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Delirium assessment and management:

A qualitative study on aged-care
nurses' experiences

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ABSTRACT

Aged residential care (ARC) residents with morbid health conditions frequently experience delirium. This condition is associated with diminished quality of life, preventable morbidity and untimely death. It is challenging and costly to manage delirium because of the complex interplay of physical and psychiatric symptoms associated with this condition in both primary and secondary services. With awareness of risk factors and knowledge about delirium, ARC nurses can play a vital role in early identification, assessment and treatment, but most importantly in preventing delirium in aged-care residents as well as improving health outcomes. Focus groups were carried out with ARC nurses to ascertain their opinions on how they assess and manage delirium in ARC facilities in South Auckland, New Zealand. Findings identified that there were strengths and weaknesses, as well as gaps in assessment and management of delirium. Nurses would benefit from delirium education, appropriate tools and adequate resources to help them manage delirium. Issues with diagnosing

delirium, anxiety about challenging behaviours, family dynamics, lack of training and absence of IV treatment were noticeable features in this study.

BACKGROUND

Delirium is a common condition affecting many aged-care residents in the community. This disorder can be defined as acute brain failure associated with autonomic dysfunction, motor dysfunction and homeostatic failure (Wass, Webster, & Nair, 2008). Delirium is a complex and often life-threatening medical emergency and continues to be under-diagnosed or poorly assessed and managed in aged-care settings. Regardless of all other scientifically advanced healthcare improvements, assessment and management of delirium is still a key challenge for aged-care nurses. It is also potentially distressing in terms of the aged-care residents' experience and their health outcomes.

There is a paucity of systematic studies done on nurses' day-to-day assessment and management of patients with delirium (Schofield, Tolson, & Fleming, 2012). There has been even less research undertaken on the opinion of aged-care nurses on this issue, which is an apparent problem internationally (Agar et al., 2011). In contrast, there is an abundance of studies that highlighted delirium as a matter of importance for older people's health. Studies have explored the occurrences, prevalence, diagnosis, prevention,

assessment and management of delirium in ARC facilities as well as in hospital settings (Han et al., 2009; Han, Wilson, & Ely, 2010; Agar et al., 2011; Schofield, Tolson, & Fleming, 2012; Siddiqi, House, & Holmes, 2006; Siddiqi, Cleg, & Young, 2009; Wass et al., 2008; McCusker et al., 2014). Research on delirium was noted as having important limitations, namely: not being nursing-focused, cross-sectional, or was based on observation of residents over short time periods; using invalidated tools; and some studies have excluded aged-care residents with dementia (Dosa, Intrator, McNicoll, Cang, & Teno, 2007; McCusker et al., 2014).

Data on prevalence and occurrences of delirium in aged-care settings is wide-ranging. Previous research on delirium occurrences in secondary-care settings found a majority of admissions originated from ARC settings. Many patients with persistent symptoms of delirium are repeatedly treated and discharged back to ARC facilities (McCusker et al., 2014). Voyer, Richard, Doucet, Danjou and Carmichael (2008) found that rates of delirium in UK ARC facilities ranged from 22% to 89%, whereas research conducted by Siddiqi et al. (2006) found a median point prevalence of 14%. In Han et al.'s (2010) study of a United States emergency department (ED), delirium-related admissions were 9.2% among aged-care residents.

Delirium impact and its significance for aged-care residents is a concern. Treating the cause of delirium can be a costly business and if this does not occur promptly it has further consequences. Fifteen to thirty percent of older persons will have delirium on admission to hospital and up to 56% will develop delirium during their stay (Wass et al., 2008). This is costly to manage in the current health systems. For example, in the US, the total direct one-year healthcare costs attributable to delirium ranged from \$143 billion to \$152 billion nationally (Leslie & Inouye, 2011). There is no exact cost available for treating delirium in New Zealand, however, each day in an intensive care unit can cost about \$4000. Delirious patients are often so unwell that their brain function is reduced considerably, meaning that they need intensive care and anaesthesia

to prevent them pulling out IV lines, harming themselves or harming others (Young, 2016). For aged-care facilities, the presence of delirium has been associated with an increased use of neuroleptic medications, high cost of care and extra nursing staff requirements (Han et al., 2009). Unfortunately, the worst impact is the increased mortality rates for those with delirium. Inouye's (2006) research revealed a mortality rate of up to 40% in patients one year after a delirium episode. Furthermore, delirium will also have lasting effects on the cognition and physical dysfunction of many patients for six to twelve months after hospital discharge (Han et al., 2010).

The consequences of delirium are considerable for aged-care residents and the health service when they have physiological problems that impact on the brain. For instance, it has long been understood that very high fevers can cause brain damage, especially if left untreated (Duda, 2014). In the past delirium was recognised as originating "from a certain physiological condition of the brain" and as an "acute exogenous reaction type", implying that the origin of the disorder is in the body, but outside the brain (Schuurmans, Duursma, & Shortridge-Baggett, 2001, p. 722). While the pathophysiology of delirium is not well understood, the leading hypotheses for the pathogenesis of delirium focus on the roles of neurotransmission, inflammation, and chronic stress (Inouye et al., 2006) Even when detected early and managed efficiently, delirium can still lead to significant mortality and morbidity in frail older persons (Han et al., 2009; 2010). In addition, delirium is associated with higher complication rates and a doubling in the length of hospital stays, and the need for additional resources (Inouye, Zhang, Han, Leo-Summers, Jones, & Marcantonio, 2006). During an episode of delirium, there are additional costs to treatment and therapy secondary to iatrogenic events or injury, such as loss of residents' independence, long-term health care and emotional costs to patients (Putzar-Davis, 2009). Currently, the most recommended drug (and evidenced-based treatment) for delirium (Reade et al., 2016) is Dexmedetomidine, a drug previously used in anaesthesia. However, there are concerns about

adverse cardiovascular effects, and the cost limits its use to a select number of patients who may benefit from its remarkable mechanism of action (Szumita, Barloletti, Anger, & Wechsler, 2007).

Early diagnosis and prevention of delirium is important, but it can be a challenging task for aged-care nurses because many healthcare professionals often fail to recognise delirium (Wang & Menten, 2009). While aged-care nurses play an important role in managing the day-to-day care of aged-care residents, it is fundamental that preventative measures are adopted to minimise unnecessary morbidity and death. Delirium is traditionally well known as being short-lived, yet as many as 60% of patients who have experienced delirium may have lasting effects on their cognition and physical function (Putzar-Davis, 2009). Preventative strategies can reduce unnecessary complications of delirium. Given that delirium is a complex medical problem, the approach to early diagnosis and prevention needs to be multifactorial. Delirium can be prevented, or at least minimised, by addressing modifiable risk factors, which reflects a humanistic, compassionate approach to management based on high-quality nursing and medical staff (Wass et al., 2008).

RESEARCH DESIGN

A mixed-method approach was used to find out, in an audit as well as in ten focus groups (FGs), how nurses assess and manage delirium in ARC facilities. The first phase involved quantitative analysis in an Auckland ED of patients aged over 65, to ascertain how many suspected delirium-related cases were admitted over a one-year period. Admission codes included 'dementia' 'confusion', 'delirium' or 'challenging behaviours' together with the medical problem. Data was further restricted by place of residence at the time of ED attendance, in that only aged-care residents were included in the analysis. An independent analyst employed at the hospital provided the data, with all patient-identifying materials removed. Only the name of the ARC facility was included in the download. Data was ranked on their admissions from high to low

presentations, which was then used to select which ARC facilities to recruit for the FGs.

The second phase involved selecting ARC facilities for the FGs from those identified in the audit (five facilities with high-standardised presentations [HP] and five with low-standardised presentations [LP] were initially invited). A face-to-face meeting was facilitated with respective ARC managers to obtain consent for aged-care nurses to participate. A poster explaining the project was provided for each ARC facility, together with participant information sheets and consent forms.

Once consent forms were received, FGs were carried out at an agreed time within each ARC facility. FGs were audio recorded, transcribed verbatim and analysed following each session using a general inductive method of enquiry to identify key themes (Thomas, 2006). A saturation plus one approach was employed to determine the final number of FGs involved in the study. As themes became saturated, one further facility was approached, and when no further themes were developed, data collection was deemed sufficient. In the end a total of ten aged-care facilities participated. Nurses who consented were categorised as Registered Nurses (RNs), Clinical Nurse Managers (CMs), Unit Co-ordinators (UCs) and Enrolled Nurses (ENs).

Prior to embarking on this research, an application was sought from and approved by the University of Auckland Ethics Committee, as well as approval from the Ko Awatea Research Office of the District Health Board (DHB). Informed written consent was gained from all participants and their respective managers. Of note, all FG participants were unaware of the findings in this audit, and were not subsequently informed at any stage as to how many or which residents were admitted to the ED before or after the FGs took place.

FINDINGS

Invitation letters were sent to 10 LP ARC and 10 HP ARC facilities, representing the top 10 (ARC1–ARC13) and the bottom 10 (ARC27–ARC39) of the schedule. LP represents a frequency of 0-5%

ARC code	ARC for FG	Types of ARC	No. of presentations	No. of patients	Distance to ED	Bed numbers	Available bed days	Presentations / 1000 bed days	% of patients admitted to ED	FG status
ARC1	LP1	PH	0	0	2.5	30	10950	0	0.0%	Accept
ARC2		RH/PH	1	1	12.32	64	23360	0.042808	1.6%	Declined
ARC3		RH	1	1	12.32	51	18615	0.05372	2.0%	Declined
ARC4	LP2	RH/PH	1	1	16.23	43	15695	0.063715	2.3%	Accept
ARC5		PH	2	1	15	43	15695	0.063715	2.3%	No reply
ARC6	LP3	RH/PH	1	1	13.2	41	14965	0.066823	2.4%	Accept
ARC7		RH/PH	5	1	2.9	35	12775	0.078278	2.9%	No reply
ARC8	LP4	RH/PH	2	2	2.44	64	23360	0.085616	3.1%	Accept
ARC9		RH	1	1	13.9	32	11680	0.085616	3.1%	Not invited
ARC10		RH	1	1	11.78	31	11315	0.088378	3.2%	Not invited
ARC11		RH	2	2	11.2	43	15695	0.127429	4.7%	Not invited
ARC12	LP5	RH/PH	6	6	12.41	125	45625	0.131507	4.8%	Accept
ARC13		RH	1	1	18.4	20	7300	0.136986	5.0%	Not invited
ARC14 to 26 were not invited										
ARC27	HP1	PH/DM	8	6	4.22	60	21900	0.273973	10.0%	Accept
ARC28		RH/PH	5	5	11.29	40	14600	0.342466	12.5%	No reply
ARC29		RH/PH/DM	3	3	40.03	24	8760	0.342466	12.5%	No reply
ARC30		RH/PH	8	6	8.4	45	16425	0.365297	13.3%	No reply
ARC31		RH	3	3	42.5	22	8030	0.373599	13.6%	No reply
ARC32	HP2	PH/SP	10	8	2.49	52	18980	0.421496	15.4%	Accept
ARC33	HP3	RH/PH	12	9	12.56	55	20075	0.448319	16.4%	Accept
ARC34		RH/PH	3	3	38.5	14	5110	0.587084	21.4%	No reply
ARC35		RH	4	3	2.2	14	5110	0.587084	21.4%	Not invited
ARC36		RH/PH	7	7	3.1	32	11680	0.599315	21.9%	No reply
ARC37		RH/PH/DM	12	11	15.73	46	16790	0.655152	23.9%	No reply
ARC38	HP4	RH/PH/DM	11	11	10.29	32	11680	0.941781	34.4%	Accept
ARC39	HP5	RH/PH	9	8	14.2	21	7665	1.043705	38.1%	Accept

Table 1.0: ARC facilities identified for FGs

Years of experience	< 5 yrs	6–20 yrs	21+ yrs
LP ARC	22% (7)	9.6% (3)	12.9% (4)
HP ARC	29% (9)	16.1 (5)	9.6% (3)
Total	51.6% (16)	25.8 (8)	22% (7)

Table 1.1: Years of experience of participants

presentations to ED, whereas HP represents 10-38.1% (see Table 1.0). A hypothesis was made that below 6% signifies a LP ARC and above 10% signifies a HP ARC admission to ED.

BACKGROUNDS OF PARTICIPANTS

The number of participants in the FGs varied from two to six participants of mixed age, gender, ethnicity and years of experience. There were six men and twenty-five women. The age of the participants was not asked for, but the number of years they had worked as a nurse was requested. Participants were classified into three groups according to their level of experience (Table 1.1).

Sixteen participants (51.6%) had less than five years of experience and fifteen (47.8%) participants had over six years' experience. Of these, seven (22%) had over 21 years of experience. The most experienced nurses consisted of three (9.6%) CMs and four (12.9%) of them were senior nurses.

Putzar-Davis (2009) asserts that experienced aged-care nurses play a pivotal role in the identification and management of delirium. Experienced nurses can offer valuable support to junior staff by coaching and monitoring them. Voyer et al. (2008) also posit a higher rate of detecting delirium by more experienced nurses than those with less experience. However, the work of Hare (2008) found no statistically significant difference in the delirium knowledge levels when considering professional educational background or years of nursing experience. Yet in this study one participant demonstrated that as an experienced nurse she could play a vital role to junior staff:

...they are paid to be knowledgeable; the initial comment that we do not see delirium

much is because when things happen we get on top of it. Therefore, we do not get that big escalation that is actually out there; we see the big picture and we catch it early and that is education for the new staff. (CM1; LP1)

NURSES' EXPERIENCE OF MANAGING DELIRIUM

Twenty-nine participants (93.5%) felt that they had encountered delirium at some stage in their own ARC facility:

...we have experienced delirium, at least one case every week. (RN16; LP5)

Whereas only two participants (6.4%) indicated that they had never come across any aged-care resident with a delirium:

...nearly nobody has been diagnosed here with delirium – no delirium, just UTI (urinary tract infection). (RN15; LP2)

These two participants were newly-qualified staff, possibly highlighting their inexperience in recognising delirium. In Voyer et al.'s 2008 study, 71.5% nurses were able to detect delirium, but in a minority of cases (13%) they were not. In contrast, Reimers and Millar's 2014 study showed that 26% of experienced nurses fail to detect delirium, and 32% of nurses did not know that delirium was associated with increased mortality rates. Overall, however, in this study, a significant majority of participants were able to identify delirium in their workplaces, although it was unclear whether some of them actually understood the condition adequately.

CONFIDENCE IN MANAGING DELIRIUM

FG participants were asked how confident they were in managing delirious residents. Of them,

ARC	Participants' view on the frequency of delirium	Actual % of ED admissions	Total presentation
LP	3-4 / month	0-4.8%	10
HP	0-1 / 2 months	10-38.1 %	49

Table 1.2: Participants' views on the frequency of delirium.

24 (80.6%) identified as being confident, while six (19.3%) identified as lacking confidence. In relation to this finding, Hare's 2008 study found that 25% of the nurses did not have confidence in identifying delirium as a problem. Several HP ARC participants in this study were quite adamant that they had had nobody diagnosed with delirium over the period in which the audit was carried out:

We have not had a confirmed delirium [case] since I've been here... (CM6; HP2)

In fact, the actual data showed that the ED presentations from HP ARC facilities were among the highest (Table 1.2). The deduction that can be made is that participants were unaware that some residents referred to the ED had delirium, or there was a probable lack of understanding of delirium itself. Recognising delirium is an important task for aged-care nurses. However, it can be difficult, especially in the residents who have dementia or other mental health problems (Peacock, Hopton, Featherstone, & Edwards, 2011). For example, one participant said:

We have got one resident here with bipolar and dementia and she gets delirium all the time. (RN14; HP1)

CHALLENGING BEHAVIOURS OF DELIRIOUS RESIDENTS

The FG participants described mixed feelings and thoughts when dealing with challenging behaviours of residents experiencing delirium. Diverse emotions were expressed when referring to how residents' behaviour can alter rapidly during a delirious phase, which poses a risk of harm to themselves or others. Twenty participants

(64.5%) described feelings of "concern", "fear", "anxiety", "stress", "shock" and "panic" when caring for residents with challenging behaviours. Some participants described being "physically worn-out", "exhausted", "fatigued", and "tired". One participant stated:

...it can be tiring, I feel like I don't want to work anymore, even if one patient would do that for you, I'd rather care for 19 patients rather than just that one – tiring, stressful, especially when you have to deal with other people as well. (RN7; HP3)

Brajtman et al.'s 2006 study found that nurses had similar uneasiness, worry, ambivalence, and struggles to interpret patients' behaviours. Nurses in this study simultaneously felt doubtful and aware of the need to maintain personal safety, because they often could not trust the patients when they displayed challenging behaviours. One nurse articulated:

...the need to be safe... I have said to others make sure there is a space between you and the residents, because they could lash out, and it's not their fault. Some of them feel claustrophobic and I've seen that happening when you are too close. Too many people around resident (A), it makes her angry so it's having that space. (RN1; LP1)

Similar to the views of FG participants, a lack of understanding and feelings of anxiety were identified in Stenwall, Sandberg, Jönhagen, & Fagerberg's 2007 study: "When patients experienced delirium, nurses no longer grasped the meaning of their patients' behaviour and they were no longer able to trust them or to ascertain their needs" (p. 517). But challenging

behaviours were not just a detrimental issue because they can also provide a learning curve, as one contributor understood:

...that may be negative for you because you felt bad and being rejected, but its beginning of learning for you on de-escalation. That was a good outcome but you felt negative, you felt bad because how could you possibly be rejected? (CM1; LP1)

EFFECTIVENESS OF TEAM WORK

Brajtman et al. (2006) indicated that nurses needed professional and non-professional interdisciplinary team support to have better knowledge of delirium in order to provide quality care and supervision. The participants in this study mentioned good teamwork as an important communication strategy. During handover times, for example, staff conveyed any concerns about a particular patient to staff members in the next shift, in order to have a continuum of care for that particular resident. At other times, if they felt unsure about a particular resident, they would liaise with their CM, or other senior RNs or General Practitioners (GPs) to obtain further support. One participant suggested:

We work as a team here. In the end what I like here is if we feel unsure, we talk to the CM, talk to the GP or MHSOP [Mental Health Services for Older People]. (RN19; LP3)

PHARMACOLOGICAL TREATMENT

Pharmacological agents are well known and recognised treatments for delirium. Atypical antipsychotics have shown effectiveness to treat agitation in patients with delirium (Tamara, Tulebaev, & Inouye, 2009). However, it is advised to use them cautiously (Young et al., 2010) because pharmacology as routine is contrary to evidence-based guidelines (Page et al., 2013). Clinicians still use medication to manage challenging behaviours of delirium, despite the fact that those on an antipsychotic were 3.2 times more likely to be hospitalised or die (Rochon et al., 2008). Conversely, opiate-based analgesics can also increase the risk of delirium (Francis & Young, 2014).

Often aged-care residents with delirium display behaviours for which a range of treatments are necessary. In such circumstances, Francis and Young (2014) advised treatments that include adequate nutrition, pain relief, management of constipation and medical problems in the first instance. In this study, the respondents conveyed the message that pharmacological interventions to treat delirium are the norm in their respective settings, to circumvent unnecessary harm to them or others:

...we had a patient here who has complicated medical issues that did not respond to medications. ... She started getting more confused, anxious, shouting, saying she could not breathe, having falls, was in heart failure, had some Lorazepam for anxiety which settles her down for a while. We treated her physical health and eventually decided to put her on Quetiapine. Eventually she settled down. Having considered different factors this medication will cause her to fall but not giving her would also cause her to fall. She eventually settles down. (RN11; HP4)

INTRAVENOUS, INTRAMUSCULAR AND SUBCUTANEOUS TREATMENT

The most widely studied and commonly used medication when someone has delirium and behavioural issues is Haloperidol, an antipsychotic, which is given either orally, intramuscularly or intravenously (IV) (Page et al., 2013). Haloperidol inhibits dopamine transmission in the brain, which in turn affects basal metabolism, wakefulness and vasomotor tone, which then reduces agitation in delirious patients (Putzar-Davis, 2009). Antipsychotics do not modify the duration of delirium, but can be used safely for short-term management of acute agitation (Devlin, 2010). Delirious persons often need subcutaneous (sub-cut) treatment for dehydration because they are too agitated to have IV treatment and may pull the IV lines out (Apocada et al., 2015). IV treatment has been extensively mentioned for severe dehydration or to administer antibiotics. It is often the main reason for sending ARC residents to the ED. Patients' response time is much quicker with

IV treatment as compared to oral medications, though the former treatment is still not available in aged-care facilities at the time of writing.

...sometimes they don't respond to the oral medications for infections, especially those with aspiration pneumonia. Some of ours can't swallow properly. We thicken the fluid, we puree their food, we keep them upright, and yet they still get aspiration pneumonia. We like to treat them here but we can't initiate IV ourselves. We get them with a pick line already. The nurses at the hospital doing the IV therapy, they support us. We don't initiate it ourselves – if somebody needs IV, which is more than what we can give, then we have to send them to hospital, unfortunately. (CM5; HP5)

The majority of ARC facilities provide sub-cut treatment for dehydration for those who cannot, or refuse to, drink when they are delirious:

...(b) was very confused. She had a UTI, so we started her on antibiotic and on sub-cut fluids as well. After a few days she was really fine. (RN18; LP5)

NON-PHARMACOLOGICAL TREATMENTS

Non-pharmacological interventions are strategies that focus on preventative measures rather than treating delirium. According to Putzar-Davis (2009), non-pharmacological treatments are easy to implement, but are often overlooked as therapeutic interventions in delirium. Much of the literature refers to non-pharmacological interventions as both preventive and curative, and they can be included in every care plan to optimise comfort and accurate orientating of sensory information. Previously, Tamara et al. (2009) advised a list of non-pharmacological interventions that could be incorporated in any ARC setting, namely:

...use clear instructions and make frequent eye contact with patients. Sensory impairments, such as vision and hearing loss, should be minimized by use of equipment such as spectacles or hearing aids. Physical restraints should be avoided

because they lead to decreased mobility, increased agitation, greater risk of injury, and prolongation of delirium. Other environmental interventions include limiting room and staff changes and providing a quiet patient-care setting, with low-level lighting at night. An environment with minimal noise allows an uninterrupted period of sleep at night and is of crucial importance in the management of delirium. (p. 8)

Non-pharmacological interventions were mentioned by participants in this study. Some of these interventions were:

...hydration, good care, nutrition, the elimination factors like constipation/urine, new environment. ... At least if they've got a familiar picture in a frame or an old belonging it makes them feel at home when they are in a new environment, to remind them. (RN7; HP3)

Two participants mentioned other nutritional initiatives as preventative measures to treat delirium:

...we put intervention in place so that the patient's risk of having an infection is decreased. Some of our residents are on cranberry capsules. We also push fluids for residents who are prone to have a UTI. (CM3; LP2)

COMMUNICATION

Communication and teamwork were identified as important issues in delirium prevention and appropriate management of delirium (Peacock et al., 2011). There are difficulties of communication between staff and aged-care residents for several reasons. Hilton (2012) pointed out that if older persons are mentally unwell they might not be able to express their needs or concerns, and adding delirium on top of that can make it worse. One participant identified that:

...language is a barrier, especially if English is not the first language. ... Translation can be a problem. (RN8; LP4).

In contrast, there were four participants (16.1%)

who believed that they had no barriers or hurdles in managing delirium.

We have no barriers; we are lucky to have our CM as our nurse educator. We can work hand in hand, if we don't understand something we go to her for advice. (RN2; LP1)

DISTINGUISHING DELIRIUM FROM OTHER MENTAL HEALTH SYMPTOMS

Diagnosing delirium can be a bewildering experience as it can be hard to differentiate between delirious behaviour and psychiatric problems. Literature attributed this to aged-care nurses with inadequate training, education and experience of managing delirium (Inouye, 2006; Voyer et al., 2008; Han et al., 2009, 2010). Nurses can make mistakes in identifying delirium as psychiatric symptoms and may even use these terms interchangeably (Putzar-Davis, 2009). Nurses may not necessarily have the appropriate skills and knowledge in distinguishing delirium and psychiatric symptoms (Steis, 2012). This is because delirium is a complex condition with similar symptoms to other psychiatric conditions. In this regard, nurses need to develop an awareness of the link between psychiatric symptoms and the symptoms of delirium (Voyer et al., 2008). Regrettably, many over-utilise sedative medications due to lack of knowledge on how to manage delirium (Yue, Wang, Liu, & Wu, 2015). One participant was able to understand the difference between the two conditions, suggesting:

We have been taught to check, orientate us of their cognitive ability, difference between dementia and delirium. Delirium is just acute confusion and dementia chronic ongoing mental problem. (RN2; LP1)

On the other hand, one CM was critical about some nurses in the facility who could not differentiate mental illness and delirium, and that was a concern for that participant:

Some nurses don't recognise signs, they don't know what's making patients ill suddenly and those nurses that have got lots of experience and I'm surprised that they don't pick it up.

They think it is mental health issues that are coming up and I think why don't you know that. And this is experienced nurses; I find it hard. (CM5; HP5)

FAMILY DYNAMICS

When aged-care residents with delirium exhibit challenging behaviours, it can be very distressing for them, staff and their families. Brajtman et al. (2006) attest that aged-care staff experience significant anxiety when working with delirious patients showing a change in presentation. Some families understand delirium better than others, whereas some need more education and support. For example, the presence of familiar faces around the resident helps to calm them down when they are displaying challenging behaviours (Inouye, 2006; Schofield et al., 2012). In this study, participants talked about the importance of involving the family in the care of a delirious patient:

...[With] the introduction of any new medication that might have been started by the GP, communication with the family helps, especially with dementia. A lot of them have a better idea of how they have been reacting before. The family might approach you and mention something a little bit different that you may not have noticed before. (EN2; HP3)

Another participant appreciated the help of family when their relative displayed challenging behaviours:

...they are very good in talking to the resident and trying to calm them down, and it helps with managing the aggression and the behaviour. (RN10; HP4)

While some participants view family as helpful in de-escalation of difficult situations, one participant reported that difficult family dynamics can exist. Families may often lack knowledge of delirium and insist on sending their relatives to hospital as the answer to resolving the problem. This was seen as undesirable and unnecessary by staff:

...we have a family that are good at saying 'send them to hospital'. If they cannot

swallow and they are dying, and when they are aspirating, they must go to the hospital. When they come back, they get them to go back again. Family often feels hospital is the answer, even though, sadly, it would be kinder and better to keep them here. We've had this going on for years, yet it still happens. (RN6; HP3)

PREVENTION IS BETTER THAN CURE

Rockwood (2014) established that delirium is an important challenge in ARC and advocates for mobilising resources to better understand and prevent delirium. Conversely, Reimers and Miller's 2014 study demonstrated the importance of a quality-improvement programme in preventing delirium. This study participant described implementing similar pre-emptive measures to prevent delirium from happening:

Should someone you know to be confused, or their mood altered or anything, we up the fluids, dip-stick their urine and check that if they have an infection. We treat them straight away and don't let them rage. We avoid people being delirious. We provide food intake, healthy food, get right medication, making sure they get out and have physical activities. (RN1; LP1)

Detecting delirium early and not waiting for challenging behaviours to occur were noted by a participant to be essential preventative measures:

If somebody is a very high risk for UTI or dehydration, you know, put them on a fluid balance chart, make sure they are hydrated well, make sure that their hygiene is well maintained – something like that. And there is medication that can be taken to prevent some conditions from exacerbating. (RN16; LP5)

ASSESSMENT TOOLS

A good assessment tool is important for assessing delirium. Unfortunately, in Patel et al.'s 2009 survey, only 16% of nurses had used a validated delirium screening tool. However,

Inouye's (2006) 'Confusion Assessment Method' (CAM) tool, is a widely available instrument for the detection of delirium and has strong validation results (Inouye, 2001). However, despite its effectiveness and reliability, Pun et al. (2005) found 95% of nurses reported time, confidence, doctors' availability, residents and resources as hurdles when utilising CAM tools. Inouye (2006) recommends that a cognitive assessment tool should be routinely used if any change in cognition is noted, and that afterwards CAM should be used to screen for delirium. As regard to specific delirium tools, Han et al. (2009) found that Mini Mental State Examination (MMSE) was no longer considered best practice because it does not accurately reflect a delirious patient's premorbid cognitive status. On the other hand, the Montreal Cognitive Assessment (MoCA) (Nasreddine et al., 2005), which was developed for assessment of cognitive impairment is now extensively used for screening delirium (Saczynski et al., 2015). Of course, if all aged-care residents had a cognitive assessment prior to their illness, then repeating it when they were delirious would be significantly useful.

The participants mentioned a variety of assessment strategies rather than specific tools when assessing delirium. Twenty participants (64.5%) stated that they had never heard of or utilised any delirium tools. One participant utilised the following steps in their assessment for delirium:

Check for UTI, infection, constipation, dehydration and do all the basic bloods. (EN2; HP3)

Only four (12.9%) participants were aware of the Inouye's CAM tool. However, one participant found the CAM tool unsuitable for implementation in the ARC setting:

...we discussed it and found it was going to be too labour intensive. You have to use it in each and every shift. ... So we just use the urine, bloods and sometimes chest x-rays and our observations, of course, temperature, BP, SATS and clinical stuff going on. (CM5; HP5)

Several participants acknowledged using other cognitive assessment tools in their responses: five (16%) participants had used the MMSE and two (6.4%) had utilised the Montreal Cognitive Assessment (MoCA).

DELIRIUM EDUCATION

Forsberg (2017) contends that relatively little attention has been given to delirium education in ARC settings. However, in hospital settings, delirium is a common feature in nurses' professional development (Patel et al., 2009) and is also being taught in all undergraduate courses. According to Speed (2015), if nurses are not aware of risk factors and delirium occurs, the condition may go unrecognised, allowing for development of negative sequelae. However, with the effectiveness of appropriate pre- and post-delirium education, the knowledge of Speed's study participants increased considerably. The research of Hare et al. (2008) advocates for delirium education to be integrated into nurse training programmes to improve health outcomes as well as saving substantial cost to health services. Findings from this study indicated that twenty (64%) participants regarded delirium education as crucial for managing delirium. All participants (100%) stated that their organisation did not cover the topic of delirium in their induction at the start of employment:

I'm pretty sure that our induction here does not cover delirium, but I must emphasise that when people start here, if they are not sure, they get another RN here or someone on-call. Hopefully they have the knowledge, but nothing specific in their orientation. (EN2; HP3)

Participants reported other forms of educational programme, regular "in-service", external courses, or online resources in the ARC facilities. Interestingly, several participants from LP ARC facilities viewed their CMs or team leaders as role models for providing any delirium education. There were mixed views from HP ARC facilities, as a few of them did not have a CM:

We always have other (senior nurses) to seek assistance from, so if we are not that

confident with our skills, or if we are unsure of something, we can always contact (an) other team leader. (RN16; LP5)

Thirteen participants (41.9%) mentioned having a delirium folder as an educational resource or utilising the 'DELIRIUM mnemonics chart' (Kibbe, 2014). This chart provides delirium guidance such as drugs interaction, electrolyte imbalances, contributing infections. One participant acknowledged that they:

...have no specific tools, [but] in the treatment room, [the] DELIRIUM acronym, it is a good guide. We have a look at the chart and look if they have mental illness, we have to inform the doctor, do blood test, etc. (RN17; LP5)

Four participants (12.9%) mentioned seeking further educational assistance from visiting DHB professionals, such as the geriatric nurse specialist from the Health of Older Person (HOP) team for severe physical health complications, or psychiatric district nurses from the Mental Health Services for Older Persons (MHSOP) team for managing challenging behaviours:

[The] geriatric services of the DHB offers training. (EN2; HP3)

MHSOP come to train us on challenging behaviour. (CM4; LP5)

ASSESSMENT AND MANAGEMENT WITHIN PRIMARY HEALTH SETTINGS

Medical problems are normally managed by the GP. McCrow et al.'s 2012 study found nurses frequently rely on their GP for the cases representing hyperactive and hypoactive delirium. In contrast, Boyd et al. (2010), found that 45% of ARC staff have a GP available or on call 24 hours a day, but many had limited GP availability.

In this study, participants regarded GP involvement as a crucial part in assessing and managing delirium. Twenty-four (80.6%) participants expressed high expectations and positive regard towards their GP. The anticipation was that the GP should not just prescribe treatments for delirium but also provide support and advise them on managing difficult situations:

It is fortunate for us; he is right there for us when we need it. It is comforting for us to know that we don't have to chase the GP and it makes a huge difference. He can support and guide us, he is right there for us. If something goes wrong, he is at a phone call away and trusts us on our clinical judgement. (CM1; LP1)

Twenty-eight participants (90%) described their GP as working flexible hours for consultations, and being available 24 hours a day:

The GP will be able to provide us in terms of guiding us on what assessment needs to be done, decision making on admitting to ED. ... It's really that support that we would expect from our GP to be able to provide to us 24/7. (RN11; HP4)

SECONDARY SERVICES SUPPORT IN MANAGING DELIRIUM

It is well established that secondary-care services offer considerable input for the management of aged-care residents with delirium. Health professionals can reliably identify the needs of older persons and offer a wide range of assessments for behavioural and affective disturbances (Kaskie, Gregory, & van Gilder, 2008). MHSOP was deemed a reliable and helpful service, as suggested by a group of GPs in Worrall and Waite's (2006) study:

...when rest home clients are referred I have no issues; they are seen promptly. ... The referral process is quite straightforward. I fax through, occasionally talk with secondary services Doctor on the mobile. Secondary services respond to referrals rapidly (p. 49)

The participants in this study valued the importance of the ED, MHSOP and HOP, though many viewed MHSOP as their first point of call for support and guidance because of the promptness with which they responded to requests for help with managing challenging behaviours. One participant suggested:

...we access MHSOP at Counties if we get a real problem, which is maybe once a year,

maybe twice a year. We give them a ring and they are really good. They listen and they support us. ... It is great to have that support as well and you do not feel alone and do not feel that you have lost the plot. (CM1; LP1)

Another participant believed that MHSOP clinicians were specialists in dealing with challenging behaviours and opportunely being just a phone call away. While there was a perception that the role of HOP clinicians in managing delirium cases was limited, and that a geriatrician referral was normally done by their GP only for complex physical health problems,

MHSOP are the specialist(s) in mental health whereas the geriatrician is ... medical rather than psychiatric. But if somebody is wandering suddenly and we have done everything, or if they are going to get run over on the road, or suddenly they want to kill somebody, I think they need to go to MHSOP rather than the geriatricians, is that right? I may be wrong. I think if we have done everything medically that GP have ordered, we need psychiatric support. (RN6; HP3)

One participant was adamant that the help of MHSOP was more important than HOP to manage complex cases (a mixture of physical and mental health issues):

Well, if you have a mental health problem with a delirium on top of it, it's nothing the gerontology people can help you with, I'm sorry. It's the other with the expertise of this particular problem you are coping with. (CM1; LP1)

Hilton's 2012 study found that as people age, they require health experts to manage their co-morbidity and psychological problems. An ED plays a significant role in this. Sending delirious patients to an ED was a common practice among ARC staff members too:

...most of the time ... it depends on the intensity or how bad an infection, if they are really drowsy and so on, not responding to high fever treatment, that's the time we send them to ED. (R20; LP3)

Another participant contributed that, when oral medication was ineffective, the only option left was IV treatment in the ED:

We admit those with high fever, not responding to antibiotics, needing IV treatment, too drowsy and uncooperative, or showing challenging behaviours. (R20; LP3)

DISCUSSION

This study has a reasonable cross-sectional sample of an equal number of HP and LP aged-care facilities in Auckland, and the views of thirty-one nurses of mixed ages, years of experience and levels of proficiency. The cohorts provided a strong external validity, as they were included methodically, and participation was voluntary, and with informed consent. The data from the ED was sourced independently by an analyst in a process that was blind to this study's hypothesis.

A limitation of this study was the use of a non-standardised and possibly unreliable list of questions for the FGs. The questions were designed specifically for this study and were made up of themes that arose from the literature reviewed, rather than from a standardised questionnaire. It was not piloted in another area before being used this study, therefore, it may lack validity and reliability.

The consequent awareness of being observed (Hawthorne effect) (Watson, Benner & Ketefian, 2008) may have had possible impact on participants' reactions, in that responses could have been influenced due to being observed for the purpose of research. Delirium is a 'hot topic' in healthcare settings. Therefore, this topic can generate a certain desire among participants to attempt to tailor responses in order to exert their influence and opinion on this study outcome. The researcher was employed by MHSOP at the time of study and this could be a source of bias. Some of the FG participants' reactions to the questions were possibly prejudiced by the appraisal for MHSOP and there may have been attempts to tailor responses in order perhaps to impress that service.

Findings of this study may not be generalised to other parts of New Zealand, although other ARC facilities would have similar characteristics as those in Auckland. ARC facilities employ many overseas-trained nurses and the participant pool had a typical composition, including a mixture of overseas- and New Zealand-trained nurses. However, it cannot be generalised that nurses working in all ARC facilities in New Zealand have similar characteristics and views as those expressed in this study.

Findings from this study support the notion that the majority of nurses in ARC facilities have the basic knowledge and skills to assess and manage delirium. Although weaknesses in identifying delirium in some HP ARC facilities were evident, there may be contributing factors such as ARC management strategy, the level of training, education and support from primary and secondary services. If delirium is missed by physicians in up to 75% of cases (Han et al., 2010), then it is not surprising that some aged-care nurses will undoubtedly also fail to recognise this condition. Delirium education is recommended as an effective means to overcome barriers that the participants identified, as well as for ARC management to increase staff knowledge and skill. Training ventures between secondary services clinicians and/or other providers would be highly desirable.

This study indicates that it would be beneficial to include nurses from residential homes, health-care assistants, and aged-care residents into a similar study (these groups were excluded from this study). Families' or carers' involvement is also valued as their experiences may have a lasting effect on patients, and their opinions could be just as valuable as those of aged-care nurses in managing delirium (McCusker et al., 2014). Another recommendation is for a tailor-made assessment tool to screen for delirium in ARC facilities. The current CAM tool is specific to hospital settings and cannot be generalised to ARC settings (Pun et al., 2005). Modifications are needed to meet the specificity of aged-care residents' needs, by streamlining it to allow fewer variables, meet cost restrictions, and to be less time-consuming and more user-friendly.

An implementation of non-pharmacological interventions to allow for management of delirious residents in a non-stimulating environment is highly recommended (Inouye, 2006). This is both preventive and curative, to optimise comfort and prevent unnecessary morbidity.

CONCLUSION

The majority of participants were able to identify delirium in their respective workplaces. However, some participants need more support to assess and manage delirium. Diagnosing of delirium is acknowledged as a difficult task, but it is a well-known phenomenon in many ARC facilities, and its management can be overwhelmingly challenging. This study highlighted that ARC nurses had serious anxiety when dealing with delirious patients and when seeking to understand or cope with family dynamics. Lack of delirium education was evident; however, the impact of experienced nurses was valuable in disseminating knowledge and managing complex cases. Instigating non-pharmacological treatment, and initiating IV treatment in ARC facilities, would be advantageous to reduce dependency on secondary services, thereby reducing costs and use of resources as well as improving aged-care residents' health outcomes. There was general appreciation expressed by the participants of the support given by primary and secondary-care services in managing delirium cases.

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NOTES

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