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REVIEW

Developing effective educational approaches for Liaison Old Age Psychiatry teams: a literature review of the learning needs of hospital staff in relation to managing the confused older patient

Andrew Teodorczuk,¹ Mark Welfare,¹ Sally Corbett¹
and Elizabeta Mukaetova-Ladinska²

¹Education Centre, Northumbria Healthcare Trust, North Tyneside Hospital, U.K.

²Institute for Ageing and Health, Newcastle University, Newcastle upon Tyne, U.K.

ABSTRACT

Background: Deficiencies in the knowledge, skills and attitudes of all healthcare professionals working within the general hospital contribute towards the suboptimal care of older hospitalized patients with confusion. In the U.K., policy dictates that Liaison Old Age Psychiatry teams deliver effective education to general hospital clinical staff. The purpose of this paper is to review the literature concerning the learning needs of healthcare professionals in relation to managing confusion in the older patient in order to inform effective educational approaches for Liaison Old Age Psychiatry teams.

Methods: A broad range of medical and educational databases were searched. Identified English language studies were selected for further analysis if they had a specific educational focus in the hospital setting and then further subdivided into intervention and naturalistic studies. The impact of intervention studies was evaluated by Kirkpatrick's system. Learning needs, as determined from the naturalistic studies, were mapped to identify themes.

Results: 13 intervention studies were identified. Despite a high level of effectiveness for educational interventions, it was unclear what the active components were. A further 23 naturalistic studies were identified; their findings focused on knowledge gaps, diagnostic behaviors and experiences, attitudes and training issues. Few studies specifically researched learning needs or the educational role of liaison teams. Conspicuous by its absence was reference to relevant educational theories.

Conclusions: The findings of this review can be incorporated in the planning of local curricula by Liaison Teams in order to design educational strategies. There is a need for further research, especially studies exploring the learning needs of *all* healthcare professionals.

Key words: education, training, learning needs, dementia, delirium, confusion, hospital, liaison

Introduction

Older people with confusion – either as a consequence of dementia or delirium – are frequently found on non psychiatric hospital wards. Typically, in a U.K. general hospital, two-thirds of beds will be occupied by older people and, of these,

approximately half will be troubled by cognitive impairment (Royal College of Psychiatrists, 2005). Furthermore, it is known that the severity of dementia independently predicts hospitalization (Albert *et al.*, 1999) and that older people with delirium have greater rates of complications, including infection, restraint and neuroleptic use (Holden *et al.*, 2008), as well as worsening functional ability and mortality (Feldman *et al.*, 1999, Marcantonio *et al.*, 2003). Thus, not surprisingly, older patients with confusion are disproportionately represented on general hospital wards.

Unfortunately, not only is cognitive impairment frequently under-detected by hospital staff with

Correspondence should be addressed to: Dr Andrew Teodorczuk, Northumbria Healthcare Trust, North Tyneside Hospital, North Shields, NE29 8NH, U.K. Phone: +44 191 203 1200; Fax: +44 191 293 4160. Email: Andrew.Teodorczuk@ncl.ac.uk. Received 15 Apr 2009; revision requested 21 May 2009; revised version received 20 Oct 2009; accepted 21 Oct 2009. First published online 15 December 2009.

delirium being missed in up to two-thirds of cases (Kales *et al.*, 2003), but the care received by confused patients often falls short of the expected standard (National Audit Office, 2007). Increasingly it is recognized that deficiencies in the knowledge, skills and attitudes of all healthcare professionals are significant contributing factors towards the suboptimal care of older hospitalized patients with confusion. Recently, the U.K. National Dementia Strategy has made developing an effective workforce one of its three priority areas (Department of Health, 2009), with particular attention being drawn to the training of hospital staff.

Although training can be delivered by various agencies and staff (e.g. qualified educational trainers), for the purpose of this review we will focus on the role of Liaison Old Age Psychiatry teams as facilitators of learning. These teams include doctors and nurses with a psychiatric background, whose remit is to improve the mental health of older hospital inpatients. Acknowledging the importance of liaison in the education process, the National Institute for Clinical Excellence guidelines for dementia state that liaison teams should deliver "regular training for healthcare professionals in acute hospitals who provide care for people with dementia" (National Institute for Health and Clinical Excellence, 2006). We have previously suggested that, despite the multidisciplinary composition and ongoing presence of liaison teams in the acute setting, the evidence for this role needs to be further developed (Teodorczuk *et al.*, 2009). If resources are to be expended on improving the capacity of such teams, it is vitally important that they are underpinned by sound research findings. Though many studies have looked at education and dementia care or delirium management, the literature is deficient in studies which specifically explore how liaison teams could facilitate learning amongst hospital staff.

The purpose of this review is to determine: (i) what is known about educational approaches to help hospital staff managing older patients with confusion; (ii) develop an understanding of what the learning needs of hospital staff are; and (iii) to suggest how liaison teams could facilitate them. Learning needs can be defined as, "the gap between actual and desired practice" (Lockyer, 1998). Evidence suggests that educational interventions derived from assessing learning needs and targeting this gap are effective in changing behavior (Davis *et al.*, 1995). The research question is: what are the learning needs of health professionals on general hospital wards in caring for older persons with confusion and how can they be addressed by a liaison team?

Methods

In order to develop an understanding of potentially effective educational approaches, a broad review of the literature was undertaken. Initially we searched medical and educational databases using the terms "dementia," "delirium," "confusion," "education," "training," "learning needs," "hospital" and "liaison." Terms were used in combination. Databases searched included Medline, Eric, SCOPUS, Psychinfo, Web of Knowledge, Embase and CINAHL. The reference lists of key articles were screened for further studies relating to the research question. Searches were completed in December 2008 by AT.

Abstracts were screened and articles were selected for further analysis if they fulfilled the following criteria: (1) primary focus is educational either in the form of (a) a description of taught educational intervention or (b) an explicit focus on the knowledge, skills or attitudes which could inform educational planning; (2) acute setting involving hospital staff; and (3) publication in an English language journal. For the purpose of this review, we did not include studies which involved critically ill patients (e.g. in intensive care units). Studies were then further divided according to whether they involved evaluating an educational intervention (experimental) or exploring "more specific or general issues as they occur" (naturalistic) (Hutchinson, 1999).

Experimental studies

We evaluated the impact of the intervention according to Kirkpatrick's model (Kirkpatrick, 1994). This is a practical framework which is widely used to determine the "effectiveness of an intervention" (Aylward *et al.*, 2003, Carpenter and Dickinson, 2008). Impact is evaluated at four levels: reaction, learning, behavior and results (Table 1). The underlying principle is that for successful transfer of knowledge to take place there should be a positive reaction to the event followed by an improvement in knowledge and attitudes, leading to a change in behavior and ultimately impact on patient's health. For the purpose of this review we examined the reported results of the educational intervention and assigned them to one of the four levels. To enhance reliability, impact was evaluated independently by two of the researchers (AT and MW). Cases of disagreement with allocation were discussed until consensus was achieved.

Naturalistic studies

Studies which did not involve an educational intervention were reviewed on the basis of the sample, data collection method, phenomenon being explored and key findings. In order to understand

Table 1. Kirkpatrick's model of learning outcomes

	DESCRIPTOR	EXAMPLE
1. Reaction	Participant satisfaction	Learners' impression of the teaching experience
2. Learning	Staff knowledge and attitudes	Improved level of understanding of the subject area
3. Behavior	Changes in staff practice	Demonstrable change in professional practice
4. Results	Changes in health outcomes	Significant changes in health outcomes

learning needs in relation to managing the older person with confusion, the principal findings were mapped using the software program, Concept Draw MINDMAP (Odessa Inc.). This consisted of a two-stage process. Initially, all the studies were mapped out according to study design and findings. The findings were then reviewed by AT and placed on a "learning needs synthesis" map to determine how they clustered together. Key themes in relation to the research question emerged as a result of this process.

Results

We found 36 studies which met our inclusion criteria, 13 of which investigated the impact of an educational intervention (shown in Table 2).

Twenty-three naturalistic studies were found. For full details of these studies see Table S1 published as supplementary material online attached to the electronic version of this paper at <http://www.journals.cambridge.org/ipg>. Thirteen studies were set in the U.K., 12 in the U.S.A., four in Scandinavia, three in Canada, one in Australia, one in Belgium, one in Italy and one in Ireland.

Experimental studies

Interventions ranged from a one-day workshop (Brymer *et al.*, 2001) to an eight-month guided support program for nurses (Lundstrom *et al.*, 2005). Eight out of the 13 studies had an interprofessional focus, the most frequent mix being that of nurses and physicians. Of the evaluation studies, there was one randomized control trial, six were pre-test/post-test in design, four prospective cohorts comparing outcomes in intervention and non intervention arms, and two were observational.

Eight studies were evaluated as having maximum effectiveness (Kirkpatrick level 4) (Wanich *et al.*, 1992; Inouye *et al.*, 1993; Milisen *et al.*, 2001; Baldwin *et al.*, 2004; Miller *et al.*, 2004; Lundstrom *et al.*, 2005; Naughton *et al.*, 2005; Tabet *et al.*, 2005), four studies demonstrated changes in behavior (Kirkpatrick level 3) (Rockwood *et al.*, 1994; Simon *et al.*, 1997; Brymer *et al.*, 2001; Speciale *et al.*, 2005) and one showed a change in learning only (Kirkpatrick level 2) (Smith, 2007). Important health outcomes (level 4) that improved

included rates of delirium, length of stay, functional decline, prescribing habits and severity of delirium. Changes in practice (level 3) included detection of delirium, improved assessments of mental state and referral patterns. Level 2 impact included changes in knowledge and attitudes.

In relation to the research question, only the randomized control study by Baldwin *et al.* (2004) specifically investigated whether a nurse-led liaison team could reduce psychiatric morbidity on hospital wards. This six-week multifactorial intervention comprised knowledge transmission concerning mental disorders, nutrition and safety, delivery within a package of liaison assessment and ongoing support to reinforce learning. Education was estimated to take up half of the nurses' time. Though perhaps too underpowered to detect an effect, the results suggested that targeted interventions may prove successful. However, the intervention only significantly reduced scores on the Geriatric Depression Scale, with no improvements in cognitive or other health outcomes.

Naturalistic studies

Of the 23 naturalistic studies, six were surveys (Berkowitz, 1981; Somerfield *et al.*, 1991; Armstrong-Esther *et al.*, 1999; Hobson *et al.*, 2001; Dunnion and Kelly, 2005; Pulsford *et al.*, 2007), three were case vignettes (Normann *et al.*, 1999; Fessey, 2007; Fick *et al.*, 2007), four were case reviews (McCartney and Palmateer, 1985; Palmateer and McCartney, 1985; Ryan *et al.*, 1995; Armstrong *et al.*, 1997), three were mixed methods (Ekman *et al.*, 1991; Tolson *et al.*, 1999; McCarthy, 2003b), four were interviews (Eriksson and Saveman, 2002; Borbasi *et al.*, 2006; Nolan, 2007; Harding *et al.*, 2008), one was a focus group (Atkin *et al.*, 2005), one a Q-sort (Jewell *et al.*, 2003) and one was prospective in design (Inouye *et al.*, 2001). Interestingly, two studies involved exploring the patient's perspective (Tolson *et al.*, 1999; Harding *et al.*, 2008).

Themes concerning the learning needs of hospital staff in relation to managing the older person with confusion were clustered using the mind map software, Concept Draw. Five themes emerged

Table 2. Studies investigating impact of educational interventions

REFERENCE	EDUCATIONAL FOCUS	EDUCATIONAL INTERVENTION	DESIGN	FINDINGS	EFFECTIVENESS ^a
Baldwin <i>et al.</i> , 2004 (U.K.)	Healthcare staff in a District General Hospital	Multi component package of liaison assessment, direct interventions and on-going liaison support delivered by nursing staff. Tailored support included encouragement of person centered care; education about mental disorders, nutrition and safety issues; signposting to relevant services. Support lasted up to 6 weeks.	Randomized Controlled Trial	Intervention arm had lower Geriatric Depression Scores*. No difference in Health of the Nation Outcome Scale or Mini-Mental State Scores. No differences between groups in terms of length of stay, psychotropic medications, rehospitalization and death within 3 months.	4
Naughton <i>et al.</i> , 2005 (U.S.A.)	Physicians and nurses in the emergency department (ED) and acute geriatric unit (AGU) of a university hospital	Multi-factorial quality improvement program involving introduction of new guidelines for management of cognitive impairment. ED: presentations, training in targeted guidelines, mental status assessment, changes in hospital procedures, strategies to remind physicians to detect confusion. AGU: 8 hour educational program delivered to nurses and assistants. Nurses trained in reminding physicians of guidelines and medication management. Physician small group work. On going reviews of prescribing behavior and performance by means of audit and data discussion.	Pre-test, post test	Reduced prevalence of delirium at 4 months* and 9 months** Lower prescription of benzodiazepines** and antihistamines* at 9 months. Reduced length of stay (11.5 days pre-intervention vs. 8.2 post intervention).	4
Millisen <i>et al.</i> , 2001 (Belgium)	Nurses in an emergency room and 2 trauma wards of an academic medical centre	Multifactorial program comprising: a) Education of nursing staff including training in a cognitive assessment scale (NEECHAM scale) and exposure to a psychogeriatric educational poster placed on wards. b) Ongoing support services from specialist delirium resource nurse once an older hip fracture patient at risk of delirium is identified. c) Implementation of a pain protocol. d) Systematic screening for delirium.	Pre-test, post test	Shorter duration of delirium in older hip-fracture patients in intervention cohort* Reduced severity of delirium in older hip-fracture patients in intervention cohort * Trend towards reduced length of stay in intervention group. No significant difference in functioning, mortality or incidence of delirium between groups.	4
Miller <i>et al.</i> , 2004 (U.S.A.)	Nurses on surgical and medical wards in a tertiary referral hospital	Nursing Protocol (Elder Care Supporting Interventions) implemented. Elderly care assistants facilitated implementation. Environmental props introduced to remind staff of protocol. 2 hour educational lecture addressing significance of confusion.	Pre-test, post test	Reduced discomfort post intervention*. No significant differences in length of stay, acute confusion, physical function.	4

Wanich <i>et al.</i> , 1992 (U.S.A.)	Nurses in a medical unit of an urban teaching hospital	Educational in service program at start of multifactorial program. Education sessions repeated once during 9 month study. Program involves mobilizing patients, orientation, carer education, monitoring medications, environmental modification and discharge planning. Program implemented by a geriatric clinical nurse specialist.	Prospective cohort. Case control.	Improved functional status* and reduced deterioration in functioning* in the intervention group. No significant difference in incidence of delirium, mortality, complications, discharge site and length of stay between groups. Trend towards reduced length of stay in intervention group.	4
Lundstrom <i>et al.</i> , 2005 (Sweden)	Nursing and medical staff on a general medical ward	4 part multicomponent intervention: a) 2 day course focused on assessment, prevention and treatment of delirium b) Staff education on caregiver- patient interaction c) Reorganization of nursing care from task to patient orientated care system d) Monthly support to nurses over 8 months by supervisor involved observing and feeding back on practice.	Prospective cohort. Case control	Intervention ward had lower length of stay**, lower rates delirium at one week** and lower mortality during hospital stay*.	4
Tabet <i>et al.</i> , 2005 (U.K.)	Physicians and nurses working on acute medical ward in an urban teaching hospital	Formal presentation, written management guidelines and small group discussion follow up session to reinforce key messages.	Prospective cohort. Case control.	Reduced point prevalence of delirium* on intervention compared to control ward. Staff on intervention ward more likely to correctly recognize delirium*.	4
Inouye <i>et al.</i> , 1993 (U.S.A.)	Nurses and physicians on general medicine wards of a teaching hospital	2 intervention arms: a) Nurse-only intervention: Complex nurse centered geriatric program delivered by Geriatric Care team. Compromised nurse centered special education, support for nurses, unit based geriatric lecture series for nurses. Also included identification of frail older patients and twice weekly rounds by Geriatric Care team. b) Nurse and physician intervention: same program as above but physicians attended rounds as well.	Prospective controlled single blind cohort study	No evidence for effectiveness of Yale Geriatric program in terms of functional decline compared to control group across whole groups. Both interventions showed trend towards decreased functional decline in high risk medical inpatients (those with baseline delirium, functional impairment, incontinence or pressure sores) Both interventions reduced functional decline in matched analysis*. No differences in costs between intervention and control groups.	4

Table 2. Continued.

REFERENCE	EDUCATIONAL FOCUS	EDUCATIONAL INTERVENTION	DESIGN	FINDINGS	EFFECTIVENESS ^a
Rockwood <i>et al.</i> , 1994 (Canada)	House staff (physicians) in a University Hospital	6 month intervention period. Presentations, seminars and bedside teaching. Teaching sessions repeated monthly to reinforce learning. Additional ongoing support from consultants.	Pre-test, post test	Improved knowledge of delirium post intervention**. Increased recording of delirium** and memory abnormalities** post intervention.	3
Speciale <i>et al.</i> , 2005 (Italy)	Physicians, nurses and physiotherapists based in a Rehabilitation and Aged Care Unit	4 month education program including introduction of geriatric assessment scales.	Pre-test, post test	Increased detection of delirium*. Trend towards less medication use.	3
Brymer <i>et al.</i> , 2001 (Canada)	Emergency department nurses	1 day case-based didactic workshop addressing delirium, depression and dementia and improvement of physical and mental state assessment skills.	Pre-test, post test	Self reported increase in assessment of mental state** and screening for depression**. Increased referrals from Emergency Department to Geriatric programs.	3
Simon <i>et al.</i> , 1997 (U.S.A.)	Staff on an orthopaedic ward in a rural health centre	Continuous quality improvement programme involving an interdisciplinary risk prevention and delirium management guideline. Classroom education targeted at nurses covering prevention management. Risk screening initiated on admission.	Observational	Staff became more knowledgeable and proactive in assessment and management of delirium.	3
Smith, 2007 (U.K.)	Broad multiprofessional group including doctors, nurses, support workers, allied health professionals, volunteers and managers working in an acute trust.	Variety of teaching packages covering dementia care and safeguarding adults. Approaches included workshops and presentations. Dementia care champions program developed. Flyers and training information circulated on a monthly basis to reinforce learning.	Observational	Effectiveness, attitudinal change and increased confidence noted through informal discussions.	2

* = P < 0.05.

** = P < 0.01.

^aAccording to Kirkpatrick's evaluation classification (Kirkpatrick, 1994).

focusing on the skills, attitudes, knowledge, nurses' experiences and training of healthcare professionals.

KNOWLEDGE

Understanding of confusion varied across the healthcare spectrum. Nurses, social workers and those working within the therapy professions were found to have a lower understanding of Alzheimer's disease in comparison to medical professions (Hobson *et al.*, 2001). Among the medical professions, physicians tended to have a greater knowledge of organic brain disease than surgeons (Berkowitz, 1981). The literature was divided concerning the general level of knowledge of nurses; Armstrong-Esther *et al.* (1999) described their knowledge as "good", whereas Ekman *et al.* (1991) reported it to be deficient. In the U.K. a comprehensive review of prequalifying curricula revealed knowledge gaps in relation to diversity, the younger person with dementia and physical health care (Pulsford *et al.*, 2007). Other deficiencies described in the literature include a lack of understanding of person-centered care amongst hospital nursing staff (Fessey, 2007). Crucially, this study also showed that application of knowledge in practice was heavily influenced by the care environment.

SKILLS

The majority of studies addressing skills tended to focus either on the behaviors of nurses or doctors. Four studies explored the diagnostic behavior of physicians. McCartney and Palmateer (1985) found that cognitive problems were under-detected by hospital staff in nearly 80% of case records examined. Furthermore, poor recording was noted as a significant problem. Common diagnostic errors included attributing cognitive impairment to depression in women (Armstrong *et al.*, 1997). In contrast, men were less likely to receive a diagnosis of delirium in this survey study. Finally, deficiencies in the use of diagnostic criteria for dementia and under-use of cognitive tests were identified as an important contributor to poor diagnostic skills amongst hospital physicians (Sommerfield *et al.*, 1991).

Nurses were also found to under-detect cognitive impairment (Palmateer and McCartney, 1985), especially hypoactive delirium and delirium in people with dementia (Fick *et al.*, 2007). Older people on hospital wards who have either severe cognitive impairment or none at all are most likely to be recognized by nursing staff (Tolson *et al.*, 1999). In line with these findings, Inouye *et al.* (2001) determined that the factors associated with the under-detection of delirium included hypoactive delirium, the patient being aged over 80, visual

impairment and dementia. Other contributing factors to under-diagnosis included lack of time and the perception that medical colleagues would not "believe" their assessments (Palmateer and McCartney, 1985). In general, nurses were found to have low sensitivity but high specificity for diagnosing delirium (Inouye *et al.*, 2001). As with physician behavior, the documentation of confusion was found to be suboptimal, rarely going beyond a simple label of "confusion" or "disorientation" (Palmateer and McCartney, 1985).

Wide variation was reported concerning the skills displayed by nurses. These were attributed to personal philosophies of aging (McCarthy, 2003a), ward environment, sociocultural issues and time factors (Borbasi *et al.*, 2006; Nolan, 2007). Care was provided according to routines rather than patient needs (Ekman *et al.*, 1991), and Borbasi *et al.* (2006) specifically called for a shift in thinking towards more patient-centered care.

ATTITUDES

The literature was divided in terms of the attitudes held by nurses towards the older confused patient. Positive attitudes were reported in a survey study of nurses (Armstrong-Esther *et al.*, 1999). More in-depth interview studies, however, revealed negative attitudes of staff towards the "demented" patient with communication problems (Ekman *et al.*, 1991). Furthermore, both staff and patients felt uneasy about talking about delirium (Harding *et al.*, 2008). Variations in attitude were noted according to the hospital (Armstrong-Esther *et al.*, 1999) and patient. In general, staff felt more comfortable with non-agitated patients (Nolan, 2007). Lastly, staff appeared motivated to develop expertise in order to improve practice (Atkin *et al.*, 2005).

EXPERIENCES OF CARING FOR THE OLDER PERSON WITH CONFUSION

Many studies explored the nurse's experience of caring for the older hospitalized confused person. A common theme that emerged was of the powerlessness that staff felt. By means of a mixed method study, Tolson *et al.* (1999) found that staff were concerned about the "suboptimal care" they provided and suggested that special attention needed to be paid to those with dementia. Staff perceived themselves as having low levels of knowledge (Ekman *et al.*, 1991) and skills (Atkin *et al.*, 2005) in the management of confusion. Comparing the care of the patient with dementia to the cognitively intact patient, nurses felt that the care they were able to provide was not only of a lower standard (Atkin *et al.*, 2005) but also too brief to do the patient justice (Ekman *et al.*, 1991). Particular areas

identified by nursing staff as problematic included caring for patients with challenging behaviors, treating patients against their will and managing organizational demands to decrease the amount of time caring (Eriksson and Saveman, 2002).

TRAINING ISSUES

Nurses welcomed training and specifically identified preferences towards ongoing ward-based education with an element of role modeling (Atkin *et al.*, 2005). Identified training needs included improved communication around discharge planning (Dunnion and Kelly, 2005) and management of dementia and risk (Jewell *et al.*, 2003).

The relationship between previous training and levels of knowledge and skills was explored in several studies. Interestingly, levels of training were associated neither with knowledge levels amongst physicians of organic brain syndrome (Berkowitz, 1981) nor recognition of delirium by nurses (Fick *et al.*, 2007). Furthermore, Ekman *et al.* (1991) found that the *less* training a nurse underwent, the more time he or she was likely to devote towards direct patient care. In contrast, Normann *et al.* (1999) found that the greater the level of post-basic training nurses had, the more likely they were to utilize a patient-centered approach.

Discussion

Main findings

The principal finding of the review of intervention studies is that educational strategies targeted at improving the management of confusion in the hospitalized older adult can be delivered effectively across a wide variety of healthcare settings. However, in some cases, although statistical significance was achieved, the strength of effect was weak and it was unclear to what extent the interventions were clinically significant. For example, the study by Milisen *et al.* (2001) in older hip fracture patients showed a significant reduction in duration and severity of delirium, but yet no difference in terms of functioning or mortality.

A further finding was that most of the interventions incorporated not only transmission of knowledge (e.g. presentations), but also enabling factors (e.g. protocols and reorganization of care) and reinforcing factors (e.g. reminders) (Davis *et al.*, 1992). In view of the multifactorial design it is difficult to determine the extent to which education of the staff *per se*, rather than organizational change, was the active ingredient. Furthermore, the majority of the interventions targeted delirium prevention and management (e.g. by early recognition and risk factor modification). This is hardly surprising given

the widespread notion that delirium is a reversible cause of confusion whereas dementia is irreversible in nature.

In relation to the original research question, the learning needs of hospital staff concerning the management of the confused patient were not described in any depth by these experimental studies. One study, however, investigated liaison teams facilitating the educational intervention (Baldwin *et al.*, 2004).

Finally, given the well established benefits of interprofessional education in terms of “amplifying the heterogeneity of professions in order to enhance the learning experience” (Freeth, 2007), it was refreshing that over half the interventions were targeted at more than one learning group. However it is unclear the extent to which these approaches were indeed *inter*professional rather than *multi*professional.

Findings from naturalistic studies suggest that diagnostic behaviors of both doctors and nurses remain a barrier to the successful management of the confused older patient. Furthermore, a lack of understanding concerning patient-centered care may hinder nursing approaches. As expected, variation exists concerning both knowledge and skills which can be attributed to the complex interplay between external factors, such as ward environments and time constraints, and intrinsic learner-centered factors, such as their own philosophy of aging and their professional background. In-depth interviews revealed more negative attitudes towards the older patient with dementia. In general, staff are aware of deficiencies in their practice and are keen to address them, but they reported feeling somewhat powerless. Unfortunately, other than role modeling, very little is mentioned about the form of education that learners value. The finding that those caregivers with the shortest training tended to devote the most time to direct patient care (Ekman *et al.*, 1991) suggests that we should be investing more time in training those who will be spending most time with patients. Our explanation for the relationship is that it is likely to be associative rather than causal, and due to the nature of training programs aimed at different caregiver levels. Finally, we were unable to find any studies which specifically address the educational role of a Liaison Old Age Psychiatry team.

In summary, in relation to the original research question, naturalistic studies appear to shed more light on what the learning needs of hospital staff are while the experimental studies help direct the form that these interventions could take.

To our knowledge this is the first review specifically examining the role of education in relation to confusion and liaison teams. Our findings,

however, build on Rockwood's previous review of education and delirium (Rockwood, 1999). The key message of the latter review was that few educational interventions were underpinned by the principles of adult learning theory (i.e. approaches which were relevant, integrated and incorporated feedback). Most interventions targeted nurses and physicians, there were no studies specifically examining learning needs and, lastly, when assessed against clinically relevant end points, there was little to "convince the skeptic that a more educated approach will produce better outcomes." Our findings suggest that more integrated and relevant approaches involving reinforcing and enabling factors are being evaluated and shown to be effective. Although approaches are still largely targeted at nurses and physicians, interdisciplinary approaches are increasingly being evaluated.

Theoretical considerations

It is well known that developing a sound curriculum underpins effective education initiatives (Schiro, 2008). The educational literature suggests that curricula can be divided into three broad categories: a content curriculum, an instrumental curriculum and a developmental curriculum (Kelly, 2004):

1. A content curriculum is focused on delivering knowledge and assumes that improving levels of knowledge will lead to an improvement in practice behavior.
2. An instrumental curriculum is directed at improving skills and achieving competencies. The major assumption is that achieving these competencies will lead to a more competent practitioner.
3. A developmental curriculum plans the curriculum around people and their intrinsic learning needs. The assumption is that there is no "one" way to deliver a curriculum; rather, curricula should be adapted to individuals and focused on processes which lead to individual development.

In theoretical terms, we propose that the studies we have reviewed are rich in findings informing a content-based or instrumental curriculum, but deficient in findings which can potentially build a developmental curriculum. This review highlights key deficiencies in diagnostic criteria, awareness of the features of delirium and dementia and an understanding of the person-centered care approach which could inform the syllabus of a content curriculum. Equally, the literature reviewed can inform an instrumental curriculum potentially focused on improving the skills of cognitive assessment for doctors, documentation and time management in relation to patient care for nurses. However, the available literature is sparse in

developing an understanding of intrinsic learning needs and identifying the opportunities and barriers to educational processes. Previously, we have argued that the most effective educational approaches by liaison teams should ideally be underpinned by a developmental curriculum (Teodorczuk *et al.*, 2009). The key premise for this argument is that implementation of other arguably more "top down" curricula will be hindered by attitudes of hospital staff and organizational barriers to learning. Owing to the complex social nature of education, what works in one setting may not work in another with different learners, teachers and contextual factors.

Situated learning

Conspicuous by its absence in our review is mention of potential education theories beyond adult learning theory. Educationalists often argue that there is "nothing more practical than theory" (Kaufmann, 2003) and one theory with a high degree of applicability is "situated learning" (Lave and Wenger, 1991).

Situated learning views learning as a consequence of the social discourse that occurs within the work place as opposed to the more traditional transmission of knowledge or acquisition of skills. Much of the theory derives from observational studies within "communities of practice" in which teaching was not apparent but learning occurred to a high degree (e.g. the Yutac community of midwives). Key to this is the concept of "transformational learning," which occurs as a result of developing a strong identity through social discourse within the context of the work place and legitimately moving as a newcomer from a peripheral position to a central one, thereby achieving mastery.

Though criticized for being too dismissive of teaching and too simplistic for the real world (Fuller *et al.*, 2005), situated learning presents a refreshing new standpoint from which to view learning. In particular, there are important implications in terms of liaison teams becoming accepted within communities of practice within hospitals in order to achieve effective transformational learning. A central difficulty with hospital staff and older persons with confusion relates to ownership (Marshall, 1999). A focus on an integrated approach involving becoming "accepted within hospital communities" will be key to the success of any educational endeavor. Furthermore, liaison teams will be in a stronger position to help develop the identity of the non psychiatric staff members to accept the challenge of engaging in a therapeutic, rather than custodial, relationship with the older confused patient. Attitudes present the greatest barrier to translating knowledge into practice and an educational approach focused on

Box 1 Main messages from the reviewed studies

- Key learning needs relate to the practice of person-centered care and detecting cognitive impairment
- Successful educational approaches include enabling and reinforcing factors in addition to knowledge transmission
- Staff feel powerless but willing to change practice
- Preference for ward-based training with role modeling

context with guided support from liaison teams is most likely to be effective in bringing about change in the workplace (Billett, 1996).

Educational recommendations

Potentially, liaison teams could complete their own needs assessments, guided by the findings of this review. Needs could be assessed by interviews, focus groups, event analyses or surveys. In particular, the teams could consider the key messages from the naturalistic and experimental studies (Box 1). Based on these, they could design their own curricula. Following delivery of these interventions we would recommend a process of evaluation in order to determine how they can be made more successful. This evaluation could potentially form another needs assessment and hence we would recommend that education is delivered in a structured cyclical fashion.

Strengths and weaknesses

The findings from our review must be considered within the limitations of the study. First, though we attempted a comprehensive review this is not a systematic review. Rather, the review is more narrative in nature, presenting an argument. It is possible that some studies may have been omitted and as such we propose that this initial review of the literature be followed up by a more rigorous systematic review. Secondly, it is possible that another group of researchers may have assigned the interventions to different Kirkpatrick levels; however, to increase reliability in this study, two independent co-authors evaluated the impact. Lastly, on a theoretical level it could be argued that educational approaches on their own are unlikely to bring about change without concurrent organizational interventions. Thus, a system needs assessment, in addition to a learning needs assessment, is equally warranted to bring about effective change in the workplace.

The strengths of the study are the fact that we looked broadly at confusion rather than restricting ourselves to a narrower disease-based strategy focused on either delirium or dementia. Arguably the more pragmatic symptom approach mirrors the day-to-day approach that occurs in a general hospital. Moreover, the diseases often co-exist and

symptoms are frequently shared. An additional strength is the use of Concept Draw to map the findings and draw together themes from a large number of studies. Furthermore, we would recommend the use of a mind map package to visualize the needs of the learners and build continuously as part of the educational planning process for liaison teams.

Future research

Further research should be directed at exploring developmental curricula for liaison teams focused on empowering staff. Importantly the learning needs of *all* healthcare professionals, including health care assistants, therapists, clerical staff, security staff and managers as well as nurses and doctors, should be considered in order to inform interprofessional interventions. Research should also be directed at the diverse barriers and opportunities for learning within the workplace. Further, we recommend close working with educationalists to help inform liaison curriculum designers of developments in applicable education and curricular theories.

Conflict of interest

None.

Description of authors' roles

Dr. Teodorczuk wrote the review. All authors contributed to the design of the study, and reviewed drafts of the manuscript.

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