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Oxford Regional Training Course in Clinical Psychology

Doctorate in Clinical Psychology

Methicillin Resistant Staphylococcus aureus (MRSA):

Psychological Impact of Hospitalisation and MRSA Isolation

in an Older Adult Population, and a Critique of Research Methods Used to Study

Psychological Issues in this Population

Sarah Tarzi

January 1999

Dissertation submitted in part fulfilment of the Open University/

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25000 words including references and appendices

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IN AN OLDER ADULT POPULATION, AND A CRITIQUE OF RESEARCH
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Contents

	<u>Page No.</u>
1.0 Introduction	1
1.1 Methicillin Resistant Staphylococcus aureus	1
1.2 Theoretical Context	5
1.3 Literature Review	11
1.4 Rationale for Current Study	18
1.5 Aims of the Study	19
1.6 Hypotheses	19
2.0 Method	20
2.1 Participants	20
2.2 Description of the Settings	21
2.3 Design	22
2.4 Development of Protocol	22
2.5 Final Measures Used in Main Study	33
3.0 Results	34
3.1 Sample Size and Response Rate	34
3.2 Data Analysis	34
3.3 Description of the Sample	36
3.4 Qualitative Information	39
3.5 Hypothesis Testing	49
3.6 Critique of Measures Used	58

4.0	Discussion	63
4.1	Summary of Research Findings	63
4.2	Interpretation of Results	64
4.3	Methodological Issues	66
4.4	Theoretical Implications	71
4.5	Clinical Implications	73
4.6	Implications for Interpreting Previous Studies and for Future Research	76
5.0	Conclusions	83

References

Appendices

Appendix 1 Interview Schedule

Appendix 2 Information and Consent Form

Appendix 3 Ethical Approval

Appendix 4 Results Tables:

1. Table to Show Kolmogorov-Smirnov and Levene's Test Data for Demographic Variables and for Data Used to Match the Two Groups
2. Table to Show Kolmogorov-Smirnov and Levene's Test Data for Outcome Measures

List of Tables and Figures**Page No.**

Table 1:	Age Distribution for Total Sample and for Each Group	37
Table 2:	Matching and Predictive Data for Each Group Separately	38
Table 3:	Descriptive Data for Outcome Measures for Total Sample and for Each Group	49
Table 4:	Outcome of One-Sample t-tests to Compare Outcome Measure Scores with Community Population Scores	52
Table 5:	Responses of Nursing Staff Regarding Change in Symptoms in Fifteen MRSA Positive Patients Over the Course of Hospitalisation	54
Table 6:	Estimates of Time Spent with Visitors as Rated by Nursing Staff and Patients, and Differences Between Them	56
Figure A:	Coping with the Crisis of Illness (from Moos and Schaefer, 1984)	7a

1. Introduction

Hospital patients who have an infection known as Methicillin Resistant Staphylococcus aureus (MRSA) are routinely isolated in single rooms in many hospitals across the world, to prevent the infection from spreading to other patients. Approximately two thirds of these patients are older adults, who may spend many weeks in isolation rooms. This study aimed to investigate the psychological impact of MRSA isolation on this older adult population.

1.1 Methicillin Resistant Staphylococcus aureus

Staphylococcus aureus is an opportunistic bacterium which is present on the skin of 30% of the normal population. Carriage is particularly common amongst those working in clinical environments such as hospitals. Generally it does not harm fit people, as it colonises the skin without entering the bloodstream. However, it can pose a significant threat to frail and elderly people who are immunocompromised, and who have an increased risk of developing infections, which may in some cases result in death.

In 1960, the antibiotic methicillin was first introduced as a potent anti-staphylococcal agent, and since then there have been frequent reports of resistance to it (Lambert, 1995). The emergence and perpetuation of resistance has been blamed on the misuse and overuse of antibiotics, in medicine and farming, which undermines their effectiveness (Hart, 1998). MRSA is the term used to describe Staphylococcus aureus which is resistant to methicillin, and has become a familiar problem in many hospitals: in US hospitals, the prevalence of MRSA increased from 2.4 per cent in 1975 to 29 per cent in 1991 (Patterson, 1996). Vancomycin is the most common of the limited range of antibiotics that can be used to treat MRSA. Although effective, vancomycin is potentially toxic, and expensive - £53 per day per patient; and is not used to treat patients routinely. In fact findings of vancomycin insensitive MRSA have been documented (Hart, 1998), and the problem of resistance to Staphylococcus aureus and other bacterial agents is increasing.

MRSA spreads through direct contact, often via contamination from the hands of clinical staff to patients. It can also be spread through contact with heavily contaminated surfaces in the environment around patients who are already infected; and through airborne contact from patients with infections such as MRSA pneumonia.

1.1.1 Infection Control Measures

Two of the main infection control measures commonly employed to prevent the transmission of MRSA are:

(1) Hand-Washing Procedures

Much of the nursing literature emphasises the importance of strict hand-washing procedures for clinical staff following contact with MRSA infected patients (eg. Mackenzie and Edwards, 1997; Siu, 1994). Thorough hand-washing is considered the single most effective method for preventing the spread of MRSA.

Nurses often fail to adhere to the hand-washing protocol (Lambert, 1995). Reasons for non-compliance might include the extra time involved for staff under pressure, and the frequent use of harsh agents leading to sore skin. Furthermore, hospital staff do not always believe that MRSA is a serious clinical problem, or that hand-washing would be effective in preventing transmission: MRSA has become very common in hospitals, and for many patients it is perfectly harmless.

(2) Isolation of MRSA-positive patients

MRSA positive patients are usually isolated in single rooms. Sometimes patients admitted to hospital from a known infected area are also isolated. These might include patients coming

from a residential home known to have MRSA residents. They remain isolated until they have been demonstrated to be clear of MRSA.

Other measures include the use of plastic gowns and latex gloves, eradication with antiseptic soaps, and surveillance screening for asymptomatic carriers amongst staff and patients. While the exact measures used vary between hospitals, virtually all hospitals isolate MRSA positive patients, usually in single rooms.

1.1.2 Testing for MRSA

Patients are swabbed in the perineum, throat, skin lesions and nasal area. To be diagnosed as MRSA negative, the patient must produce three consecutive clear swabs over a period of up to three weeks.

1.1.3 Practical Implications of Isolation Policy

Patients with MRSA 'block' single rooms, often for lengthy periods of time, that cannot be used for other patients. Furthermore, MRSA positive patients can not always move to an appropriate ward, because isolation rooms are not always available there. They have limited access to rehabilitation programmes involving physiotherapy and occupational therapy, which are often restricted to their own rooms. Anecdotal evidence suggests that MRSA-positive patients have less contact with staff than patients without MRSA. Staff may wait until there are several tasks to be performed for the MRSA patient, before entering their room, because of the need to put on gloves and gown, and to wash hands on each occasion.

1.1.4 Clinical Relevance of MRSA Isolation

MRSA isolated patients have extremely limited contact with the outside world. They are seldom able to leave their room, opportunities for stimulation are limited, and they have no contact with other patients. Staff enter their rooms primarily to carry out nursing duties. Further, the social support network of older adults is often limited. Thus there may be some adverse psychological effects on older adults isolated due to MRSA diagnosis. These could be exacerbated by being ill and being in a hospital environment, in which they have little independence, and few choices. Furthermore, such an environment which is lacking in stimulation, and which provides few cues about the outside world, might lead to disorientation, particularly if they spend a prolonged time in an isolation room.

1.1.5 Summary

MRSA is a bacterial agent that spreads rapidly between patients and staff in hospital, and its potential danger and the difficulties in treating it have resulted in various infection control measures. While strict hand-washing is considered the most effective means of preventing MRSA spreading, isolation of patients in single rooms has become common practice. Clinically, this means that patients may have less contact with staff and visitors than other patients, and have limited access to rehabilitation programmes. They spend almost all of their time in their single room, and this may continue for several weeks or even months until discharge. Such patients might be particularly vulnerable to depression and other adverse psychological effects of this restrictive life-style.

1.2 Theoretical Context

1.2.1 General Theoretical Context

Much of the research on older adults appears to be empirically rather than theoretically driven. However, psychological theories and models from other areas are relevant to the psychological impact of hospitalisation and isolation, and this study will draw on theoretical frameworks from cognitive, behavioural and health psychology.

Behavioural models suggest that isolation might lead to depression, which is viewed as a function of inadequate reinforcement for adaptive behaviour. For example, Seligman's (1975) 'learned helplessness' model refers to situations in which there is a lack of contingency between actions and their consequences, which leads to a belief in the ineffectiveness of taking action. People in this situation therefore become inactive and helpless. Older adults in hospital isolation have very little choice about any aspect of their lives, including the fact of being isolated. There is no action they can take which will change this. According to Seligman's theory, they might become depressed and inactive because of perceived lack of control over their lives. Lewinsohn's (1975) behavioural model emphasises the inverse relationship between participation in pleasant activities and depression. According to this model, older adults isolated in hospital, who generally have little opportunity to engage in *any* activity, are again likely to be vulnerable to depression.

The cognitive-behavioural model of depression (Beck, 1967) focuses on the inter-relationship between physiology, cognitions, emotions and behaviour. Older adults in isolation in hospital have low levels of stimulation, which might lead to a low level of physiological arousal. This in turn might promote inactivity, low mood and negative cognitions. The cycle of low mood and inactivity is then maintained by continuing isolation.

1.2.2 Theories of Ageing

Taking a life-span perspective, age itself can be seen as the subject of accrued losses that can be overcome or not through acceptance or an adjustment process. According to Baltes (1987), ageing involves a series of behavioural changes that occur throughout life. With age, these changes reflect the increasingly negative balance between gains and losses. The most prominent losses that many older adults experience include retirement, widowhood, the 'empty nest', and peer loss. Older adults in hospital lose their autonomy, their quality of life is diminished by their illness and the hospital environment, and they may lose a high quality social network. These losses might be exacerbated by being in isolation, with social contacts reduced further, and even less freedom.

Baltes (1987) proposes that *successful* ageing generally involves three interacting elements:

- (a) selection: restricting one's range of activities, in line with decreasing potential
- (b) optimisation: choosing to engage in those behaviours that maximise one's enjoyment
- (c) compensation: conducting these behaviours in an adjusted way to reflect the decreased potential available.

These processes allow older people to engage in life tasks that are important to them, despite their reduced potential. However, the restrictions of hospital effectively force the processes of selection and compensation on older adults in isolation. They can not *choose* which activities to restrict, or how to do so. Similarly, opportunities for optimisation are exceptionally limited. Therefore, Baltes' theory would predict that older adults are unlikely to adjust well to hospital isolation.

Havighurst (1948), also taking a life-span perspective, described a conceptual framework that later became known as 'activity theory'. This proposes that in order to maintain a positive sense of self, older adults must substitute new productive roles for those lost in old age. Examples of new roles include involvement in hobbies, voluntary organisations, and membership of a club. Failure to take on such roles leads to unhappiness, and disapproval by

society. Older adults isolated in hospital are not in a position to adopt any such roles, and this theory would again predict a negative outcome for them.

'Disengagement theory' (Cumming and Henry, 1961) takes an opposite view. This assumes that from middle age, people become more inwardly focused, and this results in a natural withdrawal from social roles and activities, and decreasing emotional involvement with others. Evidence for this theory is scarce, and opponents have noted that many older adults resent enforced disengagement, such as mandatory retirement; and they do not withdraw from social activities. This is the only theory that would not predict an adverse psychological response to isolation.

1.2.3 Moos and Schaefer's Crisis Theory as Applied to Physical Illness (1984)

None of the theories of ageing specifically address the impact of hospitalisation or physical isolation. One theory that does look at illness and its impact is Moos and Schaefer's application of crisis theory to the crisis of physical illness, which is summarised in Figure A.

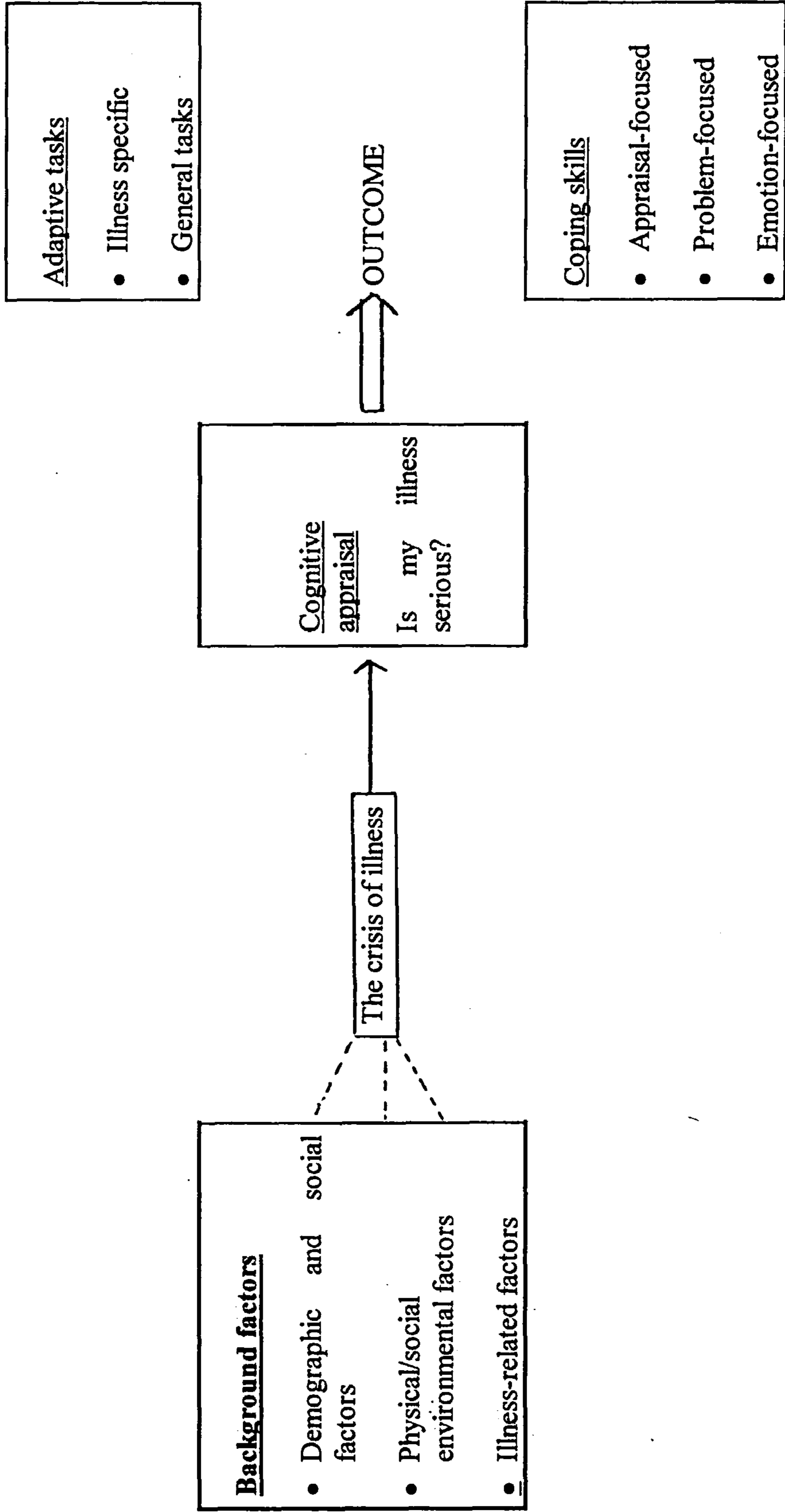
Crisis theory explores how people cope with major life crises. It provides a framework for understanding the impact of illness or injury, and examines the impact of any form of disruption on one's personal and social identity.

Individuals are seen as self-regulators whose psychological systems are driven towards maintaining homeostasis. Crises are therefore self-limiting, as the individual will eventually return to a stable state.

Physical illness causes changes which can be seen as a crisis. These changes might include:

- changes in identity and role (eg. an independent care-giver can become a dependent person requiring care)
- changes in location (eg. going into hospital)

Figure A: Coping with the Crisis of Illness (from Moos and Schaefer, 1984)



- social support (eg. isolation from family and friends)
- future - any previous plans become uncertain.

When the crisis of illness occurs, three processes take place: cognitive appraisal, adaptive tasks and coping skills.

(1) Cognitive Appraisal

Firstly, the individual appraises the seriousness and significance of the illness, influenced by factors such as social support.

(2) Adaptive Tasks

Following appraisal, Moos and Schaefer describe illness-specific and general adaptive tasks which constitute part of the coping process.

Illness-specific tasks involve dealing with pain and other symptoms; dealing with the hospital environment and procedures; and establishing adequate relationships with staff.

General adaptive tasks are described as:

- preserving a reasonable emotional balance, by compensating for the negative emotions aroused by illness with sufficient positive ones.
- maintaining a sense of competence and mastery.
- sustaining relationships with family and friends, even when communication becomes problematic due to changes in location.
- preparing for an uncertain future, which involves adjusting to losses incurred by the illness and redefining the future.

(3) Coping Skills

Moos and Schaefer described various coping skills used to deal with the crisis of illness. These coping skills are appraisal-focused coping, problem-focused coping and emotion-focused coping:

- *appraisal-focused coping* refers to attempts to understand the illness. It can involve accepting the reality of the situation and redefining it positively; or denying the seriousness of the illness.
- *problem-focused coping* involves confronting the problem and reconstructing it as manageable. This might involve information and support-seeking, or identifying alternative rewards, by planning goals that can provide short-term satisfaction.
- *emotion-focused coping* involves managing emotions, through efforts to maintain hope in the stressful situation; venting emotions; or resigned acceptance of the inevitable outcome of an illness.

Individuals appraise the illness and then use various adaptive tasks and coping skills, which determine the outcome, which may be related to psychological adjustment. Moos and Schaefer suggest that individuals use these tasks and coping skills in different ways, and differences in response to illness are determined by three factors:

- background and demographic factors, including age.
- the physical and social environment, such as the accessibility of social support networks, opportunities for activity, and the acceptability of the hospital environment, which can be dull and depressing.
- illness-related factors, such as pain and disability, and levels of functional independence.

All of these background factors are relevant to older adults entering hospital. Their age may make them less able to cope with the crisis of hospitalisation, they are less likely than others to have an accessible social support network, and they are likely to have relatively high levels of disability.

For older adults isolated in hospital, the cognitive appraisal and adaptive tasks may be particularly difficult. Their coping resources might be particularly limited; and older adults in general, and these patients in particular, often have a relatively poor social network. According to the theory, it is thus harder for them to engage in problem-focused coping. The adaptive tasks described by the theory also present problems: it can be difficult for older adults in isolation to maintain good relationships with staff, who they see less frequently than do other patients. The lack of opportunities for engaging in positive activity makes it difficult for isolated older adults to find constructive ways of compensating for negative emotions. With their limited choices over any aspect of their lives, isolated older adults might also be expected to experience difficulty in maintaining a sense of competence.

1.2.4 Summary

While no specific theory makes predictions about the impact of hospitalisation and physical isolation on older adults, conceptual frameworks from behavioural, cognitive, and health psychology are relevant. In behavioural terms, a lack of contingency between actions and outcomes, or a lack of opportunity for engaging in pleasant activities, renders people vulnerable to depression. Older adults isolated in hospital are likely to be in this situation. Cognitive theories make links between the lack of stimulation, low levels of activity, negative cognitions and emotions. Again, older adults in hospital, and especially in isolation, lack stimulation. Ageing theories linking loss with depression likewise predict poor psychological adjustment, where the move to hospital can be viewed as a loss of autonomy, choice, home comforts, social support, or opportunities to adopt meaningful roles. Finally Moos and Schaefer's theory, which views physical illness as a crisis, predicts that older adults might be particularly lacking in the necessary resources to adapt well to this crisis.

1.3 Literature Review

Three areas of research relevant to this study will be reviewed in turn. These are: studies of the psychological effects of physical isolation; studies of institutionalisation in the elderly; and studies of social isolation in the elderly. Methodological limitations of these studies will then be considered.

1.3.1 Psychological Effects of Isolation

Few recent studies of the psychological impact of isolation could be found. Studies of adults and children with leukaemia treated in isolator therapy have demonstrated increased anxiety and dependency on leaving the isolator (eg. O'Connell, 1984); together with depression, withdrawal, regression and hallucinations (Kellerman, Rigler, and Siegel, 1977). Parent's (1978) review of sensory and perceptual deprivation studies in isolated patients, indicated that varied, meaningful tasks and stimuli are needed to support adaptive behaviour in patients isolated in hospital.

Bennett (1983) reported anecdotal evidence which described patients being shunned by domestic staff while in isolation; and Mackenzie and Edwards (1997) reported isolated patients complaining of feeling 'dirty' or 'ignored' and extremely anxious. Ketcham (1981), a registered nurse, described her experiences as a hospital in-patient isolated with pneumonia. She wrote "I can't emphasise enough the need for personal contact". Regarding the buzzer system used to call assistance, she felt that patients would press the buzzer less frequently if calls were answered promptly and in person.

Waldman (1993), writing about the elderly house-bound, observed that confinement and an increasing inability to function in a social environment could contribute to depression, resulting in social withdrawal, loss of appetite and a general lack of desire to thrive.

Kennedy and Hamilton (1997) conducted one of the few studies to date assessing the psychological impact of MRSA isolation. They explored MRSA isolation in patients with a spinal cord injury, and found that the MRSA-positive patients attained *significantly* higher scores than an MRSA-negative control group, for anger; and non-significantly higher scores for measures of depression and anxiety. Both groups demonstrated higher than average scores for depression. Most MRSA patients felt that their isolation had impeded their rehabilitation, and almost half the sample felt isolation had adversely affected their mood. Overall the authors concluded that isolation did not *significantly* affect the general psychological well-being of these patients. However, participants were likely to be psychologically distressed by the impact of their recent hospitalisation and spinal injury, even in the absence of isolation (Kennedy, Lowe, Grey and Short, 1995).

1.3.2 Institutionalisation in the Elderly

Institutionalisation has been defined as the process whereby patients, in, for example, long-stay hospitals, become apathetic, lose interest generally and lose the ability to undertake simple tasks and make decisions. They often fear leaving the hospital and having to cope in the outside world (Morgan, 1991).

Goffman (1961), in his book 'Asylums', documented his conclusions from a qualitative observational study of institutions including psychiatric hospitals, monasteries and prisons. He used the term 'total institution' to describe features common to places where 'a large number of like-situated individuals, cut off from the wider society for an appreciable period of time, together lead an enclosed, formally administered life'. The main features which Goffman identified as common to total institutions were:

- batch living: all 'inmates' are treated alike, and make no individual choices or decisions
- Binary management: staff managing 'inmates', and lack of communication between staff and patients.

- Institutional perspective: various rules, and activities which are supposed to contribute to the official aims of the institution.

These features seem to be about basic quality of life issues: a lack of autonomy for the 'inmates', and a lack of respect towards them by those in charge.

Few institutions resembling Goffman's description can still be found, and there is greater emphasis on a rehabilitative environment, and a scaling down of large institutions, associated with the move towards community care.

However, in large hospitals, the characteristics of the total institution remain and are difficult to overcome (Clark and Bowling, 1990). Many institutions for the elderly have been described as places where there is much apathy, lack of interest and inactivity, with residents having little control over their daily lives, and with an environment that does not appear to support adaptive behaviour (Simpson, Woods and Britton, 1981). Rubenstein, Lubben and Mintzer (1994) more recently remarked that the 'one size fits all' institution 'goes only so far in addressing particular social support and isolation needs, and the often short-handed and overworked staff can only do so much'.

Implications of Institutionalisation

(1) Dependency

Baltes (1988) and Avorn and Langer (1982) have conducted several observational and intervention studies indicating that staff in institutions for the elderly support dependent behaviours in the residents, while ignoring independent behaviours, so undermining their confidence in task performance. This might result in the phenomenon of 'hospital-induced dependency', which Reich (1997) observed in acute hospital settings. This refers to elderly patients who are coping independently outside hospital, but who change their attitude once

admitted. Although potentially able to mobilise and return home, they may appear unmotivated, perhaps justifying their attitude in terms of their right to be cared for.

(2) Loss of Control

Contact with the medical care system itself can lower one's perceived control, and the treatment of illness, especially if hospitalisation is involved, restricts opportunities for control for *all* patients. This is especially true for those who are frequently involved in the health care system, and for prolonged periods of time, as is common in old age (Rodin, 1986). Unhelpful attitudes of staff and relatives who marginalise the patient contribute to a sense of powerlessness for older people. Norman (1980) observed, for example, that paternalistic decision-making on behalf of an older adult by hospital staff and relatives was common. Repeated unequal encounters such as this can generate feelings of disempowerment and anxiety in older adults (Morgan, 1991).

Opportunities for hospital in-patients to negotiate over their medical care are often very restricted by their limited information and medical knowledge, their illness state, feelings of powerlessness, and their limited contact with doctors (Morgan, 1991). Nevertheless there are usually opportunities to negotiate visiting rules, freedom to leave the ward, and to engage in various activities. Even these limited choices are even more restricted for MRSA isolated patients.

Baltes (1988) argues that older adults in institutions do in fact exert a great deal of control over their environment. In as much as staff support dependent behaviour while ignoring independent behaviour, elderly residents can exert a degree of control over the social responses of their carers. This form of control is not particularly desirable however: it impedes the regaining of skills, independence and confidence, and therefore the whole rehabilitation process.

Many studies have investigated health correlates of locus of control in older adults. Several of these have found that 'internals' report better overall health than 'externals'. For example, Partridge and Johnston (1989) found that an external locus of control was inversely correlated with physical recovery from a stroke. However, the overall evidence is weak, with inconsistent findings between studies.

While these correlational studies cannot test causal hypotheses, intervention studies with older adults have strongly suggested that increased control benefits subjects' health outcomes. Rodin (1986), for example, found that involving patients in decisions about moving from hospital to nursing homes led to short and longer-term benefits for the patient's physical health and perception of control.

Taken together, control-related interventions support the conclusion that increased control over their environment and greater self-efficacy have a positive impact on the physical and psychological status of the institutionalised aged. Rodin and Timko's (1987) extensive review of research on ageing, sense of control and health, concluded that both perceived competence and environmental contingency are important in the health and well-being of older people.

1.3.3 Social Isolation in the Elderly

Social isolation has been variously defined and measured. Lubben (1988) developed the Lubben Social Network Scale (LSNS), a screening instrument to assess potential and actual social isolation among older adults. The scale uses ten items that tap family networks, friend networks, and helping others. The Social Support Questionnaire (SSQ, Sarason, Levine, Basham, and Sarason, 1983) asks participants to list up to eight people whom they can rely on to help them in difficulty, as well as to rate their level of satisfaction with the overall support. Berkman and Syme (1979) calculated a social network index based on marital status, contacts with relatives and friends, and membership of a religious or social organisation.

Rubenstein et al. (1994) observed widespread symptoms of depression amongst socially isolated older adults. Reich (1997) further observed that the impact of chronic disability in the elderly patient due to ageing and chronic disease, are compounded by social isolation. Conversely, Kiyak and Borson (1992) found that effective coping with stress and illness in older adults is more likely in the presence of a strong social network of family and friends.

Socially isolated individuals are less likely than others to be involved in activities generally. Harris and Bodden (1978) studied disengaged older adults in the community. Exposure to an activity group experience led to improved measures of psychological adjustment and functioning. Lubben (1988) emphasised the need for different interventions to address distinctive profiles and types of isolation; and depression has been found to be negatively correlated with engagement in *subjectively pleasant* activities, not activity per se (Simpson et al., 1981).

1.3.4 Methodological Limitations

The studies on isolation mainly suggest that physical isolation and low levels of stimulation can be detrimental psychologically. However, many studies did not use non-isolated control groups, and in Kellerman et al.'s (1977) study and others, confounding variables such as the impact of hospitalisation and the diagnosis of cancer preclude definitive conclusions about the impact of isolation. In fact Lesko, Kern and Hawkins (1984)'s review concluded that patients can withstand the emotional stress of isolation, and that behavioural changes relate more to the severity of illness than to the isolation.

Parent's (1978) review involved studies including healthy young students, scientists and military personnel, rather than hospital patients. All participants were volunteers and the conditions of isolation were artificial, rather than an actual hospital environment. Unlike hospital patients, they also had the option of dropping out of the isolation environment.

The use of varying measures and definitions in both studies of locus of control and of isolation preclude direct comparison between studies of these kinds, and can account for some of the discrepant findings between some of these studies. The correlational locus of control studies are also limited by the likelihood that illness severity is a confounding factor which could influence health-related behaviour.

Methodological limitations are also evident in studies of social isolation and engagement in the elderly. For example, Harris and Bodden's (1978) intervention study did not explore individual differences in response to the provision of an activity group, and the authors did not explore whether improvements were maintained in the longer term.

1.3.5 Summary

Many of the studies reviewed here are limited by correlational designs, their anecdotal nature, lack of control groups, the use of unstandardised measures, or measures which vary widely between studies, and confounding variables, particularly of illness severity. While the evidence is therefore not always conclusive, the studies generally indicate that physical isolation is often, although not inevitably, distressing, and it can impede opportunities for physical recovery. Hospitalisation can be a stressful experience resulting in dependency, loss of autonomy and privacy, and often the loss of opportunities to make choices. Older adults are likely to be particularly disempowered, not least by unhelpful attitudes of some staff, who infantilise their patients, and make decisions on their behalf. Loss of control seems to be associated with slower recovery from strokes and other illness, and the utilisation of less appropriate forms of control, in the sense of encouraging staff to support dependent behaviours. Finally, many older adults are socially isolated, often through widowhood and geographical distance of other family members. Social isolation is considered to be detrimental to the health and well-being of older adults, and efforts to engage older people in *appropriate* activities can protect against adverse physical and mental health outcomes.

1.4 Rationale for the Current Study

While no specific theory has been advanced to account for the impact of isolation and hospitalisation on older adults, cognitive and behavioural theories predict that older adults might adjust poorly to being in hospital and in enforced isolation. Moos and Schaefer's theory of the crisis of illness also suggests that older people are likely to experience difficulties in psychological adjustment to illness and isolation, particularly if they lack social support, or opportunities to engage in rewarding activities.

The empirical evidence supports this prediction. Taken together, the studies reviewed above suggest that older adults who are isolated in hospital environments, where they have limited opportunities to exert control, have low levels of stimulation and little contact with others, are likely to be at risk for psychological difficulties.

Two thirds of patients isolated with MRSA infection are aged over 65 years. This population tends to be physically frail, and especially likely to be socially isolated. This is in contrast to the population studied in the spinal injury research into MRSA isolation (Kennedy and Hamilton, 1997), in which the average age was 31 years at the time of injury, and participants generally had an active social network.

To date, no study has been published exploring the psychological impact of physical isolation in the hospital environment in older adults. This study set out to do this by assessing the mood of older adults who have been isolated with MRSA for some time, in rehabilitation wards in hospital.

1.5 Aims of Study

- (a) To determine whether hospitalisation and/or MRSA isolation affects psychological functioning in an elderly population in a rehabilitation ward.
- (b) To ascertain whether spending time with others mitigates the impact of hospitalisation and/or MRSA isolation for this population.

1.6 Hypotheses

1. Both groups of hospitalised older adults, i.e. those with and without MRSA, will have higher proportions of participants with clinical levels of depression, anxiety and anger than are found in older adults in the community.
2. Older adults who are isolated following MRSA diagnosis will have higher rates of depression and anxiety, and will be more angry than controls matched for age, sex, diagnosis, length of hospitalisation, functional independence, and cognitive functioning.
3. Within each group, those who spend more time with visitors will be less depressed, angry and anxious than those who spend less time with visitors.
4. Within the isolated sample, length of isolation will predict higher rates of depression, anxiety and anger.
5. For both groups of participants, i.e. those with and those without MRSA, length of hospitalisation will predict higher rates of depression, anxiety and anger.

2. Method

2.1 Participants

Participants were recruited from four Care of the Elderly rehabilitation wards in two hospital Trusts. The project was discussed with one Consultant Geriatrician, the Infection Control nurses, microbiologist and Specialist nurse for Care of the Elderly in the first instance. Letters were sent to the relevant ward managers summarising the proposal, and inviting comments and queries. The criteria for inclusion in the study were as follows:

1. aged 65 years or more
2. diagnosis of cerebrovascular accident (cva, stroke), or orthopaedic surgery
3. medically stable
4. all participants in hospital for at least four weeks

Participants in the experimental group had been in isolation for at least two weeks. Patients with mild dementia were included, but those with moderate or severe dementia were excluded, as they could not be expected to complete the measures reliably. Acutely ill patients were also excluded, as they might not be on the ward for long enough to assess the impact of their isolation.

Patients meeting the inclusion criteria for the study were identified from their medical notes. The MRSA negative group were all recruited from the same hospital Trust, as the wards in the two Trusts were arranged differently: in one Trust, non-isolated patients were in rooms of four beds, while in the other, they were in a completely open ward. The arrangement of the isolation rooms was similar in both settings.

2.2 Description of the Settings

Trust 1

Patients were generally moved to a rehabilitation ward following a relatively brief stay (mean length of stay was 13 days) on an acute ward. Most patients were over the age of 75 years. Patients generally spent several weeks or months on the rehabilitation ward before discharge back to the community. The wards had 22 beds each and were staffed by between four and six nurses per shift. The staff appeared to be extremely busy, and patients often had to wait some time for assistance if they requested it. Isolated patients could attract staff attention by pressing a buzzer. Non-isolated patients were situated in rooms of four beds each. A curtain could be drawn round each bed, although it was possible to hear what was said from behind the curtain. There was little sense of individuality about the environment: the rooms were rather dull and drab, with a large functional-looking clock. A lounge area was available to non-isolated patients, where a television was switched on for most of the time. Patients could also watch television or listen to the radio in bed. The isolation rooms were smaller than the four-bedded bays, but otherwise were very similar. Visitors and staff entering isolation rooms were required to wear a plastic disposable gown and latex gloves, and to wash their hands and dispose of the gloves and gown before leaving the room.

Trust 2

Only patients in MRSA isolation were studied in this setting. These patients were on a variety of wards, including acute wards where isolation rooms were available for longer-term patients. The arrangements were similar to setting 1: institutional, and rather depressing. The nursing staff on one rehabilitation ward had been so upset at the drabness of the environment that they had raised funds to redecorate one room themselves. This room had much more of a personal feel, with attractive decor, curtains, and personal effects. However this room was not used for MRSA-isolated patients during the course of the study. Staff, but not visitors, were required to wear gloves and a gown when entering isolation rooms in this setting.

2.3 Design

A cross-sectional matched control study design was employed. Two groups of hospitalised patients were included, one MRSA-positive isolated group, and one non-isolated MRSA-negative group. Initially it was intended to match participants in the two groups on a case by case basis. In practice, there were insufficient numbers of participants to be able to select out individual patients in each group with exactly the same age, sex, length of hospitalisation, medical diagnosis, level of disability and cognitive functioning. Thus the two groups were matched as a whole for the above variables.

Questionnaires were included to measure aspects of psychological functioning following hospitalisation and MRSA diagnosis.

Following piloting (see below), a brief questionnaire to nursing staff was also included, to obtain their views regarding the impact of MRSA-isolation on patients.

2.4 Development of Protocol

2.4.1 Engagement

In developing the protocol for the study, much attention was paid to optimising the willingness of potential participants to engage in and cooperate with the research. Fear of outsiders, and physical limitations such as speech, sight or hearing deficits, commonly present a challenge to researchers interested in older adults, and factors such as these have been shown to influence their ability and/or willingness to participate in research studies (eg. McKinley, 1992). Face-to-face interviews were considered the best way to engage potential participants. A flexible approach was also considered important. For example, those with a speech or hearing impairment might complete questionnaires more easily in writing than verbally, although still in the interviewer's presence. To maximise participation, the interviewer always wore an identity badge to reassure respondents of the legitimacy of the

study. The interview was planned to be as brief as possible, about 20 minutes, to avoid putting excessive demands on frail participants, who may tire easily. This has been advocated elsewhere; for example La Rue and Markee (1995) discussed the need for comprehensiveness to be balanced against the fatigue, frustration and boredom often induced by lengthy testing sessions with older or frail individuals.

2.4.2 Accuracy

Self-report information by adults of all ages is subject to inaccuracy (McKinley, 1992), and steps were taken to limit inaccurate responding in this study. The use of face-to-face interviews meant that ambiguous answers could be clarified, and missing responses were less likely. The interviewer could also make use of non-verbal cues to understand participants' verbal responses. In this way, a more complete and hopefully accurate data set could be obtained, although it was recognised that this procedure involved the subjective interpretation of the researcher and therefore could run the risk of bias.

2.4.3 Pilot Study

A small pilot study was conducted to verify the length of the interview schedule, and to assess the acceptability of the measures. This study included twelve older adult participants. Seven were MRSA positive and five were MRSA negative. Of the MRSA positive group, five were drawn from Trust 1, and two from Trust 2. The five MRSA negative patients were all drawn from Trust 1.

2.4.3.1 Measures Used in Pilot Study (see Appendix 1)

(1) Abbreviated Mental Test Score

In order to match participants for initial level of cognitive functioning, and to exclude those with severe dementia, the Abbreviated Mental Test Score (AMT, Hodkinson, 1972) was used.

The AMT score, a ten-item questionnaire, was obtained from the medical notes of patients. Scores on this test were recorded routinely on admission to the wards, and used as a brief screening assessment for mental impairment. It has been independently validated for use in institutional care settings (Quereshi and Hodkinson, 1974).

(2) The Barthel Index (Wade and Collin, 1988)

This measure was used to match participants for level of functional independence. It is a ten-item questionnaire which is based on direct observation, and is routinely completed by nursing staff on the wards from which patients were recruited in the study .

(3) Hospital Anxiety and Depression Scale (HADS, Zigmond and Snaith, 1983)

It was recognised that this scale was not ideal, as it lacks sensitivity and specificity when used as a screening instrument for geriatric inpatients (Davies, Burn, McKenzie, Brothwell and Watts, 1993). Nevertheless, the HADS had the advantage of measuring both depression and anxiety in a single scale, and therefore this instrument seemed, in the first instance, to be a good way of obtaining maximum information in a relatively brief space of time.

(4) The Profile of Mood States (POMS, McNair, Lorr and Droppleman, 1971).

The POMS is a 65-item measure consisting of six subscales, each constituting a measure for a different aspect of mood. The items consist of single word or short phrase names of emotions, and respondents rate each emotion on a five-point scale of intensity (not at all, a little, moderately, quite a bit, and extremely). The scale contains no somatic items to index anxiety, which is a particular advantage in assessing older adults, who tend to have a relatively high incidence of physical symptoms, which may be independent of their mood state (Gibson, 1997). It has not proved possible to provide normative data for the POMS for older adults, as published studies have used samples in which more able older adults were over-represented. Unfortunately, no studies of using the POMS with hospitalised older adults were found. However, Kaye, Lawton, Gitlin, Kleban, Windsor and Kaye (1988) studied the psychometric properties and feasibility of using the POMS with a community sample of older adults, and their research confirmed the construct validity of the POMS for use with this population. They also found that the POMS was easily understood by the older adults in their sample, and took a relatively short time to administer. Gibson's (1997) study of the reliability and validity of the POMS on older adults found good evidence for its concurrent validity, excellent internal consistency of the subscales and very good test-retest reliability.

In the pilot study, four sub-scales of the POMS were included. These were the same as those used in Kennedy and Hamilton's (1997) study, as it was intended to compare the outcomes of the two studies. The sub-scales included were:

POMSA - measures anger

POMSV - measures vigour

POMSF - measures fatigue

POMSC - measures confusion

For the sake of brevity, the remaining two sub-scales, anxiety and depression, were omitted. It was decided to discard these particular sub-scales, because a measure of anxiety and depression was available from the HADS.

Other Questions

Prior to completing the standardised measures, participants were asked:

- (Isolated patients) Do you like being in a room by yourself or would you prefer to share a room with other patients?
- How have you felt about being in hospital?
- Do you find the staff helpful?
- Is there anything you particularly like/dislike about the way the ward is run?

After the HADS and POMS were administered, participants were also asked:

- Do you get visitors sometimes?
- (If yes) Who visits you?
- How often do they visit?
- How long do they stay?

2.4.3.2 Procedure

(1) Ethical Approval

The application for ethical approval stated that the study would be piloted to ensure that the interview schedule would be brief, and not too demanding. It was confirmed that the interview would be terminated if the participant became very tired or stressed, and it could be conducted over more than one session. A copy of the information and consent form was included in the application (see Appendix 2), with provision for relatives or staff to sign consent on the participant's behalf if the participant was unable to do so. Ethical approval for the study was obtained from two Local Research Ethics Committees, enabling the study to take place in two hospital Trusts (See Appendix 3). Following piloting, the ethics committees

were notified of the alterations in the measures as will be described below, and approval for the revised measures was confirmed.

(2) Questionnaire Administration

Patients with and without MRSA who fulfilled the study's inclusion criteria were identified from the medical notes. Each patient was approached individually and the purpose of the study was explained in terms of exploring how people felt about their experience of being in hospital. An information sheet was given and patients were asked if they would like to take part. If they agreed they were asked to sign a consent form, and, if they were unable to do so due to a physical disability, a member of staff signed on the participant's behalf.

Questionnaire measures were administered face-to-face. In presenting the POMS, which required respondents to select one of a range of responses (ranging from 'Not at all' through to 'Extremely'), a card with the responses printed in large bold letters was shown to participants as a visual aid, where appropriate.

The MTS and Barthel scores were obtained from the patients' medical notes, and the HADS and POMS were verbally administered as discussed above. For half of the participants, the HADS was administered first, and for the other half, the POMS was presented first.

2.4.3.3 Findings of the Pilot Study

MTS and Barthel scores were obtained from the medical notes.

Participants were able to respond appropriately to the questions about their experiences of being in hospital, as will be described in section 3.4.4. The questions about visitors did not appear to present problems in terms of administration.

Difficulties with Questionnaire Administration

It was possible to administer the complete interview schedule to only six out of the twelve participants. The interview had to be curtailed for the remaining six participants. The following summarises the main difficulties associated with the schedule completion.

(1) Interview Length

Both questionnaires were taking a very long time to complete, such that interviews had to be discontinued, to avoid putting excessive demands on participants. This was particularly true of the HADS, which was cumbersome for respondents, as it required choosing one of several different responses for each item, with the range of possible choices varying between items.

The POMS was more straightforward, as most of the items consisted of single words, and the response choice was the same for each item. Nevertheless respondents were sometimes slow at choosing between the various response options, so the procedure felt long and laborious.

(2) Engagement with the Interview Process

Some participants who were willing enough initially, seemed to be getting fed up with the procedure quite quickly. Several asked how much more there was left, after only a few questions, and said they did not want to continue answering questions. Participants were generally more willing to discuss their general feelings about hospitalisation and isolation. Thus there was a particular difficulty in keeping participants engaged with the process of completing the standardised measures.

(3) Accuracy of Responses

It was noticed that the patient reports did not always match the impression they gave. For example, one participant said she was in good spirits, but seemed quite depressed; another said he was alert, yet his eyes were drooping and he dozed off during the interview. Furthermore, participants were sometimes giving discrepant answers to similar items, for example, saying they were not at all angry, but were extremely furious. These observations raised doubts about the reliability of the data obtained.

2.4.4 Modifications to Interview Schedule Following Piloting

(1) Interview Length

In response to the results of the pilot study, the following changes were made to the schedule:

(a) Assessment of Depression

The HADS was omitted, as this in particular seemed to be taking a long time to administer. **The Geriatric Depression Scale - short form (GDS, Sheikh and Yesavage, 1986)** was substituted, to give a measure of depression. This scale, by contrast to the HADS, requires a YES/NO response, which for the purposes of brevity and ease of administration was an advantage, although at the expense of gaining information about *degree* for each item. The GDS has the advantage of being standardised specifically for older adults, and O'Riordan, Hayes, O'Neill, Shelley, Walsh, and Coakley (1990) found it to be a useful screening tool for depressive illness in hospitalised older adults even in the presence of moderate dementia. Sheikh and Yesavage (1986) developed the Short Form of the GDS as a useful tool when economy of time is required, such as in elderly persons suffering from mild to moderate dementia and/or physical illness. The shortened version of the GDS, consisting of 15 items, correlates highly with the long form, which has 30 items ($r = 0.84$), and is considered an

adequate substitute for the long form in inpatients aged up to 89 years (Leshner and Berryhill, 1994). Sensitivity and specificity have been cited as 85 per cent and 74 per cent respectively (Herrmann, Mittmann, Silver, Shulman, Busto, Shear, and Naranjo, 1996).

(b) Mood State

To reduce the interview length further, the number of sub-scales of the POMS was reduced from four to two, as summarised below. Since the HADS had been discarded, there was now no measure of anxiety. Therefore, a new sub-scale of the POMS, measuring tension/anxiety (nine items) was added. This meant that three other sub-scales had to be omitted. It was decided to discard the 'vigour', 'fatigue' and 'confusion' sub-scales, and to retain the 'anger-hostility' (12 items). This was because 'anger' emerged as the most significant factor in the previous study of MRSA isolation which used the POMS (Kennedy and Hamilton, 1997). The overall number of items was reduced in this way from 35 to 21.

Sub-scales Included in Pilot Study

Anger
Vigour
Fatigue
Confusion

Sub-scales Included in Revised Study

Anger
Anxiety

(2) Maintaining Engagement

It was hoped that reducing the length of the interview would also help resolve the difficulty of keeping participants engaged. To address this issue further, a more flexible interview format was felt to be most likely to maintain participant interest. Thus, if participants made additional comments about a question, they were encouraged to expand on their answers. Although a prescribed series of questions were still asked, the order in which they were presented was modified, based on what seemed appropriate clinically in the context of the

interview. It was also felt to be appropriate to change the wording of questions and to give explanations to match the language or apparent level of understanding of the participant. It was recognised that this was a less than satisfactory procedure, but it was felt it would maximise the chances of obtaining the information required.

(3) Staff Analogue Measures

As some participants were giving inconsistent answers, and responses that did not match the subjective impression they were giving, it was decided to include a questionnaire for nursing staff, to check the reliability of the participants' self-report. It was also felt that it would be useful to obtain the views of nursing staff on the psychological impact of isolation.

No standardised analogue questionnaire which rated symptoms of depression, anxiety and anger was found, which was sufficiently brief for busy, pressurised nursing staff to complete quickly. Therefore a brief questionnaire was devised, drawing on items from the Hamilton Depression Scale and the HADS, and nurses were asked to rate symptoms on a Likert scale. The questionnaire also asked whether staff felt patients' mood had *changed* between the beginning of hospitalisation and the time of study; to state whether they felt they spent less time with MRSA positive patients; and whether they felt the patients were adversely affected by being isolated (see appendix 1 for copy of questionnaire). It was recognised that this questionnaire was not a validated measure, but it was hoped that it could nonetheless provide some useful qualitative information.

2.4.5 Repiloting the Measures

The revised schedule, now consisting of the GDS and shortened POMS, was repiloted using ten older adult participants, five MRSA positive and five MRSA negative. While certain limitations remained, as will be discussed in greater detail in the 'Results' section, the overall interview length was reduced to an average of 20 minutes; and the process was felt by the

interviewer to be more straightforward and acceptable to participants. It was possible to obtain data from eight of these participants, with the other two deciding to discontinue the interview part way through. The results from these participants were then incorporated into the results of the main study.

The questionnaire for nursing staff was administered face-to-face, and was completed by three staff members in total, who were either the participant's named nurse, or another member of staff who knew the participant well. This provided data relating to five of the MRSA positive participants. The completion of this questionnaire presented no problems, and was included in the main study.

2.5 Summary of Final Measures Used in the Main Study

The following measures, which have been described above, were used in the main study.

2.5.1 Measures for Matching Purposes

(a) The Abbreviated Mental Test Score (AMT)

(b) The Barthel Index

2.5.2 Outcome Measures

(1) Questionnaire Measures For Patients

(a) The Geriatric Depression Scale- Short Form

(b) Two sub-scales of the Profile Of Mood States (POMS): anxiety (nine items)

anger (twelve items)

In addition to these standardised measures, the additional questions used in the pilot project were also included.

(2) Questionnaire for Nursing Staff

This was included as described in the previous section.

3. Results

The results are presented as follows: sample size and response rate; methods used to analyse data; demographic and descriptive information; investigation of differences between sample groups; qualitative information, including difficulties with sampling; testing of the hypotheses presented in the introductory section; and a critique of the measures used.

3.1 Sample Size and Response Rate

Thirty five patients with MRSA and 39 patients without MRSA who fulfilled the inclusion criteria for the study were identified from the medical notes. Twenty two MRSA positive and 20 MRSA negative participants agreed to take part and completed the questionnaires. Thus the response rates were 63 per cent and 51 per cent for the two groups respectively, with an overall response rate of 57 per cent.

Of the MRSA positive group, 18 respondents were from Trust 1 and four were from Trust 2. All MRSA negative respondents were from Trust 1. In addition, questionnaires were completed by five nurses relating to 15 of the MRSA isolated older adult participants.

3.2 Data Analysis

All statistical analyses were performed using SPSS for Windows.

3.2.1 Analyses for Matching Data

To ensure that the two groups were well-matched for age, gender, diagnosis, length of hospital stay, cognitive functioning and functional independence, tests were conducted to ascertain if there was a significant difference between the groups on these variables.

For those variables with interval scale data, the assumptions for the use of parametric tests were checked using Kolmogorov-Smirnov tests for normal distribution, and Levene's test for equal variances. These tests indicated that t-tests could be used to check for differences between groups (see Appendix 4 for results of Kolmogorov-Smirnov and Levene's tests).

Chi-square tests were performed to check for differences between groups for categorical data ie. gender and diagnosis.

3.2.2 Data Analysis for Outcome Measures

In order to guide the choice of parametric or non-parametric statistical procedures to test the hypotheses, Kolmogorov-Smirnov tests were performed on all the outcome measures. These were performed separately for data from each group, and they indicated that none of the data differed significantly from a normal distribution (p values ranged from 0.16 - 0.98). Therefore the use of parametric tests seemed appropriate. The values for the Kolmogorov-Smirnov tests are presented in Appendix 4.

Levene's test for equality of variances was therefore conducted on all the outcome measures, i.e. depression, anxiety, and anger (see Appendix 4). Although the p value for depression was fairly low ($p = 0.10$), none of the values reached a significance level of 0.05, indicating that the variances between the groups were sufficiently similar to warrant the use of parametric tests in assessing group differences on the outcome measures.

In order to compare the outcome measures with a normal population of older adults (hypothesis 1), one sample t-tests were selected.

In order to compare differences in outcome measures between the two groups (hypothesis 2), independent t-tests were performed.

Wilcoxon sign tests were used to measure the changes in symptoms over time, as perceived by nursing staff. This test determined *whether* a change occurred rather than the *degree* of change. This seemed most appropriate, as answers from several different nursing staff were included, each of whom may have used different criteria in rating the degree of change.

Hypotheses 3-5 involved associations between variables. Initially it was intended to investigate these using Kendall's correlation coefficient, because the data had several 'tied' ranks. In the event, part of this analysis had to be abandoned, as will be explained in due course.

3.3 Description of the Sample

3.3.1 Demographic Data

The mean age of the sample was 80.4 years (range 65 to 97, SD 8.65), and most of the sample (74 per cent) was female. The data for each group were similar, as confirmed by an independent t-test to check for differences in age between groups ($t = 0.28$, $df 40$, n.s.); and a Chi-Square test for gender differences between the two groups (Chi-Square = 0.28, $df 1$, n.s.).

The mean age of 80.5 years for the whole sample was almost identical to its median (80), indicating that the age distribution was not unduly skewed. Table 1 shows that the age distribution in each group was very similar, indicating that the two groups were well-matched for age.

Table 1: Age Distribution for Total Sample and For Each Group

<u>Age Range</u>	<u>Frequency</u>	<u>Frequency</u>	<u>Frequency</u>
	<u>MRSA +</u>	<u>MRSA-</u>	<u>total Sample</u>
65-69	3	3	6
70-74	3	3	6
75-79	3	4	7
80-84	4	2	6
85-89	5	3	8
90-94	4	4	8
95-99	0	1	1
Total	22	20	42

3.3.2 Matching and Predictive Data

The mean length of hospital stay for the two samples combined was seven weeks at the time of study (SD = 2.5, range 4-13 weeks). Twenty-one participants, i.e. exactly half of the sample, had a diagnosis of cerebrovascular accident (CVA, known as stroke), while 14 participants, a third of the sample, had a fractured neck of femur (NOF). The remaining seven participants (17 per cent) had other diagnoses, including leg ulcers, diabetes and amputation of a limb. The mean Abbreviated Mental Test Score (AMT) for the sample was 7 out of 10 (range of 4 to 10).

Table 2 shows the data for each group separately, and again most of the scores on individual measures appear to be similar in the two groups. Independent t-tests confirmed that there were no differences between the groups on any of the matching variables with interval data (length of hospital stay: $t = 0.52$, $df 40$, n.s.; Barthel Index: $t = 1.35$, $df 40$, n.s.; AMT: $t = 0.40$, $df 40$, n.s.). The Chi-Square test to check for difference in diagnosis between the two groups, indicated no significant difference (Chi-Square = 0.10, $df 2$, n.s.).

Table 2: Matching and Predictive Data for Each Group Separately

<u>Variable</u>	<u>Total</u>	<u>n</u>	<u>Mean</u>	<u>Range</u>	<u>Total</u>	<u>Mean</u>	<u>Range</u>
	<u>MRSA +</u>		<u>(SD)</u>	<u>MRSA +</u>	<u>MRSA -</u>	<u>(SD)</u>	<u>MRSA -</u>
			<u>MRSA +</u>			<u>MRSA -</u>	
Length of stay (wks)	22		4.50 (1.57)	2-8	N/A	N/A	N/A
Length of stay (wks)	22		7.09 (2.20)	4-12	20	7.50 (2.91)	4-13
Barthel Index	22		6.00 (2.74)	1-12	20	7.10 (2.53)	2-10
AMT score	22		6.86 (2.07)	4-10	20	7.10 (1.74)	4-10
<u>Diagnosis</u>							
cva	11 (50%)				10 (50%)		
fractured nof	7 (32%)				7 (35%)		
other	4 (18%)				3 (15%)		
Time spent with visitors/wk (hrs)*	21		11.76 (8.75)	1-40	20	13.0 (8.79)	3-35
No. visitors*	21		1.90 (0.89)	1-4	20	1.90 (0.85)	1-4

* Older adult participant self-report

3.4 Qualitative Information

3.4.1 Difficulties Encountered with Recruitment

The number of participants was lower than intended, partly owing to the following factors:

(1) On the basis of the numbers of patients passing through the hospital over the twelve months prior to the study, the microbiologist in Trust 2 expected about 35-40 MRSA positive older adult patients in the hospital during the data collection period. In fact only 11 such patients were identified during this time. Of these, three died within two weeks of admission, and four did not meet the inclusion criteria for the study (two had severe dementia, and two were discharged home within two weeks of admission). Subsequent discussion with the microbiologist indicated that the relatively small numbers were largely due to a change in hospital policy. This resulted from the implementation of Department of Health guidelines, which recommended the rehabilitation of MRSA positive patients with long-term care needs in the community rather than in hospital. MRSA positive patients in the community are not routinely isolated.

(2) While there were many more MRSA positive patients in setting 1, the numbers became so high that the isolation policy was changed during the data collection period, such that some MRSA positive patients were isolated in bays of four rather than in single rooms. These patients could not be included in the study.

(3) It sometimes proved impossible to interview non-isolated patients, because there was no private space in which to talk to them. The rooms of four beds were often noisy, with distractions from televisions of other patients at high volume. While a curtain could be drawn around the individual beds, this did not reduce the noise level significantly. Further, because patients were often hard of hearing, it was necessary to speak loudly, so that the interview was audible to others in the room. Some patients were almost always in the communal lounge area, which presented the same problem. It was sometimes possible to use a private room to interview patients, but there was not always one available, and patients were often

unwilling to move, in order to participate. This difficulty is reflected in the higher response rate in the MRSA positive group (63%) than in the non-isolated group (51%).

(4) Several patients appeared to meet the inclusion criteria for the study 'on paper', i.e. from the information in their medical notes - but when approached it was clear that they would not be able to take part, as they were extremely frail or almost always asleep; could not communicate or did not respond at all; or did not speak English.

(5) Many patients were reluctant to take part in the study. There were various reasons for this:

- One patient said he did not want to even think about it, it was too distressing

- Some patients did not appear to feel that the study would serve any useful purpose. For example, it was explained that the interview aimed to find out how people experienced being in hospital, in order to find a way of improving the quality of care given. Several patients made comments such as: "Well you just have to be here don't you, there's no point in complaining about it is there?", and "That sounds like a waste of time".

- Some patients who accepted the principle of conducting the study, and were happy to discuss how they felt about hospital and/or isolation generally, did not respond favourably to the questions in the standardised measures. For example, seven potential participants were initially willing to take part in the study, but changed their minds part way through. Comments from these participants included "Do we have to go through all this again, you've asked this all before", regarding items which were similar; "I hope you find some interesting things, but I really don't want any more questions"; "I don't see what this has to do with being in hospital". Others simply fell silent after the first few questions and would not respond further. It seemed to the interviewer that the questions did not really match *the patients'* agenda, and in some cases it appeared that the participants thought the nature of the questions to be actually inappropriate or offensive, as will be described with examples in section 3.6.

- Some participants expressed doubts about the anonymity of the study, in spite of reassurance on this matter. For example, one patient refused to answer questions about her feelings, for fear of the staff finding out she was critical of them. Other potential participants were happy to talk but were unwilling to sign a consent form, and so could not be included in the study. Perhaps this reflects a general suspicion about 'signing on the dotted line', as similarly observed by La Rue and Markee (1995).

Of those who did take part in the study, several participants took a great deal of time to complete the interview. Three talked at great length about their families and other matters, and it was difficult to get them to focus on the specific questions relevant to the study. These participants had an interview time of one and a half to two hours, and the interviews were not discontinued at an earlier stage because the participants were welcoming the opportunity to talk. Five participants had to be interviewed over two or three sessions as they tired part way through the interview.

3.4.2 Other Observations Regarding the Interviewing Process

The experience of interviewing felt rather intrusive at times. Even the process of *inviting* patients to take part could feel like an invasion of their privacy, since they had no choice about being approached in the first place, and some seemed to resent it. For example, one or two asked not to be disturbed, or to be left alone.

While patients were given the option of refusing to take part, and many did, it was felt that some others consented reluctantly, because they were not sufficiently assertive to refuse. In these cases, they were reminded again that they had a choice, and that their decision would not affect their care in any way. Some decided not to take part only at this stage. This raises ethical considerations: given that the process of hospitalisation can be extremely disempowering, patients may not feel able to refuse, even if they are told they have the choice. Perhaps this could be overcome to some extent by arranging for a familiar staff member to approach patients in the first instance, rather than an unfamiliar interviewer.

3.4.3 Observations Regarding Activity Levels

Informal observations during data collection suggested very low activity levels among patients. Some patients seemed to spend all their time in or next to their bed, dozing or drinking tea. Others were almost always in the lounge area, sitting in chairs around the edge of the room. These patients always sat in the same place. No conversation was ever seen to take place between the patients in the lounge area. Staff often made brief comments to patients as they passed, but appeared to be too busy to stop for a longer conversation. In one room only, three of the four women patients were often seen to be talking together. In most areas of the ward, the television was usually switched on very loudly, although patients rarely appeared to be watching it. Some of the more active patients however, were observed to be reading, listening to the radio, or doing crossword puzzles, usually in their rooms.

It must be emphasised that these are subjective impressions, gained from casual observations during the course of data collection. Therefore, no definite conclusions can be drawn from them. The observations made, however, are consistent with the findings of systematic observational studies reported in published studies. These typically conclude that older adults in long-stay settings spend long periods of time 'doing nothing' (Brooker, 1995; Godlove, Richard and Rodwell's 1982). Bowie and Mountain's (1993) observational study of long-term dementia patients found they spent over half their day doing nothing at all, and over 80 per cent either doing nothing or engaged in useless activity. Thus, the findings of the published literature indicate that a more extensive and systematic observational study could confirm the impressions described here.

3.4.4 Information Regarding Hospitalisation, MRSA and Isolation

(1) Regarding MRSA and Isolation

Three MRSA positive participants said they liked being in a room on their own, and two said they did not mind. Twelve said they did not like it, and five did not respond.

(a) Negative Views***Comments from Patients***

Some experienced isolation quite punitively and with resentment. Comments included:

"It's like being in prison for something I didn't commit" "It's worse than prison"

"I feel I'm being punished for something I haven't done"

"I feel as if I'm shut up in a cupboard" "I feel incarcerated"

"I wish I could die rather than be stuck in here" (because isolated)

"It's boring being alone, you're not allowed out. The day drags"

"I don't like it but you just have to put up with it, just like being in hospital"

One patient who had been in hospital for two weeks before being isolated, described isolation as very oppressive. Previously he had the freedom to walk up and down the ward, but now he was confined to his room, so that he could not even get this exercise and change of scene. He also found it extremely frustrating: if the nurse did not respond when he buzzed, he did not know whether she had not heard, or whether she was ignoring him, and he could not go out of his room to find out. He also commented, as did a few other patients and relatives, that the buzzer itself sounded very aversive.

Some participants appeared to be unclear about *why* they were being isolated. No participant expressed any particular concern about being infected with MRSA - they were more preoccupied with the restrictions it imposed.

Comments from Relatives

One relative in Trust 1 felt very strongly about MRSA and isolation. She commented that the gloves and gown suggested a stigma towards her mother, who had MRSA, and this was upsetting for her, i.e. the relative. She made a point of holding her mother's hand for long

periods of time and stroking her face, to compensate for the lack of physical contact her mother otherwise received. She was also reluctant to leave her mother, who was unable to use the buzzer to call nursing staff, and the daughter felt that even if her mother could call the staff, they would be too busy to respond promptly. The staff always seemed to be at the other end of the ward, and she felt that her mother was forgotten about, hidden away in a side-room. Thus the daughter felt that she needed to supplement the care her mother was receiving in hospital. This relative was also worried about the MRSA itself, and complained that not enough information about it was available. She did not feel clear how dangerous it was, or whether she herself was likely to catch it. She was also angry that her mother was admitted for rehabilitation and recuperation, but instead she had caught an infection from being in hospital which could make her even more ill. She expressed relief at the opportunity to talk about her concerns and frustration with me, commenting that nursing staff were always too busy to approach.

Another relative said he had tried to arrange for a hospital volunteer to visit his mother. He was told that someone could visit for 20 minutes a week. He considered this to be totally inadequate, given that she was having to spend almost all her time alone. He was worried that she was becoming lonely and withdrawn as a result, and this was hindering her rehabilitation, as she was too lethargic to cooperate with physiotherapy exercises or to take an interest in recovery.

Additional Observation

It was noticed that one patient in isolation had not had his clock changed, four days after British Summer Time. This was pointed out to the nurse, who said that she was aware of it, but had to wait for the official staff member from the IT department to come and change it.

(b) Positive Views

Three MRSA positive participants welcomed being in an isolation. Comments included:

"It's OK, nobody bothers me in here, and I don't bother nobody"

"It's better to be alone, you get more privacy. But I would feel differently if I didn't have my family come to visit so often"

(c) Nursing Staff Views

Two nurses said they spent less time with patients with MRSA than with others, to avoid becoming infected themselves by being with these patients. Another nurse, by contrast, did not regard MRSA particularly as a medical problem, but rather as a nuisance which hindered efficient working.

One nurse said she only went into the MRSA positive patients' rooms when they called, or when she knew she had to do something for them. However, she talked more with other patients, because they were a more visible presence and she spent time in their vicinity anyway, so that she could talk to them while she did other things.

Nurses made various comments about how they believed their patients regarded isolation:

- some patients welcomed the privacy
- some resented the lack of freedom to move around - these tended to be patients who were relatively able
- some just accepted it
- some patients were not really aware of being isolated: they tended to be particularly frail, and perhaps were sleeping most of time
- some hate it at first, but then get used to it and adapt quite well.

(d) Non-Isolated Patients: Aspects Relevant to Isolation

One non-isolated patient repeatedly assured me that she was 'compos mentis', saying it was humiliating to be in a room with the other patients, because they were 'all senile'. She was concerned that others would think that she was also senile, because she was sharing a room with them. Another relatively able patient shared a room with three patients who could not communicate and had dementia: she said this was extremely depressing and lonely, and she worried that she too would acquire dementia, from being with these other patients for so long.

Other patients frequently sought personal contact. One non-isolated patient, for example, repeatedly called me back whenever she saw me, to talk over and again about her husband who had died. Another non-isolated patient was frequently observed to be calling the nurse, who did not respond. On one occasion, he called "Nurse, nurse, can I have a drink?" several times, before the nurse replied sharply "No, be quiet". A fellow patient complained that his constant calling out was 'driving everyone mad'. Thus, while he may have been trying to gain attention and interaction, his behaviour was having the opposite effect, as he was irritating the staff and other patients, who were rejecting his attempts at personal contact.

(2) Views Regarding the Staff

One patient felt the nurses were rude. Another patient complained that the staff did not tell her what was going on, when the doctor would see her, and what her medicine was for. They also did not answer when she called them.

However, most patients when asked directly, commented that the staff were good, but did not have enough time for the patients.

Three relatives commented that the staff were excellent, and did their best, but that the ward was very understaffed.

(3) Regarding Discharge

Several patients seemed very preoccupied with the issue of discharge. Ten patients said they were desperate to get out of hospital, including four who were not isolated. Most said they wanted to be in their own home again, or near family. One talked about having her own things around her and being able to choose what to eat and what cutlery to use. Several complained about the poor quality and lack of choice of the hospital food. These comments, reflecting the lack of individuality apparent in the hospital environment, were evocative of Goffman's concept of the 'total institution'.

Several patients expressed worry about burdening their families. One patient said that she wanted to die so that her family would not have to look after her when she was discharged. Another patient said she was dreading going home, as she did not think she would be able to manage, while another was worried about where she would be discharged to.

Thus although patients did not experience the hospital environment positively, some patients had very real fears about the alternatives and the future.

3.4.5 Qualitative Information - Summary and Conclusion

In summary, the qualitative information highlighted the following:

- isolation felt like an undeserved punishment to many patients.
- isolation was frustrating and stressful for many: the problems with attracting attention when needed were stressed by several.
- MRSA isolation was distressing for relatives as well as patients.

- some patients may be more appropriately placed together than others. Some non-isolated patients found it distressing to be amongst much less able others. The situation caused anxiety about how they themselves were perceived, and about the potential impact of those around them on their own mental health.
- Non-isolated patients were much more easily able to attract attention than isolated patients, who are much less visible. Just as some nurses may spend less time with isolated patients, so did I, as only the non-isolated patients could call me to talk with them.
- Some non-isolated patients complained about the lack of privacy, and disturbances from other patients. Thus there can be some advantages to being isolated.
- some non-isolated patients spent a lot of time away from their beds, in the lounge area, which would not be possible for isolated patients.
- many patients, isolated and non-isolated, felt the need more personal contact than they currently receive. One isolated patient said she welcomed the privacy, but only because her family visited often. This illustrates the importance of personal contact, a need which could not be met simply by being with other people, however, but by spending time with those particular people with whom she had a close relationship.
- communication about hospital procedures was felt by some patients and relatives to be inadequate
- the hospital environment was oppressive for both isolated and non-isolated patients, such that many were desperate to go home
- fears were also evident regarding how to cope outside of the hospital.
- patients, relatives and nurses perceived the ward to be inadequately staffed to meet the needs of the patients.

3.5 Hypothesis Testing

Means, standard deviations and ranges for the outcome measures for each group separately and for the total sample are shown in Table 3.

Table 3: Descriptive Data for Outcome Measures for Total Sample and for Each Group

Variable	Total Sample			MRSA +ve group				MRSA -ve group			
	mean (SD)	Range	n	mean (SD)	range	(n)	mean (SD)	range	(n)		
GDS	6.85 (3.53)	0-14	(40)	8.23 (3.60)	0-14	(22)	5.17 (2.66)	2-11	(18)		
POMS T-A	11.98 (7.64)	0-26	(42)	15.05 (7.34)	4-26	(22)	8.60 (6.60)	0-25	(20)		
POMS A-H	11.41 (10.39)	0-36	(41)	11.32 (11.45)	0-36	(22)	11.53 (9.34)	0-30	(19)		

GDS, Geriatric Depression Scale; POMS T-A, Profile of Mood States Tension-Anxiety;

POMS A-H, Profile of Mood States Anger-Hostility.

3.5.1 Hypothesis 1: *Both groups of hospitalised older adults, i.e. those with and without MRSA, will have higher proportions of participants with clinical levels of depression, anxiety and anger than are found in older adults in the community.*

One-sample t-tests were conducted on the outcome data, to compare the means in the current study with normative values. As no reliable representative normative data could be found for performance on the GDS, the t-test was used to compare the proportion of the sample scoring above the cut-off point for clinical depression, with the proportion of older adults in community samples who have clinical depression.

3.5.1.1 Selection of Test Values

(1) Depression

Schneider, Reynolds, Leibowitz and Friedhoff (1994) suggest that 15 per cent of community residents above the age of 65 years present with symptoms of depression; and Lindsay, Briggs and Murphy (1989) similarly reported a prevalence rate of 13.5 per cent for mild to moderate depression.

The recommended cut-off screening score for the GDS-short form is 5/6 (Herrmann et al., 1996). Using this cut-off score as a guide, and 15 per cent as the test value, a one sample t-test was performed on the GDS scores for each group.

(2) Anxiety and Anger

Mean scores are available for the sub-scales of the POMS with older adults. These vary somewhat between studies. Gibson (1997) cited a mean score of approximately 9 for anxiety, while Kaye et al.'s (1988) study of 505 older adults produced a value of 7.68, somewhat lower than Gibson's value. For anger, Gibson's (1997) mean score was about 5, while Kaye et al.'s (1988) mean was again lower, at 3.92. It was decided to use the higher means reported by Gibson (1997), which would provide more conservative test values, and to compare these means with the data obtained in the current study.

3.5.1.2 Results of One-Sample t-tests

(1) Depression

77 per cent of the MRSA positive group scored above the recommended cut-off score of 6, and this was highly significant ($t = 6.81, p < 0.01$).

33 per cent of the MRSA negative group scored above the cut-off score of 6, and this time the t statistic did not reach significance level ($t = 1.60, n.s.$)

Thus the MRSA positive group, but not the MRSA negative group included a significantly higher proportion of participants scoring above cut-off points for clinical depression than would be expected in a normal population.

(2) Anxiety

For the MRSA positive group, the mean score of 15.05 was found to be significantly higher than the mean reported by Gibson ($t = 3.86, p < 0.01$)

For the MRSA negative group, the mean score of 8.60 was not significantly different from the mean reported by Gibson ($t = 0.27, n.s.$).

(3) Anger

For the MRSA positive group, the mean score of 11.32 was significantly higher than the mean reported by Gibson ($t = 2.59, p < 0.05$).

For the MRSA negative group, the mean score of 11.53, was also significantly higher than the mean reported by Gibson ($t = 3.05, p < 0.01$).

The results of the one-sample t-tests are summarised in table 4 below.

**Table 4: Outcome of One-Sample t-tests to Compare
Outcome Measure Scores with Community Population Scores**

	<u>MRSA + t-scores</u>	<u>MRSA - t-scores</u>
Geriatric Depression Scale	6.81** (df 21)	1.60 (df 17)
POMS - tension-anxiety	3.86** (df 21)	0.27 (df 19)
POMS - anger-hostility	2.59* (df 21)	3.05** (df 18)

*p < 0.05, ** p < 0.01

3.5.2 Hypothesis 2: *Older adults who are isolated following MRSA diagnosis will have higher rates of depression and anxiety, and will be more angry than controls matched for age, sex, diagnosis, length of hospitalisation, functional independence, and cognitive functioning.*

3.5.2.1 Independent t-tests

The independent sample t-tests indicated that the MRSA positive, isolated group had significantly higher rates of depression ($t = 3.00$, $df 38$, $p < 0.01$, 1-tailed) and anxiety ($t = 2.98$, $df 40$, $p < 0.01$, 1-tailed) than the MRSA negative, non-isolated group. There was no significant difference in the anger scores for the two groups ($t = 0.06$, $df 39$, n.s.). Thus the second hypothesis was partially supported.

3.5.2.2 Analysis of Nursing Staff Questionnaires

Regarding these first two hypotheses, the above statistical tests were performed on the basis of the self-report data of the older adult participants. However, information about the symptoms was also obtained from nursing staff for 15 of the MRSA positive participants. The information obtained which is relevant to these hypotheses, regarding impact of hospitalisation and isolation, was as follows:

(1) Change in Symptoms over Time

All the nursing staff information related to MRSA positive participants. Wilcoxon sign tests were performed to see if the symptoms rated by nursing staff changed significantly over the course of hospitalisation. The results are summarised in Table 5 below, and indicated that the nurses felt there was a significant increase in depression, slowness of thought/action, fear, panic, restlessness, and worry in participants over the course of their hospital stay. There were no significant changes in symptoms of tension, interest, memory problems, anger, appetite, enjoyment, guilt, or insomnia.

Thus although nursing staff said that a significant number of participants became more depressed, and slowed in their thoughts or actions, they did not report an increase in many symptoms typically associated with depression (lack of interest, worsening memory, lack of enjoyment, insomnia, slowness).

The other symptoms that they reported to have increased related to anxiety, i.e. fear, panic, restlessness and worry.

Table 5: Responses of Nursing Staff Regarding Change in Symptoms in Fifteen MRSA Positive Patients Over Course of Hospitalisation

<u>Symptom</u>	<u>Wilcoxon's Z</u>
depressed mood	3.24**
guilt	1.43
insomnia	-0.28
lack of interest	-0.34
slowness of thought/action	-1.98*
lack of appetite	-1.84
enjoyment	-1.13
restlessness associated with anxiety	-1.99*
tension and irritability	-0.82
worrying	-3.14**
fears	-2.86**
panic	-2.74**
anger	-1.82
memory impairment	-1.67

*p < 0.05; **p < 0.01.

(2) Agreement Between Nursing Staff and Older Adult Ratings Regarding Symptoms of Depression, Anxiety and Anger

The scores for items relating to depression rated by nursing staff were summed, and Kendall's Tau was computed between these summed scores and the GDS scores of the corresponding patients. Similarly the scores for items relating to anxiety rated by nursing staff were summed, and Kendall's Tau was used as a measure of correlation between the nurses' rating and the POMS Tension-Anxiety scores for the corresponding patients. Finally, a correlation,

also Kendall's Tau, was performed between the anger score rated by nurses and the POMS Anger-Hostility score of the corresponding patients.

None of these correlations were significant (Depression: Tau = -0.17, n.s.; Anxiety: Tau = 0.06, n.s.; Anger: Tau = 0.28, n.s.). This highlights the inconclusive nature of these results.

3.5.3 Hypothesis 3: *Within each group, those who spend more time with visitors will be less depressed, angry and anxious than those who spend less time with visitors.*

It was originally intended to analyse these data using Kendall's Tau to measure correlations for each group between time spent with visitors and the outcome measures of depression, anxiety and anger.

Difference Between Nursing Staff and Older Adult Reports

Two estimates of the amount of time spent with visitors were available for fifteen of the isolated participants: the older adults' own self-report, and also the report of nursing staff. As a preliminary step, to give some indication of the accuracy of the self-report information regarding the amount of time spent with visitors, these estimates were compared. Although the overall means were similar (nurses estimate = 13.67 hours per week, patient estimate = 11.9 hours per week), the actual data for individual participants appeared to be very different, as shown in table 6 below. Therefore a mean difference between the nurses' and corresponding older adults' self-report was calculated to show whether the two estimates were significantly different. The mean difference was found to be 17.4 hours per week, showing that the two estimates were indeed very different.

Table 6: Estimates of Time Spent with Visitors as Rated by Nursing Staff and Patients, and Differences Between Them

<u>Nursing Estimate</u> <u>(hours per week)</u>	<u>Patient Estimate</u> <u>(hours per week)</u>	<u>Difference Between Nursing and</u> <u>Patient Estimate (hrs per week)</u>
30	1	29
25	7	18
0	40	40
0	21	21
15	2	13
2	7	5
10	10	0
15	8	7
2	28	26
30	5	25
2	14	12
35	8	27
20	7	13
15	8	7
4	missing	-
mean 13.67	mean 11.86	mean difference 17.36

There was no way of knowing to what extent this discrepancy reflected inaccurate reporting on the part of the nursing staff, and how much was attributable to inaccurate older adult self-report. At this stage, however, it was recognised that the information given was so discrepant that it would not be possible to gain any reliable information from analysing the data relating to the amount of time spent with visitors.

3.5.4 Hypothesis 4: *Within the isolated sample, length of isolation will predict higher rates of depression, anxiety and anger.*

Kendall's correlation coefficients indicated no significant associations between length of isolation and any of the outcome measures (GDS: Tau = -0.16, n.s.; POMS T-A: Tau = -0.35, n.s.; POMS A-H: Tau = 0.15, n.s.) This hypothesis was, therefore, not supported.

3.5.5 Hypothesis 5: *For both groups of participants, i.e. those with and those without MRSA, length of hospitalisation will predict higher rates of depression, anxiety and anger.*

Kendall's correlation coefficients indicated no significant correlations between length of hospital stay and outcome measures for either group, as shown below.

(1) Isolated Group

GDS: Tau = -0.04, n.s.; POMS T-A: Tau = -0.34, n.s.; POMS A-H: Tau = -0.06, n.s.

(2) Non-Isolated Group

GDS: Tau = 0.18, n.s.; POMS T-A: Tau = -0.19, n.s.; POMS A-H: Tau = 0.26, n.s.

These data indicate that this hypothesis is not supported.

3.6 Critique of measures Used

3.6.1 Questionnaire for Nursing Staff

Originally the focus of the current study was on gaining self-report information from older adults, using standardised measures. The nursing staff questionnaire was an extra component, included only after the results of the pilot study suggested that the older adults' self-report may have been unreliable. While the items used in the nursing staff questionnaire were based on those from standardised questionnaires including the Hamilton and the HADS, the questionnaire itself was a 'rough and ready' unvalidated measure, which would need further development and testing for reliability and validity.

The most striking finding was the discrepancy between the estimates of time spent with visitors as reported by nursing staff and their older adult patients. It is not possible to know for sure the extent to which the differences reflect inaccurate reporting of staff or patients. This difference, however, precluded any analysis of this data. One factor that could explain this huge discrepancy is the retrospective nature of the nursing staff questionnaire. Thus the estimates of who visits, and for how long, were based on the memory of the particular nurse, who was generally very busy, and may not have taken much notice of the comings and goings of visitors. Furthermore, the nurse asked may not have been on duty at the time of regular visits, and therefore may not always have been in a position to know who has been visiting and when. Equally, the reports of patients could be inaccurate due to poor memory, which might be exacerbated by the unstructured nature of hospital, which can be disorientating. Clearly, to arrive at a valid measure of the time spent with visitors, systematic records would need to be made of the times of arrival and departure of visitors. One way of achieving this might be to ask visitors themselves to record when they arrived and left.

The questions relating to the mood states of the patients also included a retrospective component, regarding whether staff felt their patients' mood had *changed* since admission. Nursing reports are likely to have been more accurate if they had been made *at the time of*

admission as well as after being in hospital for some time, rather than relying on their memory.

There was no correlation between nursing staff and the corresponding older adult ratings regarding current symptoms of depression, anxiety and anger. Again this casts doubt on the reliability and validity of the nursing questionnaire. Nursing reports might have been inaccurate because the nursing staff duties appeared to focus largely on physical care, and in their busy schedule, little time was devoted to considering their patients' emotional well-being. Hence they may not have spent time talking with or observing their patients closely with respect to the questions asked, so that their responses were based on inadequate information. The focus on physical care is also likely to reflect the emphasis of their *training*, so they may have lacked the skills to recognise subtle indications of their patients' mood states.

For all of the above reasons, the usefulness of the questionnaire for this study is limited, although the possible inaccuracy of nursing staff reports raises important issues about training staff in recognising and providing for patients' psychological as well as their physical needs. Some valuable qualitative information was obtained, in terms of nursing staff views about isolation. In particular the nurses interviewed confirmed the anecdotal evidence that for various reasons, staff spend less time with isolated than non-isolated patients.

3.6.2 Geriatric Depression Scale

Thirty one per cent of the participants in the current study reached the cut-off scores for mild dementia using the Abbreviated Test Score. The Geriatric Depression Scale has been criticised by some as being unsuitable for older adults with a cognitive impairment (Burke, Roccaforte, and Wengel, 1991), although this suggestion is not universally accepted (Sheikh and Yesavage, 1986; O'Riordan et al., 1990).

Even if not ideal, this measure certainly appeared more acceptable than the HADS in terms of ease of administration, in terms of its brevity and simplicity of response(Yes/No). Nevertheless the process of asking the questions did not always feel comfortable, and the questions did not always seem to be necessarily probing symptoms of depression in this population.

For example, the first question ('Are you basically satisfied with your life?') seems inappropriate to ask to someone who is recovering from a stroke, which has resulted in the loss of abilities. Similarly question 11 ('Do you think it is wonderful to be alive now?'), and question 15 ('Do you think that most people are better off than you?') were felt to be somewhat provocative questions in the case of very frail or disabled patients.

A negative answer to either the second question ('Have you dropped many of your activities and interests?') or the fourth question ('Do you often get bored?') could reflect the restrictions of the hospital setting and illness rather than depression.

Question six ('Are you afraid that something bad is going to happen to you?') might appear to suggest that something bad was *likely* to happen, and therefore might be anxiety-provoking to the patient. Similarly, question twelve ('Do you feel pretty worthless the way you are now?') could imply to the participant that they were in fact worthless.

It seems likely that *despite the fact that this scale has been validated for use in hospital populations of older adults* (eg. Leshner and Berryhill, 1994), these kinds of questions could account for the reluctance of some patients to continue with the interview.

3.6.3 Profile Of Mood States

This measure appeared to present the fewest problems, although some participants apparently found it repetitive, reflected in comments such as "You've asked me that already". Some patients seemed to find it hard to decide on the degree to which the symptoms applied.

Gibson (1997) discusses how older adults may be more inclined than others to portray themselves in good light by choosing socially desirable responses in questionnaires of this kind: his own study concluded that age-associated increases in response bias are an important influence on the willingness of older adult participants to report negative mood.

There was some evidence that this phenomenon was taking place with individual patients in this study, in that a few participants endorsed very few symptoms of anxiety or anger, while this did not match the subjective impression gained. One patient declined to take part in the study for fear of being considered ungrateful or critical, and some others who did take part may have felt similarly, so giving responses that did not reflect their true feelings. Overall, however, the scores obtained for anger were greater than the means reported in community samples of older adults in both groups of participants. The scores for anxiety were also greater in the MRSA positive group than in community samples. Thus any response bias in favour of socially desirable responses was not apparent in either group as a whole.

3.6.4 Description of Time Spent with Visitors

Since isolation was a central issue of interest, questions were included regarding how many visitors participants received, who the visitors were, how often they visited, and how long they stayed. This was intended to tap an element of the degree of social support available, while keeping the demands made on participants to a minimum. While a formal measure such as the Social Support Questionnaire (SSQ, Sarason, Levine, Basham, and Sarason, 1983) would have had the advantage of producing a standardised response, it was felt that even the short form (SSQ6, Sarason, Shearin, Pierce, and Sarason, 1987) would have made the interview unacceptably long. In the event, the discrepancy between the reports of the older adults and those of the nursing staff precluded the use of this data. It might have proved valuable to ask about the degree of satisfaction with visitors, as this is an important component of social support.

3.6.5 Measures Used - Summary and Conclusion

A number of problems emerged in the administration of the measures used in the current study, and the interpretation of the data obtained is limited by doubts about reliability and validity. Although the procedure was improved by modifications following piloting, it would have been preferable to modify the whole format further, as problems remained. In particular, the design could have been improved by affording a lower priority to the self-report measures, and instead using qualitative data more widely. This information was much more accessible, as patients were more willing to talk in general terms than to answer specific questions.

The experience of the difficulty in obtaining reliable information from self-report measures extends beyond the current study, and is an important issue for research of this nature in general. This will be discussed further in section 4.6.

4. Discussion

This study examined the impact of hospitalisation and MRSA isolation on two groups of hospitalised older adults, aged between 65 and 97 years. The study demonstrated some of the difficulties associated with using self-report methodologies with this population, which limited the extent to which the hypotheses could be tested. These difficulties primarily concerned engaging potential participants in the interview process, particularly in completing standardised measures. Doubts about the validity of some of the responses of both the staff and patients were also raised.

In this section the main findings are summarised and interpreted, and then the difficulties with the methodology are discussed in more detail. Next, the results are discussed with respect to theoretical issues. Recommendations for clinical practice are outlined, and the discussion finally addresses implications for interpreting previous studies, and for planning future research.

4.1 Summary of Research Findings

This study focused on gaining self-report information from two groups of hospitalised older adults in a rehabilitation setting. One group was isolated in single rooms as an infection control measure, while the other was non-isolated. The two groups were well-matched on demographic variables and length of hospitalisation, and had similar levels of cognitive and physical functioning.

Using the results of the POMS and the GDS, there was some support for the view that a greater proportion of the MRSA positive, but not the MRSA negative group, had higher levels of depression and anxiety than would be expected in a community sample of older adults. Both groups reported increased levels of anger compared with a community sample of older adults. A proportion of both the isolated and non-isolated patients expressed negative

views about being in hospital, and wanting to go home, although some were also worried about how they would cope once discharged.

As predicted, the MRSA positive sample was significantly more depressed and anxious than the non-isolated group, using the GDS. However, there was no difference in anger level between the two groups. Qualitative information indicated that many MRSA positive patients felt very negatively about being isolated, although responses were quite variable, and it was not possible to draw a general conclusion.

There was no correlation between length of hospital stay and any of the outcome measures in either of the two groups. Length of isolation in the MRSA positive group was not associated with depression, anxiety or anger.

4.2 Interpretation of Results

The following interpretations are tentative, in view of the methodological issues arising from the study, which are subsequently considered in detail.

4.2.1 Impact of Hospitalisation

Both groups in the study reported higher levels of anger than would be expected in a relatively healthy population of older adults (Gibson, 1997). The MRSA positive group also had elevated levels of depression and anxiety as compared with those expected in a community sample of older adults (Lindesay et al., 1989; Gibson, 1997). These findings suggest that hospitalisation can have an adverse impact on the psychological well-being of older adults. It could be that the crisis of illness and functional disability, rather than hospitalisation per se, account for the elevated anger scores. It seems likely, however, that hospitalisation is a contributory stress, particularly as nearly a quarter of the participants expressed their desperation to get out of hospital.

The relatively high anger scores in both groups is likely to reflect the difficulties discussed in the introductory section. For example, the loss of opportunities for control and independence in hospital (eg. Rodin and Timko, 1987), are likely to lead to frustration and anger. Difficulties in communication skills, which are common in older adults, particularly following strokes, were common in the sample, and this is likely to contribute to the anger expressed. Comments from patients and relatives, for example, regarding dissatisfaction with the buzzer system, and the lack of information available regarding hospital procedures, basically reflect a communication failure in the system.

4.2.2 Impact of MRSA Isolation

Over half of the MRSA positive patients expressed negative feelings about being isolated, while only three patients viewed it positively. Consistent with this, the results of the POMS and GDS suggest that MRSA isolation exacerbates the difficulties associated with illness and hospitalisation: the MRSA positive patients were significantly more anxious and depressed than the non-isolated patients. While no differences in the anger scores were apparent between the two groups, this could be because both groups had higher than the mean anger levels cited in studies of older adult community populations (Gibson, 1997).

The knowledge of having an infectious disease might have been stigmatising and worrying, contributing to the increased scores for depression and anxiety in MRSA positive group, relative to the non-isolated group. However, it appeared that in terms of their physical health, patients were primarily concerned about the main diagnosis, e.g. stroke, fractured neck of femur. Further, several participants made negative comments about being isolated, while none seemed concerned about the MRSA diagnosis. Thus it seems likely that the experience of being isolated was more important than having MRSA.

4.2.3 Length of Hospitalisation and of Isolation

The lack of significance in the correlational data might reflect the small sample size. Alternatively, the findings could suggest that beyond a certain time, increasing length of hospitalisation or of isolation cease to have any further effect. All the patients in the study had been in hospital for at least four weeks, and all the MRSA positive group had been isolated for at least two weeks: perhaps this initial stage is the critical one in which the environment has its impact. This would be consistent with Moos and Schaefer's (1984) model, which described how psychological systems are driven to return to a stable state following an initial crisis. On the other hand, no participant had been isolated for more than eight weeks, although patients are commonly isolated for several months. It could be that the impact would increase over this extended time period.

4.3 Methodological Issues

The study originally aimed to obtain self-report information using questionnaires regarding the mood states of hospitalised older adults. The research questions were literature-based, and the procedure appeared feasible, as published studies have claimed the validity of the standardised measures with this population. However, during the course of the study it became apparent that the nature of the population and the proposed measures were limiting factors, which made some aspects of the study design unworkable. The main limitations of the study were as follows:

4.3.1 Measures

Probably the greatest difficulty with this research was the appropriateness of the measures for the population under study. A detailed critique of the measures is discussed in the 'Results' section. Briefly, the main difficulty involved the lack of appropriate standardised self-report measures available for use with frail older adults. This led to the inclusion of an

unstandardised unvalidated measure, and to doubts about the validity and reliability of all the measures. The implications for other research is discussed in section 4.6.

4.3.2 Participants

(1) Older Adult Participants

(a) Representativeness of Sample

The degree to which the participants were representative of all the patients in the rehabilitation setting is questionable for the following reasons:

- The population studied was a frail and elderly group of patients, recovering from serious illnesses, and many were unable to provide self-report information, despite efforts to minimise the demands on participants. Hence, those who took part in the study were, largely, the most able patients, physically and cognitively. This kind of finding is typical of gerontological research. La Rue and Markee (1995) reviewed fifty studies of older adult participants, most of which did not address the health status of participants in any detail. Of those that did, most excluded certain groups, so that the sample was an exceptionally healthy group of older adults.
- severely depressed patients are likely to have been amongst those who did not respond when approached. In this respect, it seems likely that any bias in the outcomes obtained would *underestimate* the overall degree of psychological distress among the older adults on the rehabilitation wards.
- Participants in the MRSA positive group were recruited from two different settings, and it may be argued that the environment was not sufficiently similar in the two settings. However, while visitors in Trust 2 did not have to wear gloves and gowns when in contact with MRSA positive patients, the physical settings were otherwise very similar. The numbers

of participants obtained from Trust 2 were too few to conduct any analysis of the difference between the participants in the different settings. A further question for future investigation is how representative the settings studied are of other hospital and isolation settings.

(b) Difficulties with Recruitment

This issue has been discussed in detail in the 'Results' section. The problems with recruitment have two main implications:

- a smaller sample size than intended, limiting the conclusions that can be drawn from the data
- an under-representation of less able patients in the sample, as discussed above

(c) Confounding Factors

It would have been impossible to control for all the potentially confounding factors within the constraints of a study of this kind. For example, the different medications of participants could affect levels of alertness, concentration or other aspects of behaviour.

(2) Nursing Staff Participants

The nursing staff questionnaire was introduced only after the pilot stage. This meant that time for discussing its inclusion, particularly with ward managers, was limited. Given the understaffing and tremendous time-pressures on the staff, it proved difficult to find a time when nurses could spend even a few minutes reflecting on their patients' psychological state. Thus while a response relating to each older adult participant would have been ideal, this proved impossible. The 15 responses obtained all related to patients in the MRSA isolated

group, as it was considered particularly important to obtain information on nursing staff attitudes to MRSA and its impact on patients.

4.3.3 Design

The cross-sectional design of this study limits the information that it was possible to obtain. Ideally a longitudinal study would provide more accurate information about patients' psychological well-being from the beginning of hospitalisation, and over time.

Given the difficulties that emerged in collecting self-report information, other ways of obtaining information should have assumed more importance:

- An extensive observational component would have allowed for the collection of data relating to engagement in activities, and to additional data regarding the impact of the hospital setting on the patients' mood. This was in fact considered, but the time-scale for data collection was too short to allow for a sufficiently detailed observational study.
- a more extensive qualitative interview might have produced more useful information about the impact of hospitalisation and isolation on the mood of participants
- greater emphasis on obtaining views and information from relatives could have provided a rich source of information.

4.3.4 Procedure

The face-to-face interview procedure employed in this study had advantages in maximising response rates and minimising missing data. The semi-structured format added flexibility and helped to accommodate the specific needs of a frail, elderly population. However, this flexibility could result in bias and poor reliability in rating responses. Ideally, an inter-rater

reliability measure would have been included, by either taping interviews or having another rater present at the interview. However, given the general degree of apparent suspicion and reluctance to participate in any case, it did not seem feasible to ask participants to consent to this. Under the circumstances, the advantages of using a flexible approach were considered to outweigh possible dangers of biased results.

Many patients apparently welcomed the opportunity to talk, but about their own agenda, rather than that of the interviewer. The process may have been more successful if more time had been taken to get to know patients, for example by chatting every day for 10 minutes or so, so that they get used to interviewer. This may feel more natural and acceptable to people who might be unaccustomed to taking part in surveys.

4.3.5 Reliability of Self-Report Information

The reports between nurses and their patients regarding how much time was spent were widely discrepant. There were no correlations between nursing reports of anger, anxiety and anger with those of their patients.

These findings are consistent with previous studies. Disagreements have been found between patients and nurses in rating the degree of stress involved in different aspects of hospital care (Davies and Peters, 1983) and residential nursing homes (Wetle, Levkoff, Cwikel, and Rosen (1988).

It was not possible to know whether these findings reflect inaccurate self-report of participant older adults, or erroneous perceptions of elderly patients' concerns on the part of nurses. However, these observations highlight the need to consider how best to obtain accurate information about the mental state of the older adults in this population.

4.3.5 Analyses

Ideally the two groups would have been matched on a case by case basis, to control for potentially confounding variables more stringently. In this case, paired t-tests rather than tests for independent samples could have been used. However, no direct one-to-one matching was possible from the pool of potential participants, and the overall groups were extremely well-matched for age, gender, diagnosis, cognitive functioning, functional independence and length of hospital stay.

The mean test values of the POMS sub-scales selected for comparison with the current study's samples were taken from a study of a relatively healthy community population of older adults (Gibson, 1997). It is recognised, therefore, that elevated scores in the current study's samples compared with the test values, could reflect disability and illness in these samples rather than hospitalisation and isolation. However, the community sample mean was a relatively conservative estimate, for example, compared with that of Kaye et al. (1988), and no *representative* norms for older adults have been published, because of the difficulties inherent in interviewing less able older adults. Also, the samples in the current study under-represented the less able patients, reducing the difference between the participants and the population used in the community samples.

There were no significant correlations arising from the hypotheses 3 to 6. This could be related to the small range within some of the predictor variables. There were several tied scores for length of hospitalisation, length of isolation, and numbers of visitors reported by older adults. The relatively small sample size was another limiting factor.

4.4 Theoretical Implications

Using Moos and Schaefer's Crisis Theory as Applied to Physical Illness (1984), it was predicted that both groups of patients in this study would have difficulties with psychological adjustment, due to limitations in social support, and limited opportunities to engage

proactively in effective coping strategies, and to maintain a sense of competence. The theory was also used to predict that the MRSA positive group would be further affected by having even fewer opportunities to develop and maintain relationships within their environment, and the greater oppressiveness of the environment itself.

These predictions were borne out, in that both groups of patients attained higher scores for anger than would be expected in a normal population of older adults. The MRSA isolated group further demonstrated increased levels of depression and anxiety compared to the normal population and to the non-isolated group.

Moos and Schaefer's theory also sees crises as self-limiting. The findings of this study were consistent with this, in as much as there was no evidence of any impact of increased length of hospitalisation or of isolation. This might suggest that, as Moos and Schaefer describe, the patients found a way of returning to a stable state after a certain amount of time.

The theory also points to the role of individual factors in predicting outcomes. These could not be assessed in the current study, as all the outcomes related to group data, and could take into account individual differences. For example, crisis theory considers the role of different coping styles in predicting patients' psychological adjustment. There were indications of various coping strategies used in the current study. Some appeared to approach hospitalisation with resigned acceptance ("Well you just have to be here, don't you, there's no point complaining"). One relative described his mother as withdrawing and not taking an interest in her recovery, which might reflect an avoidance of facing up to her changed circumstances. One patient declined to take part in the study because he said thinking about his experience of hospital was too distressing - it might be that for him and some other patients who declined to take part, avoidance of self-reflection was a coping strategy. Some patients frequently sought personal contact, which could be seen as a problem-focused coping strategy to obtain support. Other patients seemed to cope by thinking about their recovery and discharge, anticipating returning to their own home environment. It was not possible to assess how the various coping styles affected patients' well-being, but this would be an interesting topic for future investigation.

Other individual differences need to be considered. For example, participants might approach hospitalisation differently depending on their previous experience of illness and hospital. Their need for social support might vary depending on whether they have spent much of their life in close relationships, or whether they have been recently widowed. Cultural factors might be another important variable. All of these factors and others could influence each individual patient's sense of competence, which was not measured in any way in this study, but which could affect outcome, according to the theory. Future research therefore should address these aspects of Moos and Schaefer's model in more detail.

4.5 Clinical Implications

4.5.1 Hospitalisation (with and without MRSA)

(1) Psychological Assessment and Intervention

This study demonstrates the difficulties involved in accurately assessing the mood states of hospitalised older adults. Any assessment with a view to clinical intervention requires a multi-method approach, which could include clinical interview, direct observation, standardised measures where appropriate, and consultations with staff, which might involve asking them to record behaviour for a functional analysis.

(2) Effective Communication

(a) Physical and Sensory Impairments

One likely reason for frustration and anger amongst many older adults is a reduced ability to communicate effectively, due to sensory impairments, and a decreased ability for verbal expression. To maximise effective communication, important information should be repeated, clearly, one message at a time, and verbal aids should be used when necessary

(Campbell and Lancaster, 1988). In the current study, televisions were switched on all over the ward, regardless of whether anyone was watching them. The extraneous noise from the television and other clients impeded the interviews with the non-isolated group. Hence it is important to have a quiet place to talk to patients about important matters, both for privacy, and to aid in communication.

(b) Communicative Intention

Various examples of a lack of clear communication emerged in the current study. Patients and their relatives need to be given clear explanations regarding their treatment, isolation, and an opportunity for open discussion about worries such as those relating to discharge.

(3) The Physical Environment

The physical environment in which older adults are spending several weeks or months should be given greater priority. This is especially important for those in isolation, who spend almost all their time in their rooms. Rooms can be decorated in a personalised manner, as exemplified by the nursing staff in Trust 2, who decided to redecorate one isolation room themselves.

Some unfavourable aspects of the environment could be rectified very simply, for example, by changing the aversive sound of the buzzer, and adjusting the time on a patients' clock. Two patients in the current study were distressed at being placed in rooms with other much less able patients. It would be impossible logistically to allow for patients to choose their room-mates. However, given that these patients are often in hospital for several months, some thought should be put into which patients could most appropriately be placed together, particularly if it becomes apparent that a particular arrangement is not working.

The impression of extremely low activity levels indicates the need for varied stimulation and short-term activities to be available for older adults who tire easily, especially for those in isolation, who are rarely able to leave their room.

(4) Ward Management Issues

The nurses in the current study appeared to be under tremendous time pressure, exemplified by the very limited time they found to complete the questionnaire, their delay in responding to the buzzers, and their relatively limited contact with MRSA positive patients. The resourcing and ethos of wards need to allow nurses to be trained and encouraged to provide a more holistic approach to care, so that they are able to prioritise their patients' emotional and psychological, as well as their physical needs. Thus for example, spending time talking to patients should be seen as a valued part of their job. In the meantime, however, more explicit recognition of structural factors such as staff shortages would help staff feel more validated.

(5) Staff Support

Some of the nursing staff in the current study expressed a fear that they might become infected with MRSA themselves. Staff may need specific support if they are found to be MRSA positive. They may have to undergo treatment in order to return to work, and this may be associated with fear of the unknown and feelings of rejection by colleagues, family and friends. Mackenzie and Edwards (1997) suggest that such staff should be entitled to confidential information, advice and support from the infection control team.

4.5.2 MRSA Isolation Policy

Hand-washing has been found to be more important in controlling MRSA transmission than patient isolation, and some clinicians question the effectiveness of isolation of MRSA

infected patients (eg. Stone, 1997). The medical and nursing literature emphasises over and over again that proper hospital hygiene is the key to infection control (eg. Mackenzie and Edwards, 1997; Hart, 1998). Nevertheless, hygiene measures are not generally well implemented, and setting 2 in the current study did not require visitors to the ward to wear protective clothing or wash hands on patient contact. The results of the current study indicate that in addition to its financial cost and the practical problems associated with providing isolation rooms, isolation has the potential to cause much distress. This raises the question of whether isolating patients can be justified, if other infection control measures are not carried out adequately, such that isolation is unlikely to be effective.

4.5.3 Summary

Clinical assessments with hospitalised older adults need to include a multi-method approach. Clear and open communication with patients and their families needs to be prioritised, as does attention to the physical environment of wards. Staff should be enabled to provide more psychological support to patients, and the pressures on nurses in terms of time limitations and the nature of their work needs to be acknowledged and addressed through more adequate resourcing and staff support. Infection control measures other than isolation need to be enforced more rigorously in order for isolation to be effective in preventing transmission of MRSA.

4.6 Implications for Interpreting Previous Studies and for Future Research

4.6.1 Developing a Research Methodology

The most central question raised by this study is how to gain accurate information about the mental states of ill or frail older people with physical, sensory, or cognitive impairments. Various techniques are used to gather such information, as follows:

(1) Self-Report Measures

This study demonstrated some of the difficulties that can arise with the use of self-report measures, which have not always been addressed by previous research. The two main issues were as follows:

(a) Consent and Engagement

The difficulties with engaging patients in completing standardised measures raises questions about some of the previously published studies which condone their use. This is particularly apparent with the GDS. The authors of this scale (Sheikh and Yesavage, 1986), in developing it, stated that "Questions that might increase the defensiveness of subjects or otherwise reduce cooperation and rapport were avoided". This claim was not borne out in the current study, as described in the 'Results' section. O'Riordan et al. (1990) used the GDS-*long* form, which is twice the length of the questionnaire used in the current study. According to the authors, only one out of 112 geriatric inpatients refused to cooperate with the scale. This exceptionally high consent rate raises the question of how much choice these patients were offered, and how they were approached, given the difficulties encountered in the current study. No mention is made of any difficulties in administering the scale, or of the acceptability of the GDS to participants. Other studies (eg. Herrmann et al., 1996; Lesher and Berryhill, 1994) give no indication of response rates, and again do not comment on the acceptability of the scale. Shah, Herbert, Lewis, Mahendran, Platt, and Bhattacharyya (1997) assessed the use of a ten-item version of the GDS. Fifty three patients completed this, 13 refused and one who withdrew consent. The vast majority of patients, when asked, reported that they found the scale 'not at all difficult' and 'quite' or 'very acceptable'. However, this favourable result may reflect a response bias in favour of socially desirable responses, and the figures do not take into account those who did not consent, who might be particularly likely to have found the scale unacceptable.

It is possible that some of the above studies avoided problems around engagement by recruiting a biased sample of only very able and willing participants. However, most do not refer to any such problems, and it would have been interesting to know how such studies dealt with issues around acceptability and cooperation, which are likely to arise in any study of ill hospitalised older adults. The process of conducting the current study indicates the important process of engaging participants may best be achieved by spending time finding out the *patient's* agenda, before introducing that of the researcher.

(b) Validity of Self-Report Measures

In the light of the current study, additional shortcomings are apparent in some of the literature reviewed in the introductory section. For example, Harris and Bodden's (1978) study of disengaged community dwelling older adults, used only self-report 'pen and paper' measures. No other methods of data collection are reported, and no reference is made to difficulties with completing the scales used. This casts doubt on both the reliability and validity of responses, and the representativeness of the samples. Kellerman et al.'s (1977) study of hospital isolation due to cancer, avoided the issue of obtaining accurate self-report data altogether, obtaining information about patients' mental states from staff only. They used an unstandardised questionnaire, and there is no clear indication that their reports accurately reflected the patients' mental state, or how the patients themselves would have described their experience of isolation.

Difficulties with obtaining data were apparent from Simpson et al.'s (1981) study of institutionalised older adults, which excluded Elderly Mentally Infirm residents, as their measures 'required the cooperation of participants who were mentally alert'. Their final sample was very small (n=10) after excluding five participants who refused to cooperate with the Beck Depression Inventory. Thus, the same problem of including only relatively able and willing participants arises, and the small sample size indicates that their study would need extending in order to demonstrate convincing findings.

Difficulties have also arisen in providing normative data for comparison, for similar reasons. Kaye et al. (1988) for example, reported what was intended to be normative data for the Profile of Mood States. Of 106 older adults initially approached in a nursing home, only 19 subjects, largely the most able, were capable of responding to the test. If it is not possible to obtain more representative norms using existing measures, then this highlights the need to continue developing new measures which are possible for clinical use and standardisation with less able participants, rather than to use existing unrepresentative norms.

For confused older adults, it might prove fruitful to use a more qualitative approach, rather than standardised measures. McIsaac (1995) describes the use of 'conversational interviews' as revealing valuable information. Key features of conversational interviews are to have 'no expectations' of the participant, and to use an unstructured format, spending a few minutes every day talking to each patient. The interviewer never expects any sign of response, although is always ready to acknowledge whatever form of interaction develops. In this way, the interviewer conveys complete acceptance of the person, and creates a context in which confused older people have the opportunity to communicate on their own terms. Such an unstructured interview method might reveal significant information about the impact of isolation on isolated hospitalised older adults. This may be much more acceptable and appropriate than the standardised questionnaires, which, as has been described, could be seen as asking irrelevant questions, and could be misunderstood, especially by more confused patients.

(2) Observational Studies

Concerns about the reliability of the data obtained in the current study point to the importance of using other methods of data collection, such as observation, as illustrated by Clark and Bowling (1990).

A future study of older adults in hospital isolation should include an extensive observational component. This could be achieved using a time-sampling method adapted from one such as that described by Kitwood and Bredin (1993), in which individuals' behaviours are coded every five minutes over an extensive period of time, using a range of behaviour codes. Kitwood and Bredin's method also includes recording a 'care value', during each five minute period, which is based on the degree of well-being the behaviour represents. Given the difficulties encountered in the current study, an observational measure of well-being could be extremely useful. In light of the apparently very low activity levels, and the literature regarding the relationship between engagement in activity and mood, a measurement of the types and levels of activity would also be appropriate.

(3) Analogue Ratings/Estimates

The question of the discrepancy between self-report and nursing staff ratings raised by this study is consistent with findings of other studies of older adults (eg. Herbert and Salmon, 1994).

On the other hand, Guarnaccia and Zautra (1989), in a study of 119 older adults and their confidantes, found a strong correlation between reports of *close confidantes* and older adult reports of psychological well-being. These close confidantes were mainly relatives. Their study also found that older adults without a close confidante reported lower levels of well-being and greater psychological distress. This provides evidence for the benefits of a close confiding relationship.

In order to enrich our understanding of the psychological states of older adults, a combination of staff, confidante and self-reports are needed.

(4) Prospective Designs

Longitudinal studies are expensive to conduct, and require a large time-commitment from researchers. A further problem in conducting studies of this kind is likely to be a high attrition rate, with those leaving the study being the more depressed, less able, and more ill. Not surprisingly, therefore, most clinical geropsychological assessment studies rely on cross-sectional research designs. However, a longitudinal study, following up older adults from hospital admission over time, and back again into the community, would provide richer information. In an MRSA isolation study, this method would allow a more accurate measure of the impact of isolation over time.

4.6.2 Focus of Research

Some significant findings were obtained in the current study, in spite of the limitations of sample size and methodology. A future study should address the elements of the theoretical framework presented by Moos and Schaefer (1984) in more detail. Thus, the research questions could be extended to ascertain the relative importance of the factors described in the model, in predicting outcome, e.g. sense of competence, social support, personal coping style, cognitive or functional disability, environmental or illness-related factors. A measure of confusion or disorientation could also be included as an outcome. It would also be useful, although probably logistically difficult, to introduce a control group of older adults living in the community, with similar levels of functional disability and cognitive functioning.

A longitudinal or follow-up study could provide valuable information about psychological responses following discharge from hospital. Bennett (1983) for example, described reactionary depression in one patient after leaving hospital. Several patients in the current study expressed concern about their ability to cope following discharge, and while this may be a realistic fear in response to decreased functional ability, there may also be an element of the 'hospital-induced dependency', referred to by Reich (1997).

A further area of research could involve intervention studies, looking at the positive effects of providing increased opportunities for hospitalised older adults in MRSA isolation. The literature describes anecdotal accounts of the damaging effects of a *lack* of opportunities, while in hospital isolation (eg. Bennett, 1983; Ketcham, 1981). It would be valuable to evaluate the positive effects of the measures these authors advocate, such as leisure opportunities, orientation to environment, support and reassurance to manage anxiety; and explanations to communicate hospital procedures, including isolation.

4.6.3 Summary

Although this study set out to explore the impact of hospitalisation and isolation, methodological issues around gaining information from older adults emerged as a much more central feature. These problems could be best addressed by prioritising engagement of patients with the process, and using a multi-method approach, incorporating self-report and carer/relative reports, including qualitative interviews, as well as observational methods. It is also important to try to establish standardised measures for less able older adults which are brief, and which make the accurate measurement of complex concepts more feasible (Steiner, Raube, Stuck, Aranow, Draper, Rubenstein, and Beck, 1996).

Prospective studies, which involve gaining information about isolated and non-isolated older adults over the course of hospitalisation and discharge, are an important area for future research. Intervention studies, focusing on the protective effects of social support, leisure activities, and efforts at communication, are also needed.

5. Conclusions

No study has been published to date regarding the impact of MRSA isolation in a hospitalised older adult population. Only very tentative conclusions can be drawn from the results of the current study, because of the host of methodological problems that emerged in the course of data collection. Thus the main conclusion is the need to develop more accurate ways of investigating the mood states of older adults, and for those who publish research in this field to report their findings accurately: much of the previous research does not address methodological limitations, and makes claims based on data from unrepresentative samples.

The self-report measures and qualitative data did suggest however, that hospitalisation can have an adverse effect, which is sometimes exacerbated further by MRSA isolation. These findings indicate the importance of achieving a more equal balance between physical and psychological care in the medical environment. The recommendations for clinical practice include attention to the physical environment, and an investment of time in mitigating the impact of isolation. However, redecorating rooms, and spending time talking with patients, are not likely to be seen as a priority in an NHS which needs to ration its services, and in which services for older adults are afforded relatively little importance.

The emphasis in nurse training on physical care, and the under-staffing of wards, means that it is difficult for staff to assess the total needs of their patients. Training opportunities, support, and time need to be made, to enable staff to provide psychological as well as physical care for their older patients.

The current study was limited in size and methodology, and needs to be expanded and developed further. Self-report measures should be used with much caution, as studies which have claimed their validity leave questions unanswered regarding their acceptability and accuracy with this older adult population. Other methods of collecting data should be included, such as qualitative interviews, extensive observational methods, and third party reports.

It is predicted that continued research efforts would demonstrate, as this study suggests, negative consequences of hospitalisation and MRSA isolation. Future intervention studies might also demonstrate the positive impact of interventions to minimise these negative consequences. If this is the case, the research evidence should be used both to feedback to care staff recommendations for improving care, and to policy-makers the importance of investing in resources to improve the psychological, as well as medical well-being of patients.

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Appendix 1

Hodkinson Abbreviated Mental Test (AMT)

1. Age
 2. Time (to nearest hour)
 3. Address for recall (should be repeated by patient to ensure it has been heard correctly)
 4. Year
 5. Name of hospital
 6. Recognition of two persons (doctor, nurse, etc.)
 7. Date of birth
 8. Year of first/second World War
 9. Name of present monarch
 10. Count backwards 20-1
3. Recall address 3

BARTHEL SCORE CHART

Score Remarks Scores Remarks Score Remarks

Date: _____

- TOILET USE
 - 0 = Incontinent
 - 1 = Occasional accident (no more than once/week) or given enemas or suppositories
 - 2 = Continent (gives own enema or suppositories)

- WALKING
 - 0 = Incontinent; catheterised and unable to manage bag
 - 1 = Occasional accident (no more than once/day)
 - 2 = Continent, manages catheter bag

- WASH/GROOM
 - 0 = Needs help (including VI)
 - 1 = Independent (washes hands, face, combs hair, brushes teeth, shaves)

- TOILET USE
 - 0 = Dependent
 - 1 = Needs help, does half (must wipe self)
 - 2 = Independent (on/off, dressing and wiping)

- FEEDING
 - 0 = Dependent
 - 1 = Needs help (e.g cutting, spreading butter)
 - 2 = Independent

- TRANSFERS (e.g bed/chair - chair/toilet)
 - 0 = Unable; no sitting balance, no weight bearing
 - 1 = Major help; 1 strong/skilled or 2 normal people
 - 2 = Minor help; 1 person easily; VI
 - 3 = Independent (may use aid or board)

- WALKING (e.g a few steps)
 - 0 = Unable; walks with 2
 - 1 = Wheelchair independent (includ.corners & doors)
 - 2 = With help of 1 (VI or PI)
 - 3 = Independent (may use aid)

- WASHING
 - 0 = Dependent
 - 1 = Needs help (VI or PI) but does half
 - 2 = Independent (includ.buttons, zips, laces & adapted clothing)

- CLIMBING
 - 0 = Unable
 - 1 = Needs help (VI or PI of 1)
 - 2 = Independent up and down (rails & aids allowed)

- WALKING
 - 0 = Dependent
 - 1 = Independent (or in shower or stand & strip wash)

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- 1) Aids e.g frames, sticks, feeding aids etc are allowed
- 2) Middle categories usually mean 'patients provide over 50% of effort'

REMARKS: With 2, with 1, with verbal and/or physical instruction (VI & PI), with frame or stick, manages top ½, top ½ with VI, top ½ with 1, can do but does not want to.

POMS - Anger-hostility / Tension-Anxiety

Name: _____

Date: _____

Sex: _____

Below is a list of words that describe feelings that people have. Which ONE number best describes how you have been feeling over the PAST WEEK INCLUDING TODAY?

The numbers refer to these phrases:

0 = Not at all 1 = A little 2 = Moderately 3 = Quite a bit 4 = extremely

- | | | | |
|--------------|-----------|--------------------|-----------|
| 1. Tense | 0 1 2 3 4 | 12. Annoyed | 0 1 2 3 4 |
| 2. Angry | 0 1 2 3 4 | 13. Resentful | 0 1 2 3 4 |
| 3. Shaky | 0 1 2 3 4 | 14. Nervous | 0 1 2 3 4 |
| 4. Peeved | 0 1 2 3 4 | 15. Bitter | 0 1 2 3 4 |
| 5. On edge | 0 1 2 3 4 | 16. Anxious | 0 1 2 3 4 |
| 6. Grouchy | 0 1 2 3 4 | 17. Ready to fight | 0 1 2 3 4 |
| 7. Panicky | 0 1 2 3 4 | 18. Rebellious | 0 1 2 3 4 |
| 8. Relaxed* | 0 1 2 3 4 | 19. Deceived | 0 1 2 3 4 |
| 9. Spiteful | 0 1 2 3 4 | 20. Furious | 0 1 2 3 4 |
| 10. Uneasy | 0 1 2 3 4 | 21. Bad-tempered | 0 1 2 3 4 |
| 11. Restless | 0 1 2 3 4 | | |

Name _____

Date _____

Mood Scale (short form)

Choose the best answer for how you have felt over the past week:

1. Are you basically satisfied with your life? YES/NO
2. Have you dropped many of your activities and interests? YES/NO
3. Do you feel that your life is empty? YES/NO
4. Do you often get bored? YES/NO
5. Are you in good spirits most of the time? YES/NO
6. Are you afraid that something bad is going to happen to you? YES/NO
7. Do you feel happy most of the time? YES/NO
8. Do you often feel helpless? YES/NO
9. Do you prefer to stay at home, rather than going out and doing new things? YES/NO
10. Do you feel you have more problems with memory than most? YES/NO
11. Do you think it is wonderful to be alive now? YES/NO
12. Do you feel pretty worthless the way you are now? YES/NO
13. Do you feel full of energy? YES/NO
14. Do you feel that your situation is hopeless? YES/NO
15. Do you think that most people are better off than you are? YES/NO

Appendix 1

Questionnaire for Nursing Staff

A. Use the scale below to rate each of items 1-14, on admission and now.

1 2 3 4 5
Not at all Moderately Extremely

On admission

Now

1. Depressed mood

2. Guilt

3. Insomnia

4. Lack of Interest

5. Slowed

6. Appetite

7. Enjoyment

8. Restlessness associated with anxiety

9. tension and irritability

10. worrying

11. fears

12. panic

13. Angry

14. Memory impairment

B. How many visitors does the participant receive?

How often do they visit?

How long do they stay?

C. Do you think the MRSA+ patient is adversely affected psychologically or cognitively by being in an isolation room?

D. Do you spend less time with MRSA+ patients because of need for barrier nursing measures (gown, gloves, hand-washing = time-consuming)?

Other observations/Comments:

Appendix 2: Information and Consent Form

Information for Participants and Relatives

Being in hospital can be a stressful time. I am a psychologist who is interested in finding out more about this, and so I would like to invite you to answer some questions about how you are feeling, after spending some time in hospital. The questions should take about 15 minutes altogether. I would also like to find out how you occupy yourself while in hospital (eg. sleeping, watching TV, reading), so I may, with your permission, wish to record this once in a while. Finally, it would be helpful to find out how you are getting on physically, which we could check by asking a few questions to your nurse.

You do not have to take part in this study if you do not want to. If you decide to take part you may withdraw at any time without having to give a reason. Your decision to take part will not affect your care and management in any way. We hope that our investigation will increase our understanding of the kinds of difficulties people can experience in hospital, and thereby enable us to respond more sensitively to patients' needs in the future.

If you have any questions about the study or wish to discuss it further with me, please feel free to contact me (Tel. 01296 315823).

If you are willing to participate in the study, I would be grateful if you can sign the attached consent form.

Thank you for your help.

Sarah Tarzi - Clinical Psychologist in Training

Consent Form for Study

Hospital Registration Number.....

I have been fully informed about the nature of the above study and I have had the opportunity to ask questions and for discussion with Sarah Tarzi, who is conducting the study. I understand that the information obtained will be treated as confidential. I have been given an Information sheet, which I have read and understood, and which I can keep for future reference.

I understand that I may withdraw my consent at any stage of the project and such a decision will not affect my care in any way.

I agree to take part in this study.

Full Name of Participant (in Capitals)..... Signature.....

Date.....

DECLARATION BY INVESTIGATOR

I confirm that I have explained the nature and effect of the procedures to the patient and that his/her consent has been given freely and voluntarily.

Signed..... Date.....

Position.....

I agree for.....to be interviewed and to take part in this study.

Signed.....Date.....

Relationship to Patient.....

Aylesbury Vale Local Research Ethics Committee

9 June 1997

Mandeville Road, Aylesbury
Buckinghamshire HP21 8AL
Telephone (01296) 315000
Direct Line: (01296) 316784
Fax: (01296) 316789

Dr P Kennedy
Consultant Clinical Psychologist
N S I C
Stoke Mandeville Hospital

Dear Dr Kennedy

Re: Project NC751 - The psychological impact of isolation following positive diagnosis of Methicillin-Resistant Staphylococcus Aureus (MRSA) on an elderly population in a rehabilitation ward.

I refer to your application to the Local Research Ethics Committee for consideration of the above project. I am pleased to inform you that the Committee approves the project on ethical grounds on the understanding that:

- i Any ethical problem, arising in the course of the project, will be reported to the Committee.
- ii Any change in the protocol will be reported to the Committee.
- iii A brief report will be submitted after completion.

Ethical approval by the Committee is not an authority to proceed. You are advised to discuss your proposal with all heads of departments and others who might be affected, particularly if there are financial and/or staffing implications.

Please note that your research may be subject to review annually by the Committee.

Yours sincerely



R M HILL
Secretary to Local Research Ethics Committee

c.c. Mr K Cunningham - Chief Executive
Dr T Meagher - Consultant Radiologist
Ms Jennie Kelson - Library Services Manager, PGEC

ROYAL FREE HOSPITAL
POND STREET
LONDON NW3 2QG
TELEPHONE 0171 794 0500
FAX 0171 830 2961



CHAIRMAN BARONESS GARDNER

CHIEF EXECUTIVE M T ELSE

REPLY TO EXTENSION

5628

5 August 1997

Ms Sarah Tarzi
Trainee Clinical Psychologist
The John Hampden Unit
Stoke Mandeville Hospital
Mandeville Road
Aylesbury
Bucks HP21 8AL

Dear Ms Tarzi

Re: THE PSYCHOLOGICAL IMPACT OF ISOLATION AS A RESULT OF
METHICILLIN RESISTANT STAPHYLOCOCCUS AUREUS (MRSA) DIAGNOSIS
ON AN ELDERLY POPULATION IN A REHABILITATION WARD

I am pleased to be able to inform you that your recent submission to the Ethical Practices Sub-Committee has now received approval by Chairman's Action.

This approval will be formally documented at the next meeting of the full committee and meanwhile you are free to go ahead with your project.

Please note the code number (140-97) that the submission has been given and quote this in all correspondence.

Yours sincerely

A handwritten signature in cursive script that reads 'Maureen Carroll'.

Maureen Carroll
Secretary
Ethical Practices Sub-Committee

cc Mr J Farrell, Head of Pharmaceutical Services

Appendix 4

1. Table to Show Kolmogorov-Smirnov and Levene's Test Data for Demographic

Variables and for Data Used to Match the Two Groups

<u>Variable</u>	<u>K-S Z</u> <u>MRSA+</u>	<u>K-S Z</u> <u>MRSA-</u>	<u>Levene's</u> <u>Test F</u>
Age	0.61	0.60	0.36
Length of Hospital Stay	0.74	0.88	3.42
Abbreviated Mental Test Score	0.67	0.88	0.45
Barthel Index	0.83	0.85	0.00

2. Table to Show Kolmogorov-Smirnov and Levene's Test Data for Outcome Measures

<u>Variable</u>	<u>K-S Z</u> <u>MRSA+</u>	<u>K-S Z</u> <u>MRSA-</u>	<u>Levene's</u> <u>Test F</u>
Geriatric Depression Scale	0.89	0.69	2.83
Profile of Mood States: Tension-Anxiety	0.71	0.52	1.19
Profile of Mood States: Anger-Hostility	0.95	0.64	0.75