

The mental health of farmers

A. Gregoire

Rural Mental Health Research, University of Southampton, Southampton, UK

Farmers are subject to a number of unique occupational stressors, many of which have been aggravated in recent years by changes in farming practice and by economic factors. These are probably part of the explanation for the high rates of suicide in farmers and farm workers, which in the UK account for the largest number of suicides in any occupational group. Suicide is usually associated with mental illness, which, in farming communities, appears to be particularly stigmatized and poorly understood. This affects health-seeking behaviour, which is compounded by the geographical isolation and inaccessibility of many services in rural areas. Our current understanding of these issues suggests a number of potentially valuable interventions.

Key words: Farmers; mental health; mental illness; rural; suicide.

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Introduction

Recent figures released by international accountants Deloitte & Touche [1], based on their client group covering 250 000 acres of farmland, reveal the depth of the decline in farming income that has occurred in the UK in recent years. The average income from a 500 ha farm fell from £80 000 in 1995/1996 to £2500 in 2000/2001. This dramatic drop was not just the result of the BSE (bovine spongiform encephalopathy) and foot and mouth crises, but applied across all sectors of the farming industry as a result of the fall in the price of wheat and other produce, as well as poor recent harvests. This decline in income was seen despite a 10% increase in efficiency, which resulted from farmers cutting down overheads. These changes are not just of theoretical interest to economists and accountants, but represent a highly relevant increase in the economic stressor which has consistently emerged as one of the important predictors of psychiatric morbidity and even suicide. This review will examine the influence of this and other factors on psychiatric morbidity and mortality in farmers, and the potential for preventative interventions.

Farmers and agricultural workers, uniquely amongst the main occupational groups, live and work almost exclusively in rural areas. It is therefore important to understand the nature of rural areas in the context of health and health care. Although almost 90% of the land

in the UK is rural, <20% of the population lives in rural areas. Rural areas have a similar mix of industry and services to urban areas, but greater proportions of the rural workforce are self-employed, employed in their own homes or work part-time. Although the most dramatic drop in income over the past few years has occurred amongst farmers, the proportion of men and women in rural areas who earn low wages is greater than in the rest of the population of the UK [2]. Rural areas have less social housing than urban areas, and housing is a particular concern to agricultural workers and tenant farmers whose housing is frequently tied to their work, which has become increasingly insecure as a result of the mechanization of farming and the drop in farm incomes. Access to all types of services, including health, is poor, particularly in remote rural areas, and this particularly disadvantages older people, the disabled and the rural poor because of the dependency on cars as the main means of transport.

Although the prevalence of most mental health problems in rural areas in the UK appears to be significantly lower than in inner-city areas, the range of services that people with mental health problems can access in rural areas tends to be very limited [3]. This relative inaccessibility to services appears to be compounded by a greater sensitivity to the stigma of mental health problems and greater concerns about confidentiality in small rural communities [4]. This has been confirmed by a recent study which showed that perceived stigma about mental health interventions and services has a negative impact on

Correspondence to: Dr Alain Gregoire, Rural Mental Health Research, University of Southampton, Tatchbury Mount, Calmore, Southampton, UK. Fax: +44 23 8087 4360; e-mail: alain-gregoire@lineone.net

help-seeking behaviour in rural areas but not urban areas [5].

The life of farmers

The lifestyle of farmers is inextricably linked with their work, not only because of the long hours (>70% of farmers work >10 h/day [6]), but also because the majority live on their farms, which are relatively isolated. In addition, few farmers take holidays, and their lives are governed by often unpredictable forces such as weather, disease and problems with animals and farm machinery. Farmers are almost unique as a group whose work is so intimately tied with every aspect of their lives and the lives of their families, often across several generations.

The most important stresses in farmers' lives, identified in several studies in the UK and abroad, appear to be worries about finance [6–8]. This is obviously particularly relevant in the UK in the current economic climate. Time pressures emerged as the second most important factor associated with illness in the study by Eberhardt and Pooyan [8]. Time pressures are not only related to the amount of work that farmers have to do, as illustrated by long working hours, but are rendered particularly stressful because of the unpredictability and the seasonal variation in the workload. Furthermore, the burden of paperwork and administration is very keenly felt by farmers, particularly those on small farms who feel they have benefited less from agricultural policies and often have to shoulder the burden of complex administrative work without any assistance. In a survey of farmers attending an agricultural show [9], coping with paperwork emerged as the highest ranked stressor. In addition, the administrative demands on them often coincide with particularly busy times on the farm.

Geographical and social isolation are frequently cited as major psychosocial risk factors affecting the health of farmers. There is some evidence that the social networks of farmers are shrinking [10], and it is clear that increasing mechanization and efficiency savings on farms have led to more isolated patterns of work, with fewer shared tasks. Spouses increasingly have jobs outside the farm to maintain family incomes. However, a UK survey of farmers indicated that very few lack daily contact with other people, with 90% stating that they had a confidant and two-thirds having two or three close friends [6]. In a survey of 203 Northumberland farmers, farm workers and farmers' wives [11], 87% reported having a confidant and two-thirds saw a family member or friend at least once a week. Interestingly, more men than women described having a confidant at home and men described having a greater number of close friends than female respondents. A more selective survey of farmers attending a national agricultural show [9] revealed that they considered social isolation to be the least important stressful

factor in their lives. Despite these findings of apparently low rates of social isolation amongst farmers, the importance of social contact, social support and confiding relationships to their mental health emerges clearly from a number of studies of both psychological morbidity and suicide (see below).

In a survey conducted by Hawton *et al.* [6], one-third of the farmers were found to have physical health problems that interfered with their work. Not surprisingly, physical health was more likely to be a problem in older farmers, but it also affected a quarter of farmers under the age of 50. The most common problems described were back pain and arthritis. Physical health is an area of particular concern to farmers, both because of their high risk of occupationally related accidents and ill-health [12], and because of the impact that disabling physical symptoms can have on their livelihood and the future of their farm [6,13].

Farmers' mental health

A recent postal survey of 203 farmers in Northumberland used a standardized self-rating scale (Hospital Anxiety and Depression Scale; HADS) to measure levels of depression and anxiety [11]. The results, using two commonly applied cut-off levels to define severity of disorder, are shown in Table 1. The study found that rates of morbidity were generally higher in women than in men, as would be expected from findings in the general population.

Men appeared to be relatively protected by being married or by having a confidant at home but, interestingly, married women were at higher risk, possibly because they are the main source of support for their husbands. This is in contrast to the findings of a study conducted in Iowa by Lorenz *et al.* [14], who found that support from the spouse protected male and female farmers from stress. Other protective factors identified in the Northumberland study included for men, frequent leisure activities and having close friends, and for women, having a confidant and having had a recent holiday. Good physical health was a protective factor for both men and women.

This association between physical health and depressive symptoms is consistent with findings of other studies. For example, Linn and Husaini [15] found that chronic

Table 1. HADS scores amongst a community sample of farmers (from [11], with permission)

HADS scores	Anxiety	Depression
0–7 (none)	82 (40.6%)	128 (63.4%)
8–10 (mild)	59 (29.2%)	49 (24.3%)
11–21 (severe)	61 (30.2%)	25 (12.4%)

physical symptoms were the main predictors of depression and a rare prospective study found that back pain was an important predictor of suicide on follow-up over a 13 year period [16]. It may, of course, be that physical symptoms are, at least in part, a symptom of stress and psychiatric disorder, rather than just aetiological factors. This is suggested by the findings of Walker and Walker [17], who described a higher rate of stress symptoms in Canadian farmers compared with non-farmers, including not only psychological symptoms such as tension, poor sleep and irritability, but also higher rates of physical symptoms, in particular tiredness and back pain. It may be that farmers are more likely to present with somatic rather than psychological symptoms of depression and anxiety, as suggested by Booth *et al.* [18].

Although the assumption is sometimes made that farmers are at higher risk of suffering from alcohol problems, research findings suggest the opposite. Studies in the UK, Canada, Sweden and the USA have all found relatively low levels of alcohol abuse amongst farmers [11,17,19,20]. Some caution should be used when interpreting such findings, because most of these studies do not include farmers who have stopped working or retired. Given the nature of the work and the impact of alcohol abuse, it may be that these studies suffered from a response bias, as farmers who had to cease work because of alcohol problems might have been excluded from the sample. Whatever the prevalence of alcohol problems, it is clinically important to note that the presence of alcohol abuse amongst farmers has been associated, in a prospective study, with a greatly increased risk of accidental death (odds ratio 10.9) and an even greater increase in the risk of suicide (odds ratio 13.2) [16].

Apart from the psychosocial risk factors discussed earlier, which form part of the normal life of farmers, recent attention has been given to the possibility of neuropsychological effects from organophosphate exposure. The belief that organophosphate exposure has led to a range of such symptoms is common amongst many in the farming community and is a considerable source of distress to those who suffer symptoms, because they often feel that these are not being taken seriously. The evidence on health effects of organophosphate exposure was considered in a joint report by the Royal College of Physicians and the Royal College of Psychiatrists [21] in 1998. This highlighted the inadequacy of the available literature, and the authors were unable to reach clear conclusions about any association between organophosphates and neuropsychological symptoms. Although there may be some evidence of cognitive disturbance in association with organophosphate exposure [22], the evidence on psychiatric morbidity and suicidal ideation or behaviour is anecdotal. The toxic effects of organophosphates are discussed elsewhere in this series [23].

Suicide

Farmers account for the largest numbers of suicides amongst any single occupational group in the UK. Between 1991 and 1996, there were 190 suicides amongst farmers in the UK. Suicide is the second most important cause of death in young farmers after accidents, and is an important cause of mortality in older and retired farmers and amongst farmers' wives. High rates of suicide have also been described amongst farmers in other parts of the world, including the USA [24,25], Sweden [20], France [26] and India [27]. Although 80% of the population of India are farmers, there has been little research into the factors associated with suicide, which may be very different from those in the developed world. The possibility of regional variation within England and Wales has been examined both by county and by type of farm, but no significant heterogeneity has emerged [28]. However, farm size does appear to have a significant impact: in the study by Hawton *et al.* [6], of the sample for whom farm size was known, 92% of farmers who committed suicide had farms of <300 acres, compared with 70% of farmers in the group who did not commit suicide. This is consistent with the findings on stress described above, which suggest that farmers with smaller holdings suffer more stresses with fewer supports.

The methods of suicide used by farmers differ markedly from the general population as they are much more likely to use firearms (usually shotguns) and less likely to take overdoses or use car exhaust [18,29]. However, in 1989, changes in the law in England and Wales covering the registration, ownership and storage of shotguns led to a marked decrease in the use of shotguns as a means of suicide amongst farmers and this has now been overtaken by hanging as the principal suicide method. This is a further example of the influence that access to means has on suicidal behaviour and suicide rates, which is well documented in the literature [30–32]. In general, a reduction in access to a particular means of suicide leads to an increase in the use of alternative methods, but often to an overall decrease in rates. Any fall in rate is obviously proportionate to the prior frequency of the method used.

This exploration of the methods used for suicide is not only relevant to potential interventions, but is also crucial to understanding the link between the suicidal intent and behaviour and the fatal outcome, as methods vary in their lethality. Shotguns are a much more lethal method of suicide than drug overdose, which may in part explain the higher rate of suicide amongst farmers. This possibility is also supported by the low rate of non-fatal deliberate self-harm amongst farmers when compared with the general population. This explanation would suggest that suicide amongst farmers would be more likely to result from impulsive acts than suicide in the general population. There is some evidence to support this, e.g. the

finding of Booth *et al.* [18] that only 21% of farmers who killed themselves left a suicide note compared with 41% of non-farmer controls. However, this is not consistent with the findings of Hawton *et al.* [6], who stated that 'nearly all [farmers] showed evidence of clear intent'. In that study, half of the farmers had left a suicide note, approximately half had declared suicidal intent to someone and the proportion of suicides compared with open verdicts was greater in farmers than that amongst other males.

The factors associated with suicide in farmers in England and Wales have been investigated in a psychological autopsy study conducted by Hawton *et al.* [6]. These included not having a confidant (>50% of suicides compared with <10% of non-suicides), and stresses associated with work finance, legal problems, physical health and relationships. However, the most common single factor was the presence of mental health problems, which was found in 82% of farmer suicides. In most cases, the evidence suggested the presence of depressive illness, and one-third were receiving treatment with antidepressants. Two-thirds of the sample had seen their general practitioner (GP) in the previous 3 months, but often with physical symptoms, and it was noted that farmers and their families often lacked knowledge about mental health problems and the ways in which symptoms might be expressed.

Interventions

A number of interventions have been developed for farmers which aim to deliver mental health promotion, support, treatment and suicide reduction, and the literature reviewed above suggests further opportunities.

Mental health promotion

Because we know that farming is associated with high levels of stress, that farmers and their families often know little about mental health difficulties, and that the stigma of mental health problems is often a barrier to seeking help, there is clearly a role for targeted mental health problem strategies. These should aim to increase awareness, educate about problems and coping strategies, and generally contribute to the de-stigmatization of both the problems themselves and the seeking of help. Government and non-government organizations associated with both health and the farming community all have contributions to make. Such promotion could take the form of articles in the farming media, self-help materials distributed to farmers and leaflets available in appropriate locations, such as at auctions and in veterinary practices. Educating the younger generation through programmes in rural schools is particularly appropriate in view of the transgenerational nature of farming. Good examples

of such activities already exist, principally from non-government organizations such as the Samaritans [33], the Rural Stress Information Network and RuralMinds. For example, the 'Foot and Mouth First Aid Kit', an information card written and widely distributed by RuralMinds, addressed the recognition of stress, offered coping strategies and gave information on where to seek help. The delivery of such initiatives by non-government organizations rather than health services may be particularly appropriate as farmers seem more likely to visit their GPs for acute problems rather than for issues which may respond to health promotion or prevention [34].

Recognition and effective management of mental health difficulties

Several non-government organizations involved in health-promotion activities targeted at rural communities also provide various forms of support, advice and counselling. These include the organizations mentioned above, as well as the Farm Crisis Network, 'Don't Panic' and a growing number of local associations who provide telephone or face-to-face contact with volunteers within the farming community or with specially trained staff, as well as helping farmers to access specialist advice.

The main challenges for primary care in this area are to encourage farmers to seek help for mental health as well as physical health problems, to recognize underlying mental health problems even when they present as somatic symptoms and to minimize the relative inaccessibility of primary care, particularly in more remote rural areas. An example of an outreach model designed to deliver general health care to farmers in North Lancashire and South Cumbria using nurse practitioners is currently being evaluated by the University of Lancaster Institute for Health Research [35].

Suicide prevention

A discussion of the strategies that can be employed for suicide prevention in general is beyond the scope of this review. Such strategies involve areas of law and policy, public health, roles for various government and non-governmental agencies, as well as raised awareness, training and changes in practice in many areas of health care [36]. However, the literature on suicide in farmers suggests a number of specific interventions which have the potential for reducing the numbers of farmer suicides. First, the close association between suicide and mental health problems means that the range of actions that can be taken to predict, prevent, detect and treat stress and mental health problems in the farming community can also have an indirect impact on suicide. Secondly, formal or informal methods restricting access to firearms by farmers in general, and particularly by farmers who are thought to be at increased risk, are likely to impact on

suicide rates. The difficulty with such strategies is that the farming community in general is very resistant to any restrictions on their access to shotguns, which are perceived by most farmers as essential tools for their work and, indeed, by some as an inalienable right or an essential part of their heritage. Thus, although there have been frequent discussions about increasing formal restrictions on ownership of shotguns by farmers, such action has not been taken. There is probably a greater potential for temporary voluntary restriction amongst farmers who might be at risk. The findings of Hawton *et al.* [6] suggest that access to shotguns amongst the farmers who committed suicide had rarely been restricted, even when the risk had been recognized by family members and others. Thus, raised awareness about this issue within the farming community, amongst formal and informal support networks, and in primary health care teams has the potential for reducing the number of suicides amongst farmers at risk. Thirdly, specific practical support for farmers, for example with financial problems, retirement, housing, and retraining for those who wish to leave farming but feel trapped, has the potential for reducing the hopelessness which is known to be associated with suicide risk and which is felt by so many farmers. Finally, strategies for increasing the social supports available, particularly in the more isolated areas, could have a significant protective impact. Examples of initiatives include support for self-help groups, befriending schemes and even an introduction service specifically for farmers run by a national magazine with a rural focus.

Conclusions

The recent BSE and foot and mouth epidemics in the UK were acute and extreme examples of farming crises which received considerable public attention and some sympathy for farmers. However, health professionals, government agencies and non-governmental organizations were already becoming aware of the increasing occupational stresses faced by farmers and the effects of these on their mental health and, in particular, their mortality through suicide. A number of initiatives have now been established, principally by non-governmental organizations, to provide health promotion and support to farmers, but there is still considerable room for improvement, including a need to increase awareness amongst health professionals and to overcome barriers that exist in the effective delivery of health care to this population.

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