



AN EVALUATION OF THE RESPONSE TO POOLE'S ALGORITHM EDUCATION PROGRAMME BY AGED CARE FACILITY STAFF

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ABSTRACT

Aim:

To evaluate the response of residential aged care facility staff to the education programme - *Poole's Algorithm: Nursing management of disturbed behaviour in aged care facilities*.

Design:

Descriptive study, aged care setting.

Method:

Following offers to all facilities in a large area health service, 104 senior staff took the opportunity to participate in train-the-trainer programs and then returned pre and post knowledge evaluation questionnaires for 190 of their own staff that they had trained, using the program, over a three month period. Thirty six of those trainers then shared their views of the usability and effectiveness of the program in focus group interviews.

Results:

The questionnaire analysis showed statistically significant improvements in overall knowledge for the trainers with 19.2% correct answers pre education and 91.3% correct afterwards, a difference of 71.1%. Overall, the staff trained by the trainers improved from 12.6% correct to 59.5% post education, a difference of 46.8%. In particular, the trainers' recognition of delirium as a cause for disturbed behaviour improved from 39.4% to 97.15% and the staff from 24.7% to 75.2%.

Conclusions:

*Concern was raised about the poor understanding of mental health problems such as personality and anxiety disorders. Analysis and coding of the focus

group transcriptions showed improvements in attitudes and practice. Recommendations are made for the instigation of ongoing train-the-trainer sessions using this program and the replication of this study in the acute and community sectors.

INTRODUCTION

The care of older people who exhibit disturbed behaviour, particularly in the form of aggression, presents well-documented difficulties. The major causes are delirium, depression and/or dementia, however, these are not well understood by nurses. A special education program has been developed, based on an algorithm detailing assessment and management priorities for these problems, followed by instructions for general care and support. The authors proposed that instigating this program could positively enhance practice and attitudes in this complex area. Train-the-trainer sessions were designed for senior aged care facility staff who were then asked to train their own staff. Pre and post knowledge questionnaires plus follow up focus group interviews held three months later, enabled evaluation of the effectiveness of this approach.

LITERATURE REVIEW

Whilst population projections show that we have an increasingly ageing population, care of this group is complicated by pathological changes in organ systems. These cause changes in symptom presentation, making diagnosis of disease difficult, particularly for inexperienced practitioners (McLennan 1999; Kane et al 1999).

Confusion is a common sign of illness in older people and may be mistaken as purely a symptom of a dementing illness. The causes of confusion can be grouped under delirium, depression or other mental illnesses, or dementia (Poole 2003). Delirium is a medical

emergency and is known to result in increased falls, incontinence and pressure sores, as well as an increased length of stay in acute care, decreased functional levels and increased mortality (Maher and Almeida 2002). The early recognition and treatment (or reversal) of delirium and depression in older people is of great importance, not only for survival and quality of life issues but also for efficient use of resources (Jorm 2002).

People with Alzheimer's disease, one of the most common causes of dementia, are likely to have increased cognitive impairment above and beyond that caused by the dementing processes, due to the effects of co-morbidities or medications (Doraiswamy et al 2002). Therefore, people with dementia need expert management of their medical conditions to minimise their cognitive difficulties.

Older people who are confused can be very difficult to manage and nurses 'bear the brunt' of care (Poole and Mott 2003). A prospective study of 797 patients aged 70 years and older in acute care found that nurses were only able to identify delirium in 19% of their observations (Inouye et al 2001). This does not translate well to aged care facilities (such as nursing homes and hostels) where the burden of care is increased by low levels of staff with professional health qualifications. Depression and other mental health disorders are also known to be poorly recognised. In a random sample survey of aged care facilities across Australia, using the modified Geriatric Depression Scale, it was found that 51% of people in 'high care' or nursing home type accommodation, and 30.2% of people in 'low care' or hostel type accommodation, had some level of depression (The Hammond Care Group 2002).

Calls for improved education

Authors have been calling for improved education about delirium and depression in older people (eg Poole and Mott 2003; Maher and Almeida 2002; Moran and Dorevitch 2001; Inouye et al 2001; Eden and Foremen 1996). Particular concern has been expressed about the lack of attention paid to the needs of people with mental health problems in nursing homes and recommendations have been made for better funding for education (Snowdon 2001; Arie 2001; Macri and Onley 2001).

Three education programs based on a specific algorithm have been developed (Poole 2000a; Poole 2000b; Poole 2001). These acknowledge the complexity of the interface of delirium, depression or other mental disorders and dementia, and reflect the specific needs of people in aged care facilities, acute care and community areas (Poole 2003). The programs provide definitions, descriptions of overall approaches, common clinical signs and causes, plus nursing assessment and management strategies. These are placed in order of priority (starting with aggression management), with an outline of ways to develop consistent plans for systems of care and support.

Presented as colour coded lecture notes/resource booklets, each has a matching large poster which provides a summary of the information to facilitate easy reinforcement and referral.

AIM

A descriptive study was initiated to examine the response of aged care facility staff to the education program. The aim was to seek evidence of change in knowledge and care practices in staff who had participated in the program. A train-the-trainer format was used plus pre and post training knowledge questionnaires and focus group interviews (Rajacich et al 2001; Langer 1999; Edmondson and Williamson 1998; Trovillion et al 1998).

METHOD

Following permission to perform the study by the hospital human research ethics committee, informed participation was facilitated by giving all potential participants an information letter with appropriate explanations. This included a consent form that explained that this was a voluntary study in which all subjects would be anonymous and could withdraw at any time. Comparative analysis of the questionnaire responses was planned by the use of identifying pseudonyms, chosen by the subjects themselves, and known only to them. This allowed matched analysis and the participants could also privately judge their own progress. The consent forms were stored separately from the coded data in a locked unit in the aged care department.

A half-day train-the-trainer session for two key education personnel was offered to all residential aged care facilities in a large area health service. Training dates and venues were offered in nine locations and a set lesson plan was provided. The trainers were asked to return to their facilities to set up a plan for training their staff within the following three months.

EVALUATION

Knowledge questionnaires that had been developed in consultation with a psychogeriatrician and tested on comparable groups, were completed by the trainers before and after each training session. Trainers were asked to administer the same questionnaires to all staff before starting their training and afterwards to those who had completed all the components of the algorithm. To evaluate the trainers' retention of knowledge, they were asked to complete the same questionnaires at the start of the focus groups, three months later.

The questionnaires were refined to two questions seeking demographic information (designation and qualifications) and two about knowledge. One of the latter was intended to gauge the staff awareness of the importance for personal safety when confronted by an

aggressive older person. 'If a person becomes aggressive, what is the first thing you should think about?' - an acceptable answer was considered to be the identification of the staff members' own safety needs, even if it was part of an answer that identified the safety needs of others.

The other question aimed to assess the level of basic understanding of the causes of disturbed behaviour in older people. Participants were asked to choose three of the most common causes from a given list of six terms: *personality disorder, anxiety disorder, delirium, dementia, senility, depression* - an answer was considered correct if the participants chose delirium, depression and dementia. It has been shown that about 80% of residents in nursing homes have dementia, 30-50% have depression, 6-7% have delirium whilst 3.5% have an anxiety or panic disorder (Snowdon 2001).

Of the incorrect answers, whilst anxiety is often displayed as a result of cognitive deficits and/or illness, an anxiety disorder is categorised by the American Psychiatric Association (1994, p.393) as 'at least six months of persistent and excessive anxiety or worry'. If a staff member initially considered that a resident's disturbed behaviour was only due to an anxiety disorder, then it is unlikely that they would instigate a timely medical assessment.

Personality disorders are said to be long standing patterns of behaviour that cause suffering and are thought to decrease with age (Gelder et al 1999), and were not considered in Snowdon's survey. The term senility refers to 'the sum of the physical and mental changes occurring in advanced life' (Stedman 1976, p.1270) and is often loosely used in a discriminating way without due recognition of the confounding effects of illness or disability. Therefore, senility was not considered to be a cause of disturbed behaviour in itself.

The data obtained in the knowledge tests were analysed by the calculation of frequencies, percentages and probabilities.

Trainers were asked to attend a focus group three months after the initial training, to report on their efforts and to bring back their completed staff questionnaires for collation. Using a tape recorder, the researchers asked the group a set of questions and encouraged discussion. Further training and another education package supplying extra information about depression was offered to the participants at this time, as an encouragement to attend the focus group beyond the possible desire to only express positive outcomes.

RESULTS

Participants' characteristics

One hundred and four participants (the trainers) attended the train-the-trainer sessions from 60 facilities

Table 1: Trainer-the-trainer and focus group participants

	Train-the-trainer		Focus groups	
	Number	%	Number	%
Directors of nursing	8	7.7	3	8.3
Deputy directors of nursing	18	17.3	4	11.1
Directors of care	3	2.9	-	-
Registered nurses (RN)	45	43.3	16	44.4
Enrolled nurses (EN)	2	1.9	-	-
Diversional therapists (DT)	2	1.9	1	2.8
Personal care assistants (PCA) or assistants in nursing (AIN)	5	4.8	1	2.8
Others (eg. allied health, managers)	21	20.2	11	30.6
Total	104	100	36	100

out of the possible 130 in the area health service (46%) (table 1). All spoke good English. Thirty six trainers from 29 of those 60 facilities (48%) then returned to attend the focus groups. Of the original trainers, 47% held general nursing certificates, 12.8% held nursing degrees, 28.2% held postgraduate diplomas or masters degrees in related health fields and 7.7% held TAFE aged care certificates whilst 4.3% held other non health qualifications. This represented a group of trainers with a substantial level of health knowledge and the potential to understand the material offered in the training sessions.

Table 2: Staff trained by the trainers

	Number	%
Registered nurses	63	33.2
Enrolled nurses	6	3.2
Diversional therapists	8	4.2
Personal care assistants (PCA) or assistants in nursing (AIN)	104	54.7
Others (eg kitchen or cleaning staff)	9	4.7
Total	190	100

One hundred and ninety staff then completed the educational sessions presented by the trainers and completed the pre and post test questionnaires (table 2). Of these, the RNs held nursing qualifications (33.2%), 46% of the other staff held TAFE qualifications in health

Table 3: Trainers pre and post knowledge test results -
Opinions of the three major causes of disturbed behaviour from the given list (%) n=104

	Pre-test %	Post-test %	Difference %	* Chi-square with 1 df	p value	95% CI of difference
Delirium, depression and dementia	19.2	91.3	71.1	73.01	<0.001	63.5 - 80.7
Delirium	39.4	97.1	57.7	58.02	<0.001	43.6 - 71.8
Depression	78.8	100.0	21.2	20.05	<0.001	71.0 - 86.7
Dementia	90.4	98.1	7.7	4.08	<0.043	1.3 - 14.1
Personality disorders	17.3	0.0	17.3	84.01	<0.001	10.0 - 24.6
Anxiety disorder	62.5	8.7	53.9	54.02	<0.001	44.3 - 63.4
Senility	10.6	0.0	10.6	9.09	<0.003	4.7 - 16.5

* McNemar's Test

related fields and 4.3% held degrees in non health related fields. This left 16.5% of staff without any formal health qualifications at all. The trainers noted that many of their staff also had English language difficulties. Therefore, there was a significant potential for difficulties in understanding the educational material in relation to medical terms and care planning implications.

KNOWLEDGE ANALYSIS AND DISCUSSION

Trainers' results

Overall, there was a statistically significant improvement in the trainer's responses to the question about the causes of disturbed behaviour. Before taking part in the education program only 19.2% of the trainers indicated that, from the given list, the three most common causes of disturbed behaviour in their facilities were delirium, depression and dementia. Following the training this improved to 91.3% ($\chi^2=71.1$, 1 df, $p<0.001$) a difference of 71.1% (95% CI 43.6-71.8%) (see table 3).

There was also a statistically significant improvement in the recognition of the positive or negative importance of each specific heading. It is particularly noteworthy that recognition of delirium improved whilst personality disorders and senility were both dismissed altogether after the training. However, although notation of anxiety disorder had a statistically significant decrease, it was not erased altogether. (See table 3)

Three months later, 36 of the 104 trainers returned to focus group interviews. Knowledge questionnaire results for these 36 trainers showed that 89% had correctly identified the three major causes of disturbed behaviour immediately after the initial training. However, only 86% had retained that knowledge correctly. Although this was not statistically significant, it showed that the trainers did have some knowledge deficits which might then have negatively affected the training that they provided for their staff. The major point of disagreement appeared to be from the trainers (11%) who maintained the view that anxiety disorders were a major cause of disturbed

behaviour in their residents. This then affected their responses to delirium, depression and dementia, although none of those results were statistically significant.

The recognition of the primary need to address safety issues before conjecture about the cause of aggression, showed, a statistically significant improvement in the trainers' responses from 32.7% to 81.7% in the pre and post test questionnaires ($\chi^2=45.45$, 1 df, $p<0.001$). However, the focus group questionnaires showed that the trainers had not maintained this knowledge and had slipped from 83% to 67%, a difference of 16%, which although not statistically significant at the 0.05 level, may have been a reflection of the small sample size ($\chi^2=3.13$, 1 df, $p=0.08$).

Staff results

Despite the deficiencies created by the trainer's less-than-perfect knowledge, as well as their lapses at three months, together with the language difficulties and constrained educational standards of the PCAs and AINs, there was a positive response to the education program. Overall, there was a statistically significant improvement in the percentage of staff who recognised the three major causes of disturbed behaviour in older people ($\chi^2=72.37$, 1 df, $p<0.001$) (see table 4).

In considering the individual parts of each response, it is of concern that only 24.7% of staff chose delirium at all in the pre knowledge tests, but encouraging that that improved to 75.2% after the education. Recognition of depression also had a statistically significant improvement, whilst dementia was well recognised both before and after the education (see table 4).

Concern must be raised by the percentage of staff who initially claimed that the less common disorders were major causes of disturbed behaviour, that is, personality disorders (25.8%) and anxiety disorders (64.7%). Whilst these claims then had a statistically significant reduction after the education, the ideas were not totally eradicated. The support for 'senility' as a cause for disturbed behaviour is alarming (see table 4).

Table 4: Aged care facility staff pre and post knowledge test results: Breakdown of the opinions of the three major causes of disturbed behaviour from the given list (%) n = 190

	Pre-test %	Post-test %	Difference % with 1 df	* Chi-square	p value difference	95% CI of
Delirium	24.7	75.2	50.5	80.58	<0.001	46.3 - 58.8
Depression	78.4	89.5	11.1	10.81	<0.001	5.0 - 17.1
Dementia	91.6	91.1	0.5	0	-	-
Personality disorders	25.8	16.3	9.5	6.02	<0.014	2.5 - 16.5
Anxiety disorder	64.7	23.2	41.6	62.72	<0.001	34.0 - 49.2
Senility	20.0	8.4	11.6	12.25	<0.001	5.6 - 17.5

* McNemar's Test

Focus groups results and discussion

Following individual coding of the focus group transcriptions and cross validation of those codes by the authors, a summary of the responses to the questions was formatted as follows:

1. *How much of the education do you feel you clearly understood?*

Participants at all sessions stated that they understood the content of the education, eg *'concise and clearly defined'*, *'cross references are clear because it's in a framework'*, *'very simple to run with the overheads and they went through the various points'*. There were questions about what an algorithm was and some apprehension about training other staff. One participant commented that it was encouraging to find that *'there are people out there who cared enough to be doing this'*. Another said that *'this is what we have been looking for'*.

2. *How much of the education do you feel you have retained?*

Participants at all sessions stated variations of *'we kept going back to the book and poster... it was reinforcing/refreshing'*. One participant was most *'excited'* by learning about the principles of delirium, particularly the need for early recognition and treatment - *'that really impacted on me'*. Others claimed that by hanging the poster in various highly visible locations, such as in the staff room, in treatment rooms and even in the corridor, the knowledge was reinforced.

3. *How much did the Algorithm support your feeling of confidence in delivering your training?*

Overwhelmingly, participants stated that the Algorithm format was *'an excellent tool'* that provided resources they have not had before whilst providing an *'opening window'* to definitions and awareness they had not considered. Some commented they *'no longer jumped to conclusions that this person is (just) demented'* and *'its very easy to label them... their behaviour has always been odd... they are just getting worse'*, *'they can still have a delirium and they can still be depressed'*.

The poster was said to continually reinforce their teaching and learning and gave *'credibility'* plus *'the chart was their gospel'*. One noteworthy comment was *'I can't wait to do the (additional) sessions so the rest of the staff see the points so that maybe, you know, they will be more astute in their assessment of people'*.

4. *Can you give me an instance of you or your staff using the knowledge in your workplace?*

Participants were keen to tell their success stories. All nine sessions included variations of a story in which AINs notified the trained staff that something was definitely wrong with a resident or they had withdrawn from a potentially aggressive situation and asked for help. AIN comments included *'... now I feel so guilty because I told Mrs so-and-so that she was just being whingy, and now I understand'*, *'... he came down with tears in his eyes... he understood that he had perhaps been the trigger'*. RN comments included *'... I'm more inclined to look for reasons for the behaviour... more inclined to do something about it'*; *'even hearing the history over the phone I was immediately able to link the information... start to investigate all the clinical signs... he had a UTI'*; *'there's a haste to it to assess'*; *'understanding that it's not just dementia'*.

5. *Can you tell me specifically about any difficulties you encountered with applying this protocol in practice?*

Participants at all sessions reported difficulties in teaching staff members who had a poor grasp of English and/or limited educational backgrounds: *'...untrained, unskilled people in conflict situations'*; *'most don't even have a Certificate III'* (TAFE level basic training). Suggestions were made that the program should be translated into other languages, particularly, Spanish, Mandarin, Polish, Chilean, Italian and Filipino. The trainers found that whilst they reduced the common medical terms to a lay level, they still had to seek translation assistance from other staff members.

Time for in-service sessions was reported to be a problem. Nevertheless, one facility reported that those staff who had attended the first session on the Algorithm

protocols were so enthusiastic, that 'they spread the word... there was a good turn out the second time'.

6. Has this new knowledge altered the way you or your staff feel about difficult situations and behaviours?

Many participants reported that they felt more confident, more in control, had more understanding and were more aware. 'I think a lot of the staff, particularly the AINs, are understanding that it's not the person, it's an illness or something that's causing the behaviour, not the actual resident being nasty to me'. Others reported more ordered, less panicky, more peaceful, more tolerant, more forgiving, less judgemental responses. Staff also reported feeling 'empowered', notably in relation to security and safety. In raising issues regarding the management of aggression, the facilities had had to examine their support protocols, particularly for isolated staff at night and weekends.

7. In your opinion has the incidence of disturbed behaviour increased or decreased during your shifts?

While some participants felt that there were fewer incidents of disturbed behaviour, others stated that 'episodes are just as common but are not escalating'; 'quicker at picking it up than they would have been'. Stories were told that highlighted the enhanced understanding, eg, 'often her behaviour is frenetic... moving back in the morning... let her sleep... she really just needs to rest... and then not so wound up when she wakes... we used the Algorithm'.

CONCLUSIONS AND RECOMMENDATIONS

A limitation of this study was the small number of trainers who returned to participate in the focus groups. Time for education was a problem but many who did not return notified the researchers of their regrets. Despite the added inducement of extra training in depression management offered to focus group participants, it could still be surmised that only those who had fully participated and had positive results, returned to report their outcomes. Whilst frank discussion was encouraged at the focus groups, it was also recognised that the presence of the author of the education package, as one of the researchers, might create a degree of Hawthorne or halo effect, such as a higher degree of positive comments (Wilson 1998). The focus groups were therefore lead by the non-author researcher.

It could also be true that providing post knowledge questionnaires so close to the education sessions does not prove knowledge retention nor ensure practice change. It is therefore encouraging that the anecdotal statements in the focus groups noted improved staff attitudes and practice. This is especially encouraging in view of the trainers' knowledge deficits.

While the trainers themselves did not achieve perfect scores on the knowledge tests, and many of the staff they

trained had restricted educational backgrounds and language fluency, there were still significant improvements in attitudes and practice. It might, therefore, be suggested that with ongoing reinforcement and practice, further enhancement of knowledge would be possible. It might also be surmised that in view of the time constraints, these trainers would have been unlikely to develop their own teaching material, so that any improvement in practice would have been unlikely to happen anyway.

In view of the staff knowledge deficits, recommendations are made for ongoing train-the-trainer initiatives using this education package. Further studies replicating this initiative in the acute sector and the community would be useful.

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