of drought.[7]
- There are a number of studies of drought response initiatives.[8,9] Important in these studies is the process of social network analysis.[10]
- There is a gap in this body of knowledge of studies which linked client characteristics, in particular gender, to service intervention and correlated service network implementation and significant rainfall to service uptake.

## Practice based research

The project began with the development of a clear plan for data analysis of existing client service access data. The aim was to link client service usage over time, with gender and service type and to correlate service usage with the formation of the two networks and rainfall patterns. The service delivery team was interested to know firstly whether or not farming families were using the services provided and secondly the timing of this service access. Finally the team hoped to determine whether the patterns of service access altered with the formation of key social networks and according to improved climatic conditions of rain.

Consultation was undertaken with a number of groups including the CHIME team, the Hunter New England Health Human Research Ethics Committee and The Australian Centre for Agricultural Health and Safety Unit.

A project definition was developed of a *farm client*, to be someone who primarily lives on farm and defines them self as a farmer. A coding process was also developed to identify farm clients registered on CHIME and involved typing the words "*farm client* "on the third line of the address field. This uniform coding process ensured the reliability of the data.

A list of existing CHIME data categories, was identified to form the search variable for future CHIME reports. Age groupings were also established based on the life cycle.

All of the Community Health team members were asked to retrospectively code *farm clients* according to the above definition over the period from the introduction of CHIME in 2002 to 2006. Farm clients were then coded on an ongoing basis from 2006 to 2009. The coding process ensured that farm clients would appear in CHIME reports at the point of service contact, both retrospectively and prospectively.

A data request was then made to the CHIME Team. Search variables included the client characteristic variables of gender and age distribution and the service intervention characteristics of date and type of service accessed.

A non identifying excel spread sheet was forwarded by the CHIME Team for manual analysis. Client referrals were reported for each clinical discipline and for the whole Community Health service. For the purposes of this conference presentation two l spread sheets have been analysed:

### Stage 1 Results: Farm client referral data from May 2002 – January 2009

Statistical consultation resulted in **farm client r**eferral data being broken into the following 6 discrete time categories:

1. Baseline July 2002 to June 2005

2. Establishment of the NSW Farmer's Mental Health Network July 2005 to April 2006

3. Launch of RHSP Network May 2006 to February 2007

4. Major Rain 1 March 2007 to May 2007

5. Major Rain 2 June 2007 to October 2007

6. Major Rain 3 November 2007 to January 2009

Farm client referral rates were then compared between five time periods using a one way anova with post hoc analysis using a Tukey test.

For the purposes of this study significant rainfall refers to rain in excess of 100ml per month.

### Stage 2 Results: farm client referral data from May 2002 – January 2011.

A number of changes to the data collection process have taken place from 2009 to 2011. These changes included:

- Physiotherapy service intervention is now recorded on CHIME
- The IPM data collection system was locked for address in 2009. This activity generated a report of all farm clients who currently live at the same address as when the farm client was originally coded using the coding process explained above. This report provided the team with an unexpected opportunity to investigate farm client mobility.

A further CHIME report was then generated which counted clients who have a marital status in the green tree classifications and only counted the client where the preferred name has *Farm client* in the third line of address.

No statistical consultation has been undertaken in relation to the Stage 2 data.

### Stage 1 Results (July 2002 – January 2009)

A snapshot of 158 farm family clients, accessing Community and Mental Health services from 2002 to 2009, were identified by applying the data collection process described. These *farm clients* were referred for a total of 404 Community and Mental Health Services.

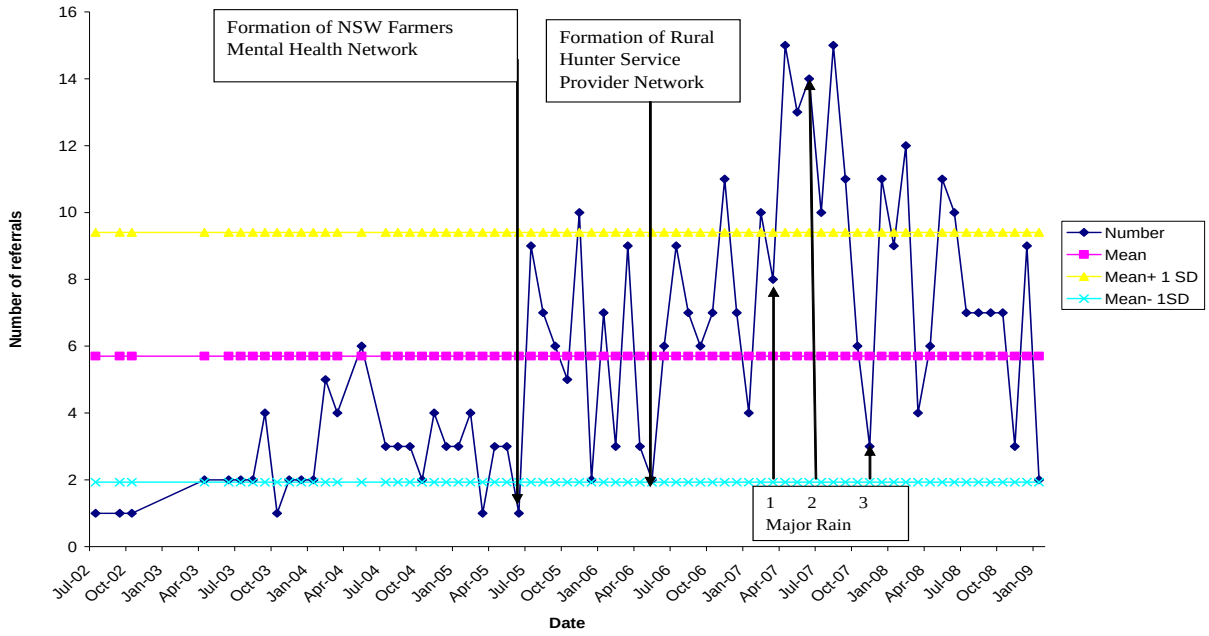


**Figure 1 The number of *farm clients* accessing Community Health**

The reported referral rates were significantly lower at baseline compared to all other periods. Figure 1 above plots referral numbers between July 2002 and January 2009. The mean +/- 3 standard deviations for the first 20 data points were plotted. The referral rate was relatively stable from July 2002 until May 2005. After this time there is a significant increase with the majority of data points falling above 3 standard deviations suggesting a shift in the mean.

The reported referral rates were significantly higher in "major rain 1" than after the formation of the NSW Farmers Mental Health Network, after the formation of the RHSP Network and the implementation of the action plan and major rain 3.

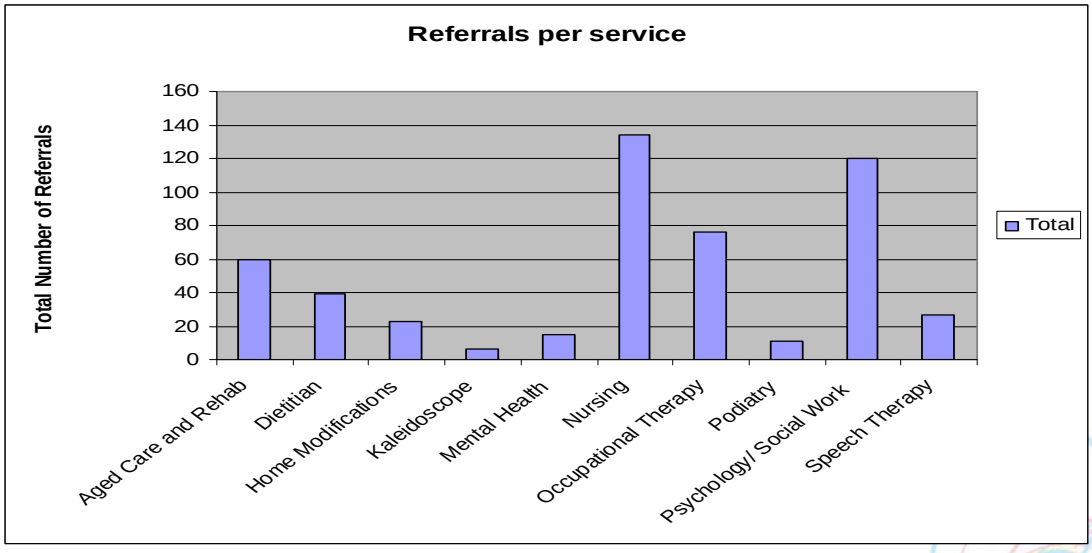


**Figure 2 Referrals per service type**

As displayed in Figure 2 above further analysis revealed that *farm clients* were accessing a broad range of service types and frequently accessing multiple Community Health Services at any one time. The most frequently reported services accessed were Psychology/ Social Work, primarily for counselling; followed by

Community Nursing, primarily for child and family health, dementia advice, foot care, hearing, women's health, wound care and support and Occupational Therapy for independent living assessments, home modifications and children's clinics. This result aligns with the purposes of Community Health which is to work with individuals, groups and other organisations to keep the community as healthy as possible.

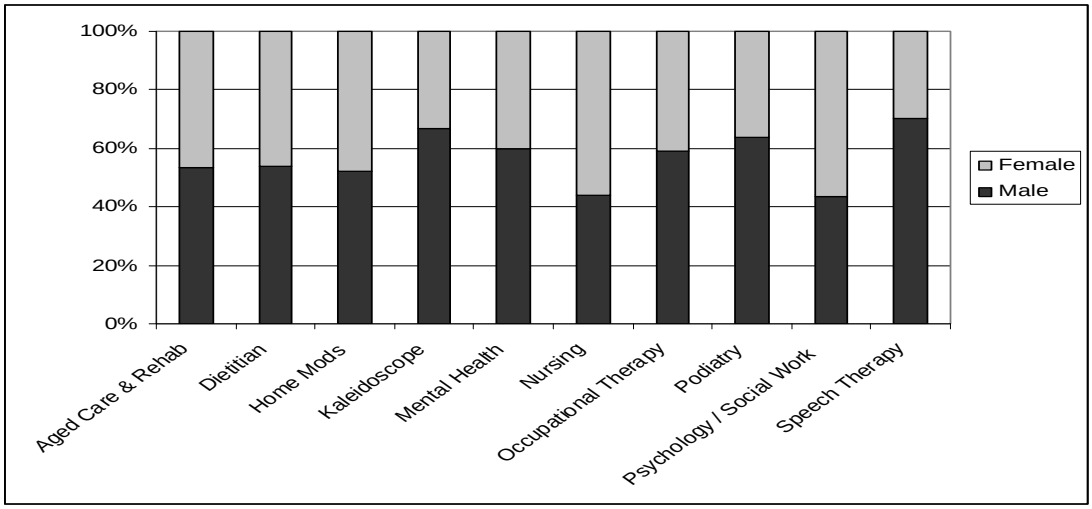


**Figure 3 The gender of *farm clients* accessing Community Health Services**

The data represented in Figure 3 above would suggest that Community Health Services are accessible to both men and women. Nearly 50% of farm clients accessing Community Health Services were male. This figure reduced to 43% for Psychology/ Social Work Clients for early intervention/ counselling in response to stress, adjustment, grief and loss, suicidiality with no plans or intent, depression, parenting, self harm, domestic violence, other childhood behaviours. The figure increased to slightly more than 50% of farm clients accessing mental health services for suicidal plans with intent, schizophrenia, major depression and psychosis.

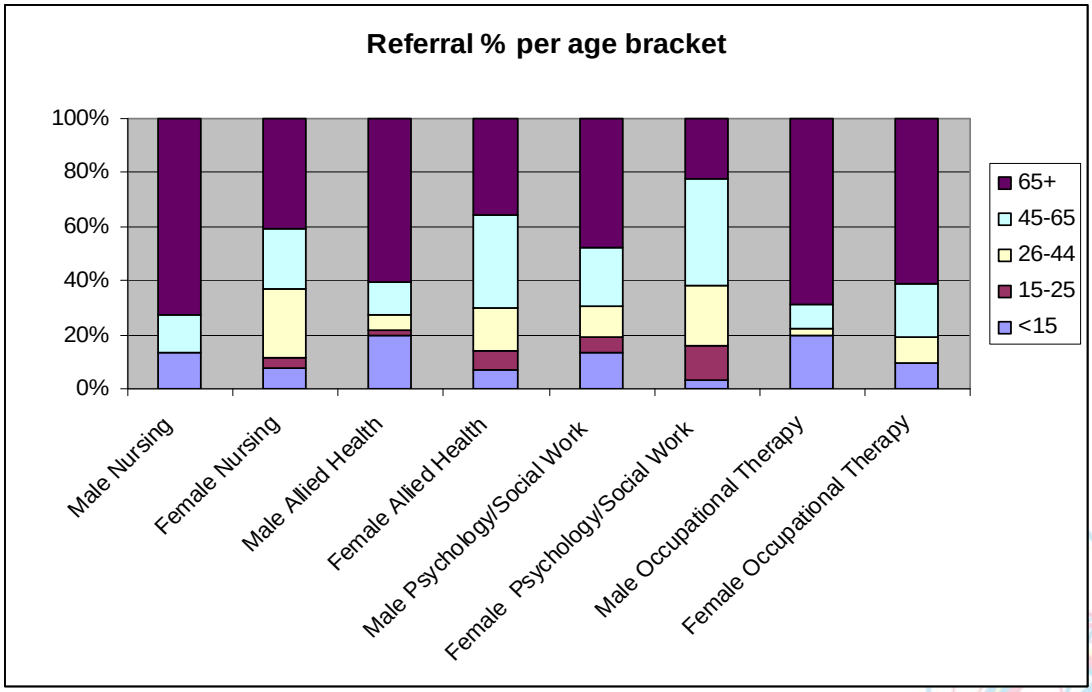


**Figure 4 Age and Gender of *farm clients* accessing community health services**

When *farm client* characteristics of gender and age were linked to service intervention, the complexity of rural generalist practice and distinct patterns of service usage emerged for nursing and allied health services as well

as for the two most frequently identified allied health departments of Psychology / Social Work and Occupational Therapy. Significantly male *farm clients* over the age of 65 years and male farm clients under the age of 15 years access both nursing and allied health services more frequently than female *farm clients* of the same age bracket. This data has implications for rural training needs particularly as the system moves towards evidence based practice. Noting that some of these services, for example; children attending speech pathology, are likely to be for developmental issues.

### Stage 2 Data (July 2002 to January 2011)

A snapshot of 254 farm clients, accessing Community and Mental Health services from 2002 to 2011, were identified by applying the data collection process described. These *farm clients* were referred for a total of 901 Community and Mental Health Services.

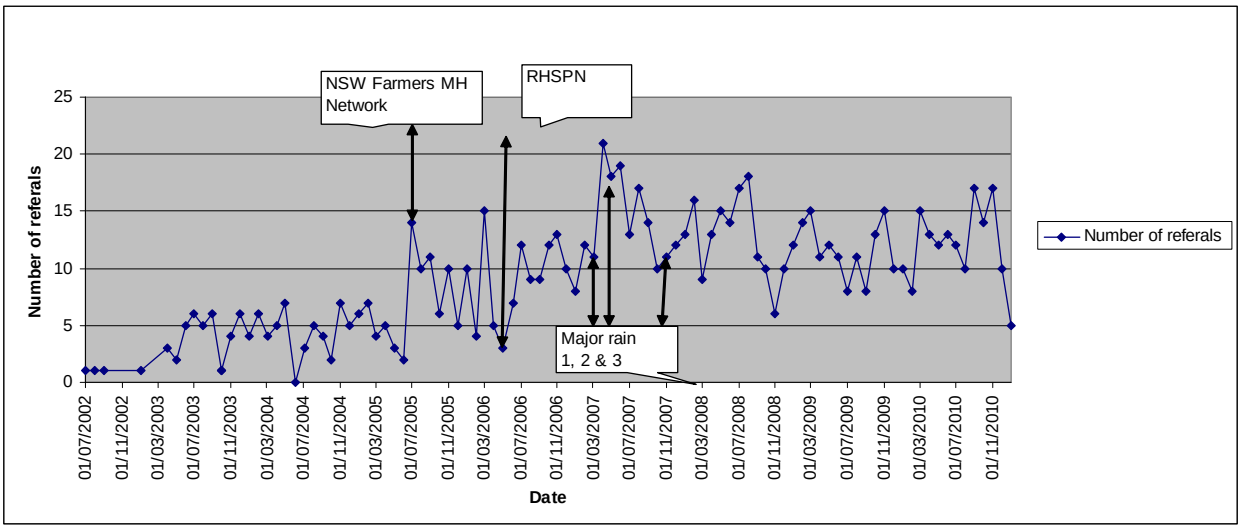


**Figure 5 Farm Client Referrals to Community Health**

Figure 5 illustrates that farm clients contact continued to grow even after the end of the drought in 2007.

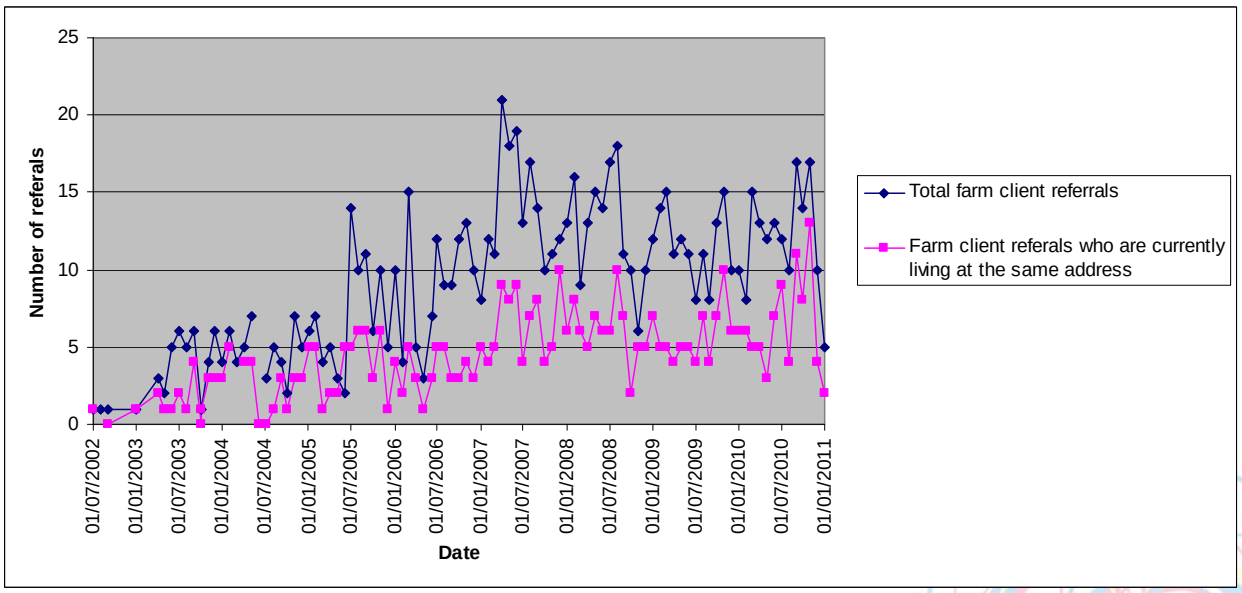


**Figure 6 A comparison of Community Health referrals for total farm clients and farm clients who have changed their address when IPM locked addresses in 2009**

Figure 6 demonstrates that 95 recorded farm clients were no longer living at the address where they lived when they were initially coded as a farm client. Practice wisdom suggests reasons for this mobility would include loss of traditional farm labour to mining or other employment opportunities, and restructure into retirement.

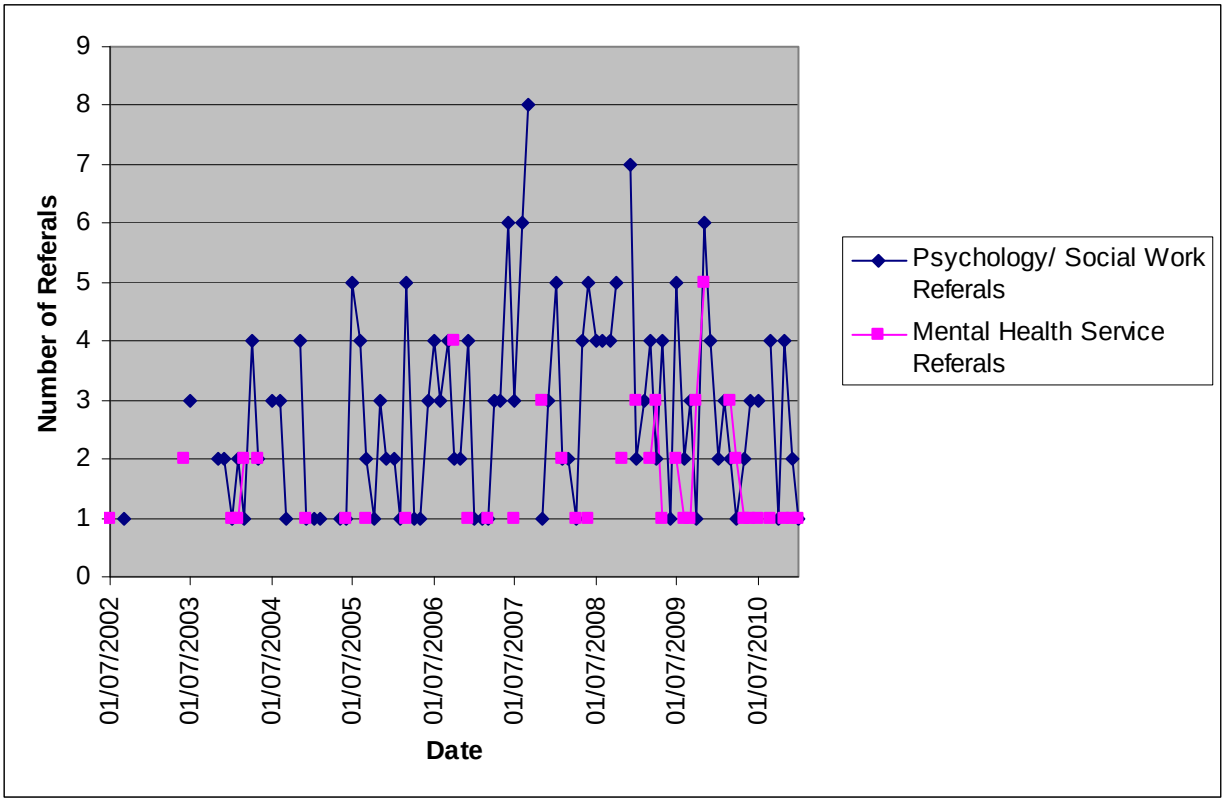


**Figure 7** **A time line of Psychology/ Social Work (including Sexual Assault) and Mental Health Service Referrals**

Figure 7 demonstrates that farm clients accessed Psychology / Social Work services more frequently than mental health services during the time of the drought. However, the frequency of farm clients accessing mental health services increased significantly in the last approximate eighteen months. Practice Wisdom suggests that one explanation for these findings may be the success of recent initiatives to destigmatise mental health issues, particularly in the younger generation. Another explanation may be the changes in the farm client population demonstrated by Figure 7. Younger farm clients may not have developed the resilience traits evident in older farm clients.

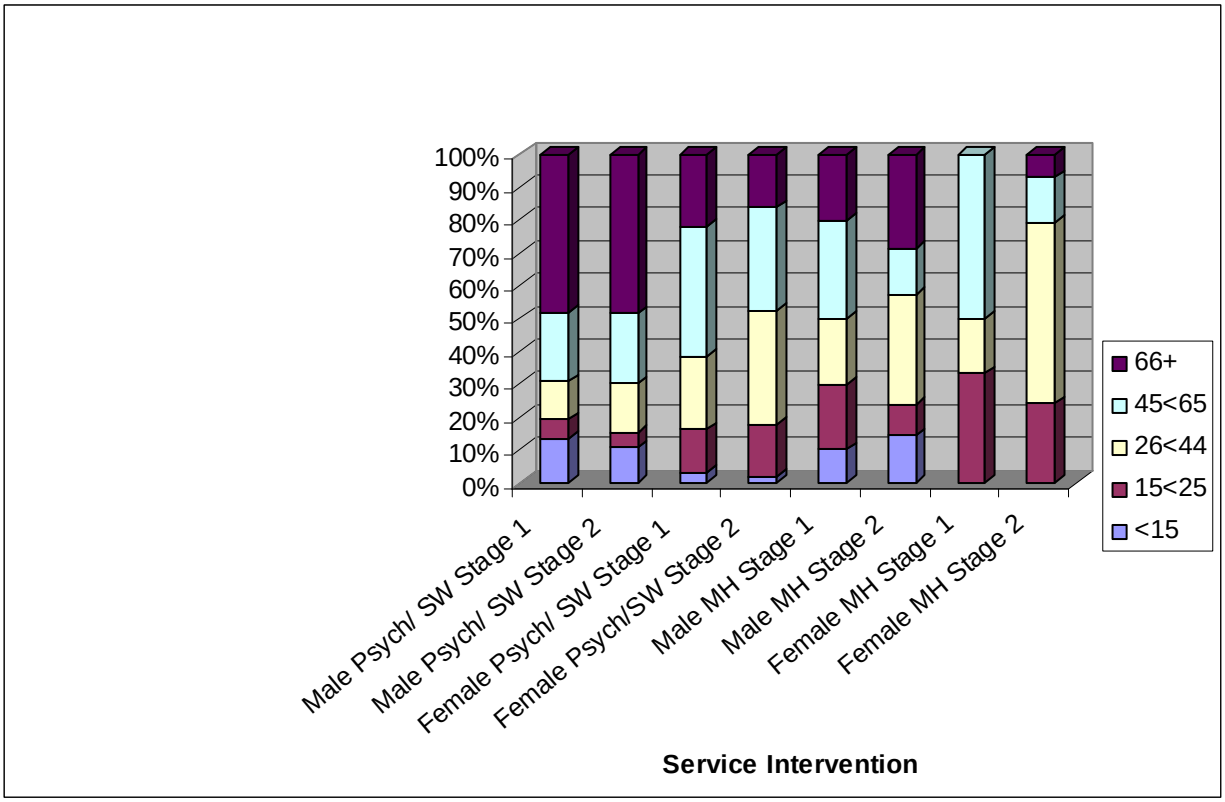


**Figure 8 Age and Gender of *farm clients* accessing psychology/ Social Work and Mental Health Services**

Figure 8 demonstrates the changing profile of female farm clients. The stage 2 data suggests that approximately 70% of farm client referrals to Psychology / Social Work are women and 30% are. In contrast the profile of male clients accessing Psychology / Social Work services remained relatively static in both the stage 1 and stage 2 data. Practice Wisdom suggests that one explanation for these findings maybe the introduction of the Acute to aged related care team who are often the first port of call for hospital referrals

The number of farm client referrals made to Mental Health services has increased approximately 66%, in particular the number of young women (26-44 years) and the older farmers over the age of 65+. Stage 2 data suggests that of the farm client referral to mental health services approximately 42% are for males and 58% are for females.

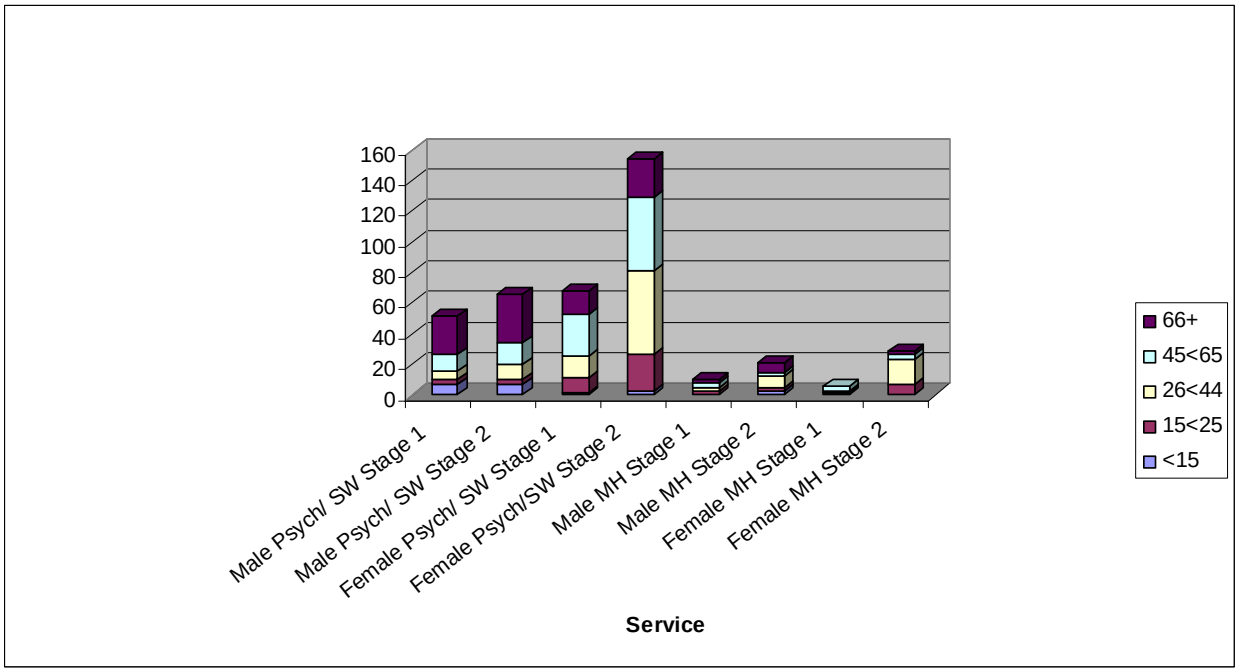


**Figure 9 Age and Gender of reported *farm clients* accessing psychology/ Social Work and Mental Health Services**

Figure 9 demonstrates the significant increase of women aged 15 years and over accessing Psychology/ Social Work Services as per the Female Psychology / Social Work stage 2 results. The literature review and practice wisdom suggests that these women are juggling multiple roles[5] and while they may have coped well during the crisis, when the climatic conditions improve they may often struggle emotionally and psychologically.

## Discussion

The results of the farm family data mining project suggest that increased numbers of *farm clients* are being identified as accessing a broad range of Community Health Services. The data also appears to confirm the literature in that network formations are strong influences in service usage, in this instance the formation of the NSW Farmers Mental Health Network in 2005 and the RHSP Network in 2006. The mobility of the farm client group supports the need to maintain the networks to ensure that the changing farm client population is aware of pathways to health care.

A pattern of service usage has also emerged in relation to major rainfall events 1, 2 and 3. The reported referral rates were significantly higher in “major rain 1” than after the formation of the NSW Farmers MH Network, after the formation of the RHSP Network and “major rain 3”. The project team has concluded that the fact that *farm clients* are increasingly accessing a broad range of services would indicate that a multi-level and multidisciplinary approach, consistent with best rural Social Work Practice, is important when planning to increase client access for better mental health outcomes.

Data mining revealed a changing service profile of farm clients accessing Community Health Services. The stage 2 results demonstrate an increased frequency of women, particularly young women accessing both Psychology/ Social Work and Mental Health Services.

This work is of significance as there is concern about men’s mental health issues and use of service in Australia. The Beyond Blue, a national five-year initiative established in October 2000, website “Men are less likely than women to seek help for their health problems. Perhaps this is part of the male image of self-reliance: ‘take charge’, ‘I can cope’. In addition, men are not very good at seeking out friends for support, or going to the doctor for professional help.”[11]

These results of this sociological study are consistent with the service usage data reported in other studies including

- A review of the New South Wales Rural Mental Health Support Line[8] which operated during the drought reported that " The number of female and male callers was comparatively even. However, in any given month the numbers could be skewed significantly. "

- An initial review of Medicare funded mental health services by Crosbie & Rosenberg[12] reported that Women 25-44 years were the greatest beneficiaries of the MBS measures and Boys aged 5-14 years appear to be the only male group gaining access to MBS items more frequently than their female peers.

- A more recent study[13] undertaken by the Australian Psychological Society (APS) suggests improved access to mental health services, particularly by relatively younger residents Psychologists reported that 36% of people seen under the initiative were 25years and under, 57% were aged between 26 and 65 years, and 7% aged over 65 years.

- A study undertaken of the Lifeline 24 hour/ 7 days per week telephone counselling service[14] reports that their services are twice as likely to be accessed by women with women aged between 35 and 44 years reported as making the highest number of calls.

- A follow up report by the Lifeline telephone counselling service[15] revealed 33.5% of callers were males and the average age of both male and female callers was 45 years.

However, one significant feature of the Community Health Data was that many of the farm clients accessing the service were recorded as never married, divorced or widowed indicating a highly socially isolated client group.

Further analysis of the Stage 2 CHIME Data referral resource report revealed that there were no recorded referrals made to Psychology/Social Work by either the Drought Support Workers or the Rural Financial Counsellor. Although the project team report to have regularly linked farm clients to these services, cross referral is not currently captured or available through CHIME reports. This may possibly explain why some of the RHSP Network partners expressed the views at the initial meeting that farmers did not access health services.

## Limitations

This study was restricted to the Upper Hunter Community HealthTeam, a public health service and only considered levels of referral and did not assess service quality. Nor could the results be generalised across other rural communities and health services.

The project was reliant on busy and changing clinicians and administration staff to code farm clients both retrospectively and on receipt of referral over a period of years. It was also reliant on the busy CHIME team to prioritise our data request, forward timely data results and clarify any areas of concern.

This busy project team did not have access to Statistical Package for the Social Sciences (SPSS) software. This created additional time demands, limitations in data analysis and reliance on external assistance.

The search variables were limited to existing CHIME data categories and opportunities exist to add additional strength based data categories at the next CHIME Review.

The results raised more questions than they answered, a finding common to data mining research as does other forms of research when they are done properly. The need to keep an open mind is always important in data-mining or for any research.[16] Further research is required to track the farm client's pathway into health and between the Community Health team as well as to determine the quality of the services provided.

## Conclusions

The two authors, who are both practicing and experienced clinicians, enjoyed reading the literature, linking theory to practice and analysing Chime data to reveal the outcomes of the new initiatives.

An initial report of this study has gained organisational recognition and acknowledgement of the vital importance of the work of the Rural Hunter Service Providers Network. The work demonstrates that rural community health i.e. flexible accessible locality based services, provides a unique range of early intervention

services which complement the services provided by its network partners including the Medicare funded mental health services and Lifeline telephone counselling service.

The identification of unique and changing gender profiles of farm clients accessing community health services provides valuable practice based evidence to develop understanding of the complexity of generalist rural practice and improve farm clients' pathways to health care.

The identification of farm client contact across a range of health disciplines supports the imperative to provide targeted training in farm family cultural awareness, mental health literacy, mental health, building networks and maintaining cross discipline and interagency relationships to raise awareness of the unique and compound effects of population and climatic change on farm client and their families' health outcomes, and thereby ensure appropriate effective care and referral pathways for farm clients.

The complex changing client profile of the Psychology/ Social Work services adds to the ongoing calls for rural training and skill development to achieve timely, appropriate, effective and responsive health care with a focus on early intervention.

The evidence informed practice has the potential to shape rural policy development which is responsive to rural context and reflects the changing needs of farm families. The project findings add to the body of knowledge related to farm client access to health services and statistically demonstrated improved pathways to Community Health Care. The project time allows changing demographics of the client group accessing health services to be identified.

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