

2008b), and the elderly population size of the three constituent countries was significantly different.

On multiple regression analysis, the suicide rate among males in the age-band 65–74 years in the whole of the U.K. was significantly predicted by suicide rates in males in the age-band 65–75 years in England and Wales ( $P < 0.00001$ ), Scotland ( $P < 0.00001$ ) and Northern Ireland ( $P < 0.00001$ ). The findings were identical for suicide rates in males in the age-band 75+ years and females in the age-band 65–74 years. However, suicide rates in females in the age-band 75+ in the whole of the U.K. was only significantly predicted by suicide rates in females in the age-band 75+ for England and Wales ( $P = 0.01$ ).

There is a differential effect of gender and elderly age-band from each of the three constituent countries to the overall elderly suicide rates in the U.K. This finding needs to be considered in the interpretation of the impact of the suicide prevention strategies of the three constituent countries on the elderly suicide rates for the whole of the U.K.

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## Aggressive behavior by patients and its relationship to nursing staff attitudes and perceptions

Continuing care old age psychiatry units often have high levels of behavioral disturbance. Shah (1999) reported that levels of aggressive behavior can be influenced by several factors including patient variables, patterns of hospital use and the nature of the ward environment. The ward environment includes variables such as staffing levels, staff attitudes and perceptions, staff morale and the character of staff-patient interaction. The

relationship between aggressive behavior and the nature of the ward environment has been less well studied. We carried out a study to examine the relationship between aggressive behavior by patients, nursing staff attitudes and perception and stress amongst nurses. We report findings from our study on the relationship between aggressive behavior by patients on old age psychiatry wards, nursing staff attitudes and perceptions.

Ethical approval for this study was granted by the local Ealing Research Ethics Committee. The study was carried out over a three-month period, on two 16-bed old age psychiatry wards on the John Conolly Wing, St Bernard's Hospital, serving a catchment area of 40,000 older people. All patients

were included in the study with both wards often at full occupancy. The patients studied were all over the age of 65 and had a functional or organic mental disorder.

One senior nurse on each ward completed the RAGE scale (Patel and Hope, 1992) to measure aggressive behavior on all patients at monthly intervals. The RAGE scale is a 21-item scale that provides a composite measure of the quantity and severity of aggressive behavior. Although the original RAGE scale was designed to measure aggressive behavior over the preceding three days, it has since been adapted for use over the preceding week because the original reliability study reported little change over a week. This has been confirmed by a previous study on continuing care psychogeriatric wards (Shah and De, 1998).

The attitude and perception of nursing staff toward patients was measured using the MAS (Malignant Alienation Scale). The original alienation scale (Morgan and Stanton, 1997) had been developed for use among younger psychiatric patients to measure the phenomenon of malignant alienation. The MAS is an 8-item scale measuring the following items: (1) feeling distant from the patient, (2) deliberate use of symptoms by the patient, (3) alienation of the patient, (4) vulnerability of the patient, (5) withdrawn/uncommunicativeness, (6) variable mood, (7) depression, and (8) aggression. The MAS has previously been used with old age psychiatry patients (Baheerathan *et al.*, 2000). In our study, the MAS was completed at monthly intervals by a senior nurse on each ward. Information used for completion of the MAS included direct nursing observations, nurse/patient interactions, nursing handovers and nursing notes and informal nursing discussions over the preceding month. Training was given to nurses at the start of the study by one of the researchers (IN) and also throughout the duration of the study.

Spearman's rank correlation coefficient was used to examine the correlation between the RAGE scale and the MAS. The correlations between the RAGE and MAS scores were similar for each month so we combined the data for all three months.

Ratings from 97 patients were collected and analyzed. Data were missing from seven patients in the final month and so these were excluded. We correlated the RAGE scores with the MAS scores and the MAS subscales for period 1 and then all 3 periods.

Our study showed a correlation between the RAGE total score and the MAS total score ( $\rho = 0.4$ ,  $p < 0.0001$ ). The total RAGE score showed a positive correlation with five out of the eight MAS sub-items. These sub-items were: feeling distant from the patient ( $\rho = 0.48$ ), alienation of the patient

( $\rho = 0.32$ ), withdrawn/uncommunicativeness ( $\rho = 0.216$ ), variable mood ( $\rho = 0.24$ ) and aggression ( $\rho = 0.62$ ).

Although the MAS was developed for use on adult psychiatry wards for patients with suicidal behavior, it has since been used on a continuing care psychogeriatric ward showing modest internal consistency and inter-rater reliability (Baheerathan and Shah, 2000). It is possible that some behavior may have been missed because our MAS ratings were done on a monthly basis. We believe that the risk of this occurring was reduced by including information from nursing handovers and by using an appropriately trained and experienced senior nurse to complete the ratings.

Our study showed a positive correlation between the total RAGE score and the following sub-items of the MAS: aggression, feeling distant from the patient, variable mood, alienation of the patient and withdrawn/uncommunicativeness. These findings are consistent with the findings of a similar study in London (Baheerathan and Shah, 2000). We carried out a cross-sectional study that demonstrated evidence of an association between aggression by patients and alienation by nurses. We were unable, however, to establish whether high levels of aggression by patients resulted in alienation by nurses or whether alienation by nurses in turn led to high levels of aggression by patients. It could be argued, however, that irrespective of the direction of causality, nurses should be given training in therapeutic interventions to reduce aggressive behavior. The expectation is that this would lead to an improvement in nursing attitudes and perceptions, thus reducing feelings of alienation. Alternatively, training could focus on improving nursing staff attitudes and their perceptions of patients in order to reduce levels of aggressive behavior by patients. The most effective approach to reducing aggressive behavior is likely to be one that combines interventions aimed at reducing aggressive behavior and improving nursing attitudes and perceptions. Further research will be required to examine the most effective approach to delivering such training.

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### Should ecological studies designed to identify distal risk factors focus specifically on elderly suicide rates or broader age-bands?

Suicide rates increase with aging in many countries (Shah and De, 1998). In a recent study of 62 developed and developing countries, suicide rates increased with age for males and females in 25 and 27 countries respectively, and in both sexes in 17 countries (Shah, 2007). Suicide rates increased with age in 47 of the 49 medium- and high-income countries (Kiemo, 2004). Comprehensive understanding of the substantial worldwide variation in population patterns of suicide may be critical for developing prevention programs (Knox *et al.*, 2004). Much is known about individual level proximal risk factors (Shah and De, 1998) and preventative strategies can target identified high-risk groups (Shah and De, 1998). Also, proximal risk factors for elderly suicide victims are generally different from those for younger suicide victims (Shah and De, 1998). However, distal risk factors may be similar for older and younger suicide victims. Such factors include societal socio-economic status (Kennedy *et al.*, 1999; Shah *et al.*, 2008), societal income inequality (Kowalski *et al.*, 1987; Shah *et al.*, 2008), education (Kowalski *et al.*, 1987; Shah and Chatterjee, 2008), degree of urbanization (Stack, 1993; Shah, 2008a), degree of social integration (Durkheim, 1992; Shah, 2008b) and provision of health and mental health service provision (Shah and Bhat, 2008). In general, preventative measures targeting distal risk factors require development of public health strategies at a societal level.

We have previously suggested that ecological studies should focus on general population suicide rates rather than elderly suicide rates (Shah and Bhandarkar, 2009). However, this suggestion requires further refinement because amalgamation of all age-bands may be less sensitive to identifying

distal risk factors and we present data to support this assertion.

Data on suicide rates for males and females in the seven 10-year age-bands from 15–24 years to 75+ for males and females for the whole of the U.K. and its three constituent countries (England and Wales, Scotland and Northern Ireland) were ascertained from the World Health Organization (WHO) website at [www.who.int/whosis/database/mort/table1.cfm](http://www.who.int/whosis/database/mort/table1.cfm). A full data set was available for the 24-year period 1979–2002. The relationship between suicide rates in elderly age-bands 65–74 years and 75+ years and the five 10-year age-bands between 15–24 years and 55–64 years in both sexes for the whole of the U.K. and its three constituent countries was examined using Spearman's correlation coefficient.

The results for the whole of the U.K. show a significant negative correlation between suicide rates in males aged 65–74 years and males aged 15–24 years ( $\rho = -0.46$ ,  $P = 0.025$ ) and 25–34 years ( $\rho = -0.85$ ,  $P < 0.0001$ ), and between males aged 75+ and males aged 25–34 years ( $\rho = -0.78$ ,  $P < 0.0001$ ). There was a significant positive correlation between suicide rates in males aged 65–74 years and males aged 45–55 years ( $\rho = 0.70$ ,  $P < 0.0001$ ) and males aged 55–64 years ( $\rho = 0.90$ ,  $P < 0.0001$ ); the corresponding correlations for males aged 75+ were almost identical. Suicide rates in females aged 65–74 years and 75+ years were not significantly correlated with those in females aged 15–24 years. There were highly significant positive correlations between suicide rates in females aged 65–74 years and females aged 75+ and females in the four 10-year age-bands from 25–34 years to 55–64 years.

The findings for England and Wales and Scotland were similar. However, there were very few significant correlations between the younger age-bands and the older age-bands in both sexes for Northern Ireland.

The highly significant and strong positive correlation between suicide rates in males in