Published in final edited form as:
Qual Health Res. 2005 October ; 15(8): 1006–1021.

NURSE ASSISTANT MENTAL MODELS, SENSING MAKING, CARE ACTIONS AND CONSEQUENCES FOR NURSING HOME RESIDENTS

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Abstract

In a nursing home case study using observation and interview data, we described two mental models that guided certified nurse assistants (CNAs) in resident care. The Golden Rule guided CNAs to respond to residents as they would want someone to do for them. Mother wit guided CNAs to treat residents as they would treat their own children. These mental models engendered self-control and affection. We found limits to the models in that they led to actions such as infantalization and misinterpretations about potentially undiagnosed conditions such as depression or pain. Further, we found that CNAs were isolated from clinicians; little resident information was exchanged. We suggest ways to alter CNA mental models to give them a better basis for action and strategies for connecting

CNAs and clinical professionals to improve information flow about residents. Study results highlight a critical need for registered nurses (RNs) to be involved in frontline care.

Keywords

certified nurse assistants; sense making; mental models; supervision; nursing homes

INTRODUCTION

It is reasonable to assume that professional clinical knowledge has a primary influence on resident care in nursing homes; however, this has not been verified empirically. In fact, because semiskilled or unskilled workers in nursing homes provide most direct care (Beck, Ortigara, Mercer, & Shue, 1999), there is strong reason to question the extent to which professional knowledge guides daily actions of direct care providers. Additionally, because nursing homes are traditionally managed in a hierarchical fashion with strict adherence to the "chain of command" (Beck, Doan, & Cody, 2002), there is reason to suspect that registered nurses (RNs), who primarily hold supervisory or management roles, and certified nurse assistants (CNAs) engage in little information exchange about resident care issues. Thus, clinical knowledge may not be transferred effectively to frontline care.

Estimates are that CNAs provide 80% of all direct resident care in nursing homes where only about 7 % of staff is RNs (Beck et al., 1999). Despite CNAs' vast caregiving role, Federally mandated training is only 75 hours (Nakhnikian, Wilner, & Hurd, 2002), which many CNAs believe does not prepare them for the job (Nakhnikian, Wilner, Joslin, & Hurd, 2002). Without adequate education and training, CNAs rely mainly on knowledge learned through life experience (mental models) to shape the care they provide. Illuminating the cognitive processes of CNAs in caregiving, therefore, will provide new knowledge to inform nursing home management practices and public policy (Corazzini, McConnell, Rapp & Anderson 2004).

A literature search identified no research related to CNA mental models. In this study, therefore, we describe mental models that CNAs use, how they influence CNAs' interpretation and guide action in care situations, and the consequences for residents. We identify important leverage points for altering mental models and improving CNA interpretation processes through specific interactions with clinical professionals.

BACKGROUND

Mental models

"The term 'mental model' refers to a symbolic representation of a system and its expected behavior" (Druskat & Pescosolido, 2002, p. 285). When people perceive stimuli, they recognize and interpret it using memory, which has been shaped into models about what to expect. All humans construct mental models because these models allow them to understand their world and thus aid them in explaining and predicting events; they are the genesis of action. A mental model also simplifies a situation and data will be missed or dismissed in order to get tasks completed (Weick, Sutcliffe, & Obstfeld, 1999). Further, mental models do not have to be scientifically accurate—most times they are not. The only necessary condition is that the models be functional in meeting the demands of the person's daily life. Fortunately, "a mental model … continues to be enlarged and improved as new information is incorporated into it" (Greca & Moreira, 2000, p. 4). Thus, certain educational processes may alter existing mental models and make them more effective for meeting daily demands.

Because CNAs have little formal training, they use and build only on mental models that have been successful in their personal lives and prior experiences but such models may not be a good basis for appropriate care actions. In contrast, clinical professionals, such as RNs, MDs, and social workers, have had their mental models revised and expanded through professional education and years of socialization and thus they may be more likely than CNAs to interpret care situations in ways useful for developing appropriate care actions. In nursing homes, however, CNAs—not RNs, MDs, or social workers—are most likely to observe and interpret resident care situations and thus the superior quality of the professionals' mental models may have little influence on care actions taken for residents. Understanding the content of CNAs' mental models, therefore, is important because these models are the starting point for frontline care.

Sensemaking, interpretation, labeling, and action

"The concept of sensemaking is well named because, literally, it means the making of sense" (Weick, 1995, p. 4). Sensemaking is the cognitive process that people employ to construct mental models through which they interpret and assign meaning to behaviors or events. Thus sensemaking will alter one's mental model(s) over time as assumptions are tested and predictions succeed or fail (Weick, 1995).

Interpretation is the explanation or meaning a person creates in his or her "read" of an event (Weick, 1995); it relies heavily on existing mental models. An interpretation is often captured in a label, which connotes meaning, increasing shared understanding of events. Thus a label facilitates transfer of meaning to others and as prior research demonstrates, it is a strong determinant of actions taken (Torkelson, Anderson & McDaniel, 1996). For example, a CNA trying to motivate a resident to ambulate will take different actions depending on whether she applies the label "lazy" or "wary."

Social processes and sensemaking

While individuals engage in sensemaking, it is most effective as a social process whereby multiple, conflicting perspectives (or mental models), are used to make meaning (Coutu, 2003). Sensemaking as a social process will improve when people discuss many, diverse interpretations. For example, sensemaking that considers multiple people's perspectives (e.g., RNs, CNAs, social workers) will draw a rich interpretation of a resident situation and a label for guiding action that is most appropriate because more assumptions will be tested and challenged through a social process. Thus sensemaking is a social process that will alter or reframe the mental models of the CNAs and others participating in the process. Sensemaking processes, therefore, are best understood within the context of the relationship and communication patterns for the CNAs.

METHOD

We conducted this study using a case study design (Crabtree & Miller, 1999; Yin, 1994). Multiple methods were used, including direct observation, open-ended interviews, and depth interviews. Data triangulation (Miller & Crabtree, 1999) included data collected from observation, different people, and different groups. The data presented in this paper are from an ongoing multiple-case, comparative case study. The larger study is designed to describe relationship patterns and nursing management practices, staff and manager's explanations about these, including related barriers and facilitators to achieving better outcomes. The analyses in this paper focused on CNAs. Specifically, we describe the mental models of CNAs. Building on these descriptions, we relay stories that reveal the interpretation and labeling process and how it impacts residents. Finally, we describe the relationship patterns in this

nursing home in relation to CNA mental models, CNA interpretation, actions and quality of care.

Sample and Procedures

The case study nursing home was randomly selected from central North Carolina, as determined by the comparative design of the larger study. This non-profit nursing home was average in size and accepted Medicare, Medicaid, and private pay residents. After research team members explained the study, both the nursing home administrator and director of nursing signed a case study agreement. All participants, staff or residents, who were interviewed during the study, signed informed consents. When indicated, a resident's guardian or family member also signed a consent form. In addition, the nursing home administrator sent a letter to family members or guardians, informing them of the study. When field researchers observed staff in resident's rooms, they explained their presence and asked the resident's permission. The University's Institution Review Board approved the study protocols.

The majority of the data presented in this report came from data collection activities that involved or discussed CNAs. Specifically, 11 female CNAs, of which 8 were African American, 2 were Caucasian, and 1 of unknown race, were the primary source. Interviews and field notes involving 89 other staff members were sampled as relevant to the topic of CNA mental models, sensemaking or social relationship patterns. Of these, data from 8 individuals (a department head, dietary aide, dietary supervisory, director of nursing, housekeeper, licensed practical nurse, registered nurse, and a nurse supervisor) were included in this analysis.

Data Collection—Data were collected over approximately six months, mostly by two field researchers. Early in the case study, observations described communication and interactions, regular caregiving routines (e.g., feeding, a.m. care), shift reports, and formal or informal meetings. Observations also described job behaviors of various types and levels of staff (e.g., CNAs, nurses, administrators and department heads) that the field researchers shadowed as they worked. These descriptive observations, which included informal, open-ended interviews (Kvale, 1996; Miller & Crabtree, 1999), were the foundation for depth interviews later.

The field researchers kept journals, tagging data with date and time, to capture trends or processes and wrote/dictated and transcribed field notes of observational encounters close to the time of the observation. Field notes were the primary method for recording the informal interviews. Depth interviews, using semi-structured interview guides (Miller & Crabtree, 1999), lasted from 30 to 60 minutes and were tape recorded and transcribed verbatim. The grand tour question for CNAs, LPNs, RNs, and other non-management staff was "Tell me what it is like to work at this nursing home." The grand tour question for management staff was, "Tell me about your approach to your job." Probes were used to explore specific relationship patterns and management practices, explanations about why things are the way they are. Additional probes asked, What happened? What was meant to happen? What things interfered? What things made it better? Who made a difference and why?

Data Analysis—Data analysis occurred simultaneously with the data collection. In weekly project meetings team members discussed emerging codes and themes, which the field researchers verified or else suggested alternative explanations and interpretations. Because data were collected and analyzed concurrently, team members discussed ways to focus or refocus observations and interviews and posed clarifying questions.

All transcribed field notes and interviews were entered into a database that was managed using Atlas.ti (Sage, 2000). All research team members read all transcripts. At least two team members coded each transcript, using a descriptive, open coding process to capture meaningful data units. The transcripts and coded data were discussed in weekly project meetings to ensure

common usage, to examine reliability and validity of coding and to verify emerging themes. Coded data were the foundation for a second level of analysis, meaning condensation (Kvale, 1996), in which the data were condensed into themes, explanations, and stories about mental models, relationship patterns, and their consequences. Meaning condensation was used to retain as much of the "whole" of the data as possible and to capture the informants' meanings and experiences. During this process, we continually returned to the full transcripts to clarify the context and meaning.

We used several strategies (Crabtree & Miller, 1999; Miles & Huberman, 1994; Yin, 1994) to ensure rigor of the study, addressing confirmability, dependability, credibility and transferability (Miles & Huberman, 1994). These strategies included: more than one data collector and data analyzer to serve as checks and balances for each other; team training and jointly developed case study protocols to ensure comparable procedures; a code book to assure consistency across data analyzers; coding checks to assess level of agreement and disagreements that were resolved through discussion followed by code book updates; an audit trail; memoing to record team decisions and thinking about data; an explicit search for disconfirming evidence in project meetings; data triangulation; rich descriptions in the data to allow readers to make judgments about potential transferability; member checks to determine if reports reflected the realities of participants; and external consultants who periodically evaluated assumptions and conclusions of the research team.

FINDINGS

Observational data and interview data revealed CNAs' underlying beliefs about residents, their rich explanations for resident care situations and how the CNAs' mental models guided their actions. The findings are organized below to describe (a) CNA mental models; (b) sensemaking, interpretation, labeling processes and actions; and (c) sensemaking and social processes.

CNA Mental Models that Guide Resident Care

We questioned CNAs about how they approached their job. Many CNAs described a philosophy, which we define here as a set of ideas or beliefs relating to a particular approach to one's job or to resident care. These philosophies revealed the content of the mental models that influence how the CNA interprets and labels resident situations and the action they take. Two major themes were apparent: (a) the Golden Rule and (b) mother wit.

The Golden Rule—"Treating them right" was a common thread in CNA descriptions of how they approached resident care. For example, Janet CNA imagined herself in the resident's situation.

> Janet CNA. I just put myself in their shoes…I may need somebody to give me a bath one day, you know—I feel like if I do [well for] somebody else, somebody… will in turn do it to me… You got to take it mentally and say well if I was this way how would I want somebody to treat me? Which is the golden rule—you do unto others that you want others to do unto you. What you reap you will get it back. Bottom line.

May CNA described "treating them right" as treating residents as if they are people. She viewed an "assembly line" approach as a barrier to treating people well.

> May CNA. I don't like to think of patients like production and I used to work in a nursing home that treated patients like production … you had a certain time to get them up and a certain time to turn them…then you had to get them up and get them up washed … that is what I mean by production. You don't treat them like people…

> cause you don't have time to talk to them, all you have time to do is say, "Okay. Let's go."

Sally CNA described her belief that residents are “real” people and that even if memory impaired, at some level the resident will remember how he or she was treated.

> Sally CNA. Sometimes …we forget the fact …that resident[s] are real people… We may not believe it but they'll respond to you positively if you treat them right. If you don't they are not like a light bulb. You just can't switch them off… If you have been rude, they remember how you treated them. If you are nice to them they will know it.

Sally CNA approached residents in their rooms as she would want someone to approach her in her own home. Recognizing that what she does is an intrusion helped her understand that the resident may view her as a “nuisance.”

> Sally CNA. My philosophy is… "This is your house and I am just a guest"… That is our purpose for being here, if you can't do that then you don't need to be here.

Sally CNA went on to indicate that treating them right is important for everyone, even those who are difficult to please.

> Sally CNA. .. You can't please [some residents] all the time but you still have to be nice to them.

We observed many CNAs describing the “Golden Rule” as a useful model for getting through the workday. Within the quotes we noted some positive consequences of the Golden Rule as a mental model for guiding care. In terms of job outcomes, the Golden Rule tapped a religious cord in which the CNA believed she would earn a future reward. In terms of resident outcomes, the Golden Rule helped the CNA place the residents’ needs ahead of her own. However, the Golden Rule also assumed that the CNA knows best in that each evaluated the care provided in her own terms—“what would I want done for me”—rather than learning the resident’s preferences.

Mother Wit—Mother wit is defined as acting from wisdom gained through experience as a mother—some of the wisdom probably passed from mother to daughter. Relying on mother wit was a strong theme in the CNAs’ descriptions of their approach to caring for residents. Thus, the CNA’s behavior was guided, in part, by analogies made between caring for children and caring for elderly residents (Diamond, 1992). For example, Elena CNA likened her responsibility to that of a child care worker.

> Elena CNA. And they [family members] don't have to go home like, 'Oh Lord I wonder if she will be alright today.' You know how you can just leave your child with someone and knowing that they are taken care of… That is how I like feeling [about] my children when I am not there. And I know how [families] would feel leaving their parents here in someone else's care and I would like them to go home knowing that their mother or father has been taken care of really good.

Sally CNA seemed to recognize a similar dependency between a child and an elderly resident.

> Sally CNA. So, uh, [the resident is] like one of my children. If they call, you know, and I can't see what's goin' on, I got to go see 'cause they may have got hurt, or you know, when she was calling like that, there's a sense of urgency in her voice so I run and see if she needs help.

Sally CNA described further that she thinks of elderly people as children and this philosophy gives her patience.

> Sally CNA. …Sometimes I think about old people as children… and then try to maintain myself because they're children and they need guidance and that's why we're here to offer assistance. And once you get your mind trained to that …you take time to explain stuff to them [otherwise they] can easily say, 'You didn't explain! You didn't tell me that!' That's what my children do… 'But had I got, you know, irrational with her… would have made the situation worse, then she wouldn't want me to do anything for her.

CNAs described "mother wit" as another useful model for getting through the workday and to guide the care they provide to residents. In terms of job outcomes, mother wit contributed to CNAs not being offended by resident comments and behavior. It also enabled CNAs to remain patient and to stay in control of their own emotions and behavior in the face of demanding residents.

This idea of being mentally in control was apparent in several quotes from both mental models. Statements such as "you got to take it mentally" and "once you get your mind trained to that," suggest the importance of these cognitive processes in supporting the CNA to engage in appropriate behavior toward residents. However, the prevalence of thoughts about staying in control suggests a tenuous line between being in control and not being in control. Losing control may be a danger that is on the mind of the CNAs as they provide care to difficult residents.

The "Golden Rule" and "mother wit" as mental models in isolation seem to be useful guides to care. However, when viewed in context of sensemaking and action taking, we can begin to see limits to these "useful" mental models.

Sensemaking—Mental Models, Interpretation, and Action

The CNAs in this study provided data with examples of how the golden rule and mother wit as guiding models for CNA actions influenced the CNAs' sensemaking in resident care situations. Sensemaking, interpretation and labeling are discussed together because in the data, they co-occur fairly seamlessly.

The Golden Rule—The following quotes are examples of how the Golden Rule guided CNAs to advocate for residents. Advocating required that the CNAs get permission to do something different or new for the resident. In the first example, Jennifer CNA believed a resident would not be "treated right" if the family's desires were carried out.

> Jennifer CNA and I [participant observer] walk to the dining room. A dietary worker stops, points to a resident and [indicates] that the daughter wants her to eat in her room. Jennifer CNA says, "That is not right. Why would she want her to eat in her room all alone? I disagree with that."… The dietary supervisor joins [us] and tells Jennifer CNA that this was discussed in morning report. [She agreed] with Jennifer CNA that the resident should remain at the table to eat. Jennifer CNA finds [the nursing director] and tells [her] about the resident and they agree that she should eat at the table.

Jennifer CNA advocated for what she perceived was right for a resident. She was successful in her appeal to the nursing director. However, neither the dietary supervisor nor the nursing director discussed with Jennifer CNA the daughter's rationale for the request. Thus, a care decision made in concert with the family was later overturned without consideration of additional information that may have made eating in the room a reasonable choice. Including Jennifer CNA in the decision making with the family may have altered Jennifer's understanding about what was right for the resident.

In another example, Odette CNA used the Golden Rule as her prompt to advocate for a resident who leaves the facility for dialysis three times a week.

> Odette CNA. He had his trench coat on… when I noticed his pants was wet, you know, I knew it was embarrassing to him, because it was out of the ordinary for him…So that is when I suggested to him … "well how about lets try [using depends]…" You got to explain to him it is not like you got to wear this every day, just when you go out.… I guess I was just thinking at that moment about him and how he felt… if that had been me, you know? What would I have wanted someone to do to make me feel more better about the situation… I explained … that I was going to have to go to the nurse and she was going to talk to someone in his family and [arrange payment for the pads]. [The nurse] said it sound like a good idea… She was like 'well I will take it from here.' I never did follow up with it, but I noticed he had some in his room so I figured [they were using them].

Odette CNA empathized with the resident and put herself in his situation (labeling it embarrassing) and thus was motivated to alleviate the discomfort she perceived. On the positive side, she verified the resident's acceptance of the adult diapers. However, the Golden Rule as a model for care was not sufficient to help Odette CNA see the potential adverse situation that might arise from encouraging a resident to sit all day in a wet incontinence pad. Nor was this potential adverse reaction raised when she discussed the issue with the nurse.

Both Jennifer's and Odette's examples suggest that in the nursing home setting the Golden Rule may lead CNAs to advocate for residents in seemingly positive ways. However, negative consequences for residents may occur because the Golden Rule does not encourage critical thinking about the situation and the numerous, clinically relevant factors, which may impact the outcomes of actions. In these examples, clinical professionals apparently did not address these clinical factors either and the CNAs successfully changed care routines in accord with what they believed best.

Mother Wit—The following quotes are examples of how interpretation/labeling may emerge from the mother wit mental model. When CNAs rely on mother wit it is not surprising that they use labels for residents such as "my baby."

> LaKisha CNA says to the resident, "Open your eyes and give me a kiss." The resident purses her lips slightly and LaKisha CNA puts her cheek to the resident's lips. "Now give me a hug too." [She] puts the resident's arms around her and hugs the resident… and tells me [participant observer] that this is her baby.

This CNA meant to be endearing, showing affection for the resident. However, we do not know how the resident felt about the label or if it led to appropriate care.

In another example, the resident's behavior led staff to label her the "cookie monster" and staff members brought her cookies to get her cooperation.

> He [housekeeper] said that they call her "cookie monster" and that he brings her cookies all the time. He said that to get her to talk to me [participant observer] I should get her a cookie. Another CNA was nearby and … she said, "Yes, everyone knows her as cookie monster and she can eat up some cookies."

Once again, it is unclear that the actions taken by staff were appropriate for the resident's plan of care. These, in fact, may be examples of infantalization, which contributes to a sense of depersonalization for residents (Nay, 1998).

In the following quote, Janet CNA made sense of residents' violent behavior and came up with the following explanation:

> Janet CNA. [Some residents] want to fight you, hit you cause they are mad. Most patients mad because they don't want to be in a nursing home and they feel their life taken from them. They have this little space when they used to have a lot of space… and they can't understand it. And they take it out on the ones that are trying to help them.

This was a reasonable interpretation that would foster better care because Janet CNA believes the behavior is not "personal." Had she interpreted the fighting and hitting differently—that the resident dislikes me and wants to hurt me—the label might be very different; the CNA might have labeled the resident "racist" instead of "mad" and we may have seen retaliation instead of empathy. Thus, labels can be powerful drivers of action.

When CNAs relied only on their own experience and mental models to interpret clinical situations, the outcome was sometimes "misinterpretation." For example:

> We [the participant observer and LaKisha CNA] step in the room and LaKisha CNA says, "This is the crybaby. She cries at everything." LaKisha CNA takes the woman's arm and straightens it out. The woman lets out a cry and continues to whimper. LaKisha CNA gives me a look and nods. She says, "I told you she cries a lot."

When the resident cried following what was likely a painful repositioning of her arm, LaKisha CNAs took this as confirmation of her label that the resident is a crybaby. The resident's reaction confirmed the CNA's "diagnosis" or label, so why look further? Thus, while labels help communicate meaning, they can also become barriers—in this case to the CNA alerting the nurse that the resident may be experiencing pain.

In the next example, Odette CNA interpreted a resident's behavior as attention-seeking and labeled the resident "spoiled."

> Odette CNA. … [the resident] gets to a point where … she feel like she have nobody in the world that is … I think that she feels like that she is not getting enough attention type of thing. And she will go through this thing for like 2 or 3 days of umm kind of being quiet and stay in the bed that type of thing and then I guess after she gets to a point—OK I am still not getting attention. Then she starts crying… you know that type of thing… Then [the resident] misses her brother… I mean in her situation when you know that a person is crying out for a bit of attention and you know that these people are spoiled… [She] feels like crying her eyes out, she is all puffy in the face and not eat her lunch."

When Odette CNA involved the LPN in sensemaking about this resident and interpreted the resident's behavior for her, the LPN accepted the interpretation and Odette's advised action.

> Odette CNA. I had the nurse [LPN] come to me and … I say "just leave her alone for awhile give her time to get all her crying done." I had to learn the hard way especially when she starts… The last day [the resident] did that…[the LPN] found out that 'OK I see what you are saying when you say wait and approach her later about it cause when you go down and mess with her it makes it worse.'

Odette CNA's description of the resident's behavior potentially suggested that the resident may be clinically depressed (withdrawn, crying, needy, and not eating). This potential, however, is not part of the CNA's mental model because it requires clinical knowledge she does not possess.

The "cry baby" and the "spoiled" resident examples both suggest that consequences for residents may be negative when CNAs apply and act on labels using mother wit. In these examples, clinical professionals may never have the opportunity to address the residents' possible pain or depression because, when the CNAs are certain that their label is correct, and

it is one that they can address themselves (e.g., with child care types approaches), there is no cue to get others involved. The fact that the LPN buys-in supports the tremendous power interpretation and labels have over people's thinking. She heard the label and interpretation and they were confirmed when she approached the resident. She thought no more about it.

In summary, these findings suggest that CNAs, when left to their own interpretation and sensemaking processes (using existing mental models such as the Golden Rule and mother wit), may understand resident care situations in ways that either lead to inappropriate care (i.e., infantalization, encouraging incontinence, cookies, timeout) or put up barriers to appropriate care (i.e., undiagnosed and untreated depression or pain). The CNAs mean well but their existing mental models may contribute to poor quality of care for residents when applied in isolation from clinical professionals.

Social processes and sensemaking

Sensemaking, being a social process that may alter existing mental models, could be a lever for improving resident care. In this case study nursing home, we observed two isolated examples of interactions between professional staff and CNAs in which the professional attempted to reframe the CNAs' understanding (e.g., mental model) of the situation and thus influence the quality of care for the residents.

In the first example, a department head, by asking questions, identified a situation where a well-meaning CNA was hurting residents.

> Department head: [A resident said of a CNA], 'She hurts me when she gives me a bath.' I followed up and the CNA said, 'Well, I just felt like they need to be clean…' And I said, "Well, don't scrub so HARD." You know, she was SCRUBBIN', literally, and her skin would be RED. And, uh, so I had talked with her and then … she got better.

In another example, a RN recognized the need to engage in sensemaking with CNAs with the goal of altering the CNAs' understanding of abilities of residents with dementia.

> RN: I have been trying to help [CNAs] understand about dementia. Some CNAs do not understand why a resident cannot use a fork but can walk and talk some. I try to tell them that dementia affects different parts of the brain. So someone might be able to do some things but not know food as food or may not understand how to use a fork. Everyone is different. And that is hard for [CNAs] to understand and they [may] get frustrated.

Using a mother wit model, CNAs had labeled a resident "stubborn" for not using his fork. Seeing this, this RN worked to help the CNAs make different sense of these confusing behaviors. For the most part, however, relationship patterns in this case study nursing home prevented meaningful conversations about resident care situations between clinical care staff and CNAs. Communications about the residents were mainly one-way—clinical staff relying on CNAs for information about the residents.

> Nurse Supervisor: I always try to go to [the] CNA. They are the ones that know that resident. They see them everyday from top to bottom, you know, no clothes on… They know them.
>
> Department Head… I need to find out information on a resident, I go to the CNA. I don't go to the nurse [LPN]. She's too BUSY to know all the little details.
>
> LPN: Sometimes…we have to ask a CNA because they know the residents so much more.

This situation was compounded by heavy workloads. Perceiving the nurses to be very busy, CNAs were reluctant to bother them.

> Elena CNA tells me [participant observer] that the nurse supervisor is willing to be helpful but.. "She [nurse supervisor] got her hands full. I mean today she is working on the hall. I feel so sorry for her. I mean she has been here since 5:00am."
>
> Monique CNA: Our [LPN] has like 30 to 32 residents so what could she do? (laughs) Let's be honest, what could she do. And half of the time she does not know these people like we do…. so it is kinda up to us.

Because communication about residents was largely one-way, the CNAs often worked with limited information or relied on each other.

> MoniqueCNA …Even though she [LPN] is there for …a problem that comes up you know, medically …those kinds of things. But as far as actually training the [CNA], it is up to us [CNAs] to see that it is really done.
>
> Shoniqua CNA: I come in here…I know who I have and where to start. You just have to have a plan. You know how that person is and what they like to do that day and just go from what you know. Interviewer: …And did someone help you figure that out or did you just come up with that on your own? Shoniqua CNA: No, you just come up with your own plan.

These findings suggest that at least two of the professional staff recognized a need to interact with CNAs in ways that would alter mental models and improve sensemaking and interpretation. However, the relationship patterns, influenced by staff mix and workload, presented overwhelming barriers to effective group sensemaking with CNAs.

DISCUSSION

On the surface, the Golden Rule and mother wit mental models used by CNAs seemed potentially beneficial. However, the data revealed that these mental models may have led to inappropriate actions and to misinterpretations about potentially undiagnosed, treatable conditions such as depression or pain. Further, the study results suggest that actions taken by CNAs, the major frontline of care provider in nursing homes, are not strongly influenced by the clinical professionals, in part because of the nature of existing mental models held by CNAs and in part because existing relationship patterns limit meaningful interaction between CNAs and clinical professionals. Thus, the study suggests two areas for further exploration and discussion: (1) How to alter the mental models that guide CNA behavior and (2) How to use interaction among diverse staff as a tool for better care actions.

Individuals use particular mental models because they have been successful in the past (Weick et al., 1999). The CNAs in this study managed to "get through" difficult care situations using the golden rule and mother wit mental models. These mental models served to keep the CNAs calm and objective about provocative resident behavior. In fact, the data suggest that these mental models may be a factor in preventing verbal and/or physical abuse of residents. However, significant signs and symptoms were ignored or misinterpreted as social issues that the CNAs believed they could (or should) manage without involving clinical staff. Because of the potentially protective aspects of CNAs' mental models, we suggest that they be altered, rather than eliminated.

Perhaps an obvious implication of these findings is to educate CNAs about clinical issues, with a goal of altering existing mental models. In the current financial and regulatory environment, however, substantially upgrading educational requirements of CNAs may not be a viable option. A solution may lie in changing the current approach to in-service training, which

traditionally includes didactic instruction about procedures and rules to be followed, but is unlikely to alter existing mental models. For example, training on signs and symptoms of depression may be too general to change a CNA's mental model. By contrast, case conferences about a particular resident's behavior, where CNAs, working with RNs and other clinical staff, choose the residents and lead the case presentation and discussion, might capture the CNAs' imagination and help them articulate and then challenge their own mental models. In this approach, CNAs reveal their thinking so that RNs, and other clinical staff, can participate with them in sensemaking and finding more clinically appropriate interpretations and labels, leading to more appropriate action. At a minimum, all in-service training should include conversation and discussion between RNs and CNAs so that CNAs can ask questions and thus reveal "misunderstandings" to the instructor, so they can be rectified.

Interpretation and labeling, the bases for action, will improve when sensemaking incorporates a number of diverse interpretations (Weick, 1993; Weick & Roberts, 1993; Weick et al., 1999). In this case study, relationship patterns included few communication channels between CNAs and clinical professionals; thus alternative interpretations of residents' behaviors and care actions were not raised. Involving RNs or medical staff in sensemaking with the CNAs will lead to different interpretation and labels. Further, the sensemaking process itself will likely improve the mental models that guide the CNAs' care actions. This highlights the significance of relationships that cross levels of staff, whereby clinical professionals enter into regular interaction and sensemaking with people on the frontline. Thus, an implication for RNs and other clinical professionals is that they must find ways to interact more frequently with frontline staff, for example, using formal mechanisms such as case conferences (as discussed above), informal chance encounters, or involvement of CNAs in care planning, arranged at times that CNAs can attend.

One way to increase interaction between RNs and CNAs may be to redefine the RNs' role from one of being the manager—tied up with staffing and scheduling issues—to one of being the clinical expert with ties closer to the bedside where they will better know residents and staff. One of the "things" to know about CNAs is the mental model that guides their work. Knowing existing mental models is a starting point for reframing them in positive ways. This does not mean imposing a professional model per se, but rather altering existing models to begin building new models that are meaningful to the work life and experiences of the CNAs. RNs can accomplish such "reframing" by developing coaching roles in which they know the CNAs' strengths and weaknesses and aid them in understanding and interpreting resident behaviors differently.

The fundamental problem for residents in this study was not CNAs' mental models; it was that CNAs acted on those models without the benefit of professional interpretations of care situations. Because of a lack of professional education, CNA mental models will likely always be prone to faulty interpretations; therefore, it is imperative that RNs, the clinical leaders, not rely on CNAs' mental models as the primary guide for frontline care. The CNAs in this study made sound observations (e.g., crying during repositioning, withdrawn and not eating) and possessed the "raw" data that a RN could have interpreted for the resident's benefit, if an RN had practiced regular, even brief, communication with CNAs about resident issues. Listening to CNAs and probing for the raw observations will assist RNs in detecting resident problems and issues, regardless of how these issues may be understood or portrayed by CNAs. RNs, of course, may need additional training to help them gain the skills needed for effective delegation to a minimally educated workforce in nursing homes. Similarly, educators should consider these results in planning curricula for basic RN education.

Further research about mental models is warranted. Most likely, CNAs hold other mental models about specific aspects of care processes and resident behaviors, which when revealed

and understood, might provide additional avenues for improving CNA-delivered care. A potential avenue of research might be to compare the mental models of CNAs who have demonstrated abusive behaviors toward residents with the mental models of CNAs who have not, thereby advancing knowledge about which mental models have a protective function. Our study did not address LPN mental models; however, the data suggest that at least one LPN lacked a mental model sufficient to counter the CNA's interpretation of the "spoiled" resident's behavior. Thus, further research to understand LPN mental models may yield useful knowledge.

Research is needed to identify and refine strategies for effective sensemaking among nursing home staff such as coaching, informal conversations, and structured meetings. Prior research in other settings suggests characteristics associated with effective sensemaking and these could be explored in the unique context of nursing home. For example, Edmondson (1996) found that nursing workgroups in hospitals were better able to learn from mistakes when managers encouraged open communication and rewarded staff for identifying errors. Similarly, Weick (1993) concluded that trust, honesty, self-respect, and respect for others were underdeveloped in a group of firefighters with disastrous results. These aspects of relationships could be considered in research and other efforts at improving sensemaking in nursing homes.

A study limitation is that we did not have data from male CNAs. Thus, we do not know if men hold the mother wit mental model similar to the women in the study or if they have other dominant models that guide their care. This is an area for future study.

Overall, this study suggests that there are significant barriers to clinical professional knowledge influencing the actual care delivered by CNAs to nursing home residents. While there are many reasons for this, we offer two explanations that have not previously been considered. First, the mental models of CNAs are not sophisticated enough to help them appropriately recognize and address clinical issues; however, they were useful in helping CNAs remain calm and controlled during difficult care situations and thus may have been protective to residents. Second, while clinical professionals could likely have addressed the clinical issues identified in the data, their interactions with the CNAs were too thin and the issues did not come to their notice. Thus, we have suggested ways to alter interaction patterns to increase the likelihood that RNs will impact frontline care delivery by knowing the CNAs and engaging in sensemaking with them. The results of this study highlight a critical need for RNs to be involved in frontline care.

Acknowledgements

Funded by National Institute of Nursing Research (NIH 2 R01 NR003178-04A2, Anderson PI) with support of Duke's Trajectories of Aging and Care Center (NINR/NIH 2P20NR07795-04, Clipp PI). Partial support for ML Piven was provided by the National Institute of Aging grant AG000-29 to the Duke University Center for Aging and Human Development (Cohen, PI) and for D. Bailey by a John A. Hartford Foundation BAGNC Scholar grant.

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