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Use of a hand-held computer observational tool to improve communication for care planning and psychosocial well-being

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Abstract

Staff development nurses in long-term care are challenged to implement training programs that foster quality unlicensed assistive personnel (UAP) care and improve the transfer of their observations to licensed nursing staff for care planning. This study describes the outcomes of a program where UAP recorded behavioral problems of residents to inform care. Findings suggest staff development nurses who aim to improve UAP reporting without simultaneously targeting licensed nursing staff behaviors may worsen nursing staff relationships.

Unlicensed assistive personnel (UAP) comprise the largest percentage of the paid workforce in long-term care, providing over 90% of the direct, hands-on care that nursing home residents receive (Beck et al., 1999). These personnel have, on average, no more than a high school education and have completed only 75 hours of training. With this limited training, UAP must provide care to clinically complex patients in a work environment characterized by low pay, high turnover at all staff levels, and limited access to licensed nurses with clinical expertise (American Health Care Association, 2001; Castle, 2001). As a result, staff development is critical to ensure that UAP are trained to provide quality care and work effectively with licensed nursing staff. Unfortunately, previous research has shown how this work environment compromises UAP psychosocial well-being and job performance (Morgan, Semchuk, Stewart, & D'Arcy, 2002; Pennington, Scott, & Magilvy 2003; Zimmerman et al., 2002). Thus, while UAP are in the best position to observe changes in functional status of nursing home residents, even the most well intentioned staff development nurse faces considerable obstacles to effectively train UAP to systematically provide licensed nurses with critical information for care planning.

Restructuring the role of the UAP to include systematic observation and reporting of resident status has the potential to improve licensed nursing care planning. Job redesign should improve overall communication patterns of UAP with licensed nursing staff, increasing the likelihood that UAP will provide licensed nurses with informative observations about residents. Results from the quasi-experimental Wellspring Demonstration Project (Stone et al., 2002) showed that improving UAP mechanisms for interacting with licensed nursing staff for care planning improved facility deficiency status and incontinence care outcomes, as well as worker well-being. Similarly, Banaszak-Holl and Hines (1996) found that including UAP in care planning activities was associated with decreased UAP turnover. However, other findings point to the complexities of the

relationships between UAP interactions with licensed nursing staff and better outcomes for residents and UAP. Brannon and colleagues (2002) found no significant relationship between UAP involvement in care planning and turnover. Morris and colleagues (2002) related UAP involvement in care planning to improved outcomes, including less use of antipsychotics, but also to worse outcomes, such as increased decubitus ulcers.

These findings may reflect the fact that the studies simply examined mechanisms with which UAP exchange information about residents with licensed nursing staff. They did not systematically include UAP training in observing and reporting resident information to affect the quality of information. Previous research has examined the validity and reliability of UAP observations of residents in relation to several areas of care, including pain assessment (Engle, Graney, & Chan, 2001), functional status (Hartig, Engle, & Graney, 1997; Ranhoff, 1997), clinical symptoms such as edema (Ranhoff, 1997), and even early signs of acute illness (Boockvar, Brodie, & Lachs, 2000). Such efforts build on the aforementioned premise that UAP are in the best position to observe changes in resident status because of the amount of direct care time UAP provide the patient.

The purpose of this study was to examine the psychosocial and organizational effects of an intervention to have UAP systematically observe and record behavioral problems of nursing home residents with dementia for the purposes of care planning. A companion study established the reliability and validity of the observations, the relationships between observations and resident outcomes, and is published elsewhere (Rapp, 2005). By contrast, this study focuses on the impact of the intervention on concerns of direct relevance to staff development nurses in long-term care, including staff psychosocial well-being and the quality of communication between licensed and unlicensed nursing staff about resident status. Specifically, organizational and psychosocial effects were examined in relation to UAP use of a hand-held computing device (PDA) assessment tool to observe and record problem behaviors of nursing home residents with dementia. The following two research questions were asked: 1) How does the use of the hand-held computing device to record observations affect UAP psychosocial well-being, including: burnout, job commitment, and job satisfaction? 2) How does the use of the hand-held computing device to record observations affect UAP perceptions of facility nursing staff interactions for the purposes of providing care, including perceptions of communication and perceptions of participation in decision making about resident care?

Methods

The overall study design was a quasi-experimental, one-group pre-test/post-test feasibility study with UAP in one nursing facility in Central North Carolina who were recruited and trained to use a hand-held computing device to record observations of behavioral problems of residents with cognitive impairment. The observational tool used with the hand-held computing device was the Behavior Measurement Scale (BMS), a simplified version of the Cohen-Mansfield Agitation Inventory that has shown adequate reliability and validity with Certified Nursing Assistants (Cohen-Mansfield, 1996; Ramadan & Naughton, 2000). UAP were given a self-administered survey instrument that included measures of psychosocial well-being and organizational interactions after agreeing to participate in the study through informed consent and before beginning training on the hand-held computing device and the BMS. Following two weeks of training sessions and 28 consecutive days of continuous recording of observations using the BMS, repeated measures were collected of psychosocial well-being and organizational interactions using a self-administered survey. Finally, all study participants participated in one of four focus groups conducted in a three-day time period before exiting the facility. Focus groups included semi-structured probes of

psychosocial well-being and interactions among nursing staff in response to using the hand-held computing device.

Because the study was conducted as a feasibility study in a single facility, the facility was purposively sampled as a facility with stable administrative and nursing leadership, with support for the study by the nursing home administrator (NHA) and the director of nursing (DON). The facility is part of a private-pay, for-profit continuing care retirement community. Both the NHA and DON have been at the facility for greater than 6 years and both supported the study by allowing UAP to attend recruitment and training sessions during work time, as well as to complete study pre and post test instruments during work time. The stability, support, and homogeneity of residents were considered important as the study was a feasibility study without an experimental control group study design. Thus, frequent sources of threats to the validity of the study design of nursing home interventions such as management turnover, failure to obtain adequate on-site support for the conduct of the research, and uncontrolled resident case-mix were minimized to the extent possible.

Sample

The study sample was recruited from all UAP employed by one nursing facility in Central North Carolina (N=40). Eighteen UAP agreed to participate in the study. Of those, 16 completed the entire study data collection period. Participating UAP were primarily African-American, female, and had achieved a high school diploma as the highest educational level. The mean age of the UAP was 38, and while most had worked one year or less in the facility, most had previous experience working as UAP in another facility. Study participant demographics are summarized in Table 1. Reasons provided by 7 of the 22 who did not enroll in the study typically included being too busy due to school (N=3), schedule change (N=1), personal commitments (N=1), or current workload (N=2). Another 3 of the 22 left the facility during the recruitment and training time period and were therefore no longer eligible to participate, and 5 of the 22 who declined to participate only worked limited hours, such as weekends.

Measures

The baseline, self-administered survey instrument included three scales of psychosocial well-being and two scales of organizational interactions. Psychosocial well-being was defined as the level of burnout, intention to leave job, and overall job satisfaction. Burnout was operationalized as the mean scale score on each of three subscales of the 22-item Maslach Burnout inventory (Maslach & Jackson, 1981), including personal exhaustion, emotional exhaustion, and depersonalization. The Maslach Burnout Inventory has been used extensively in the health and human services sector, includes published normative data (Maslach & Jackson, 1981), and has shown adequate reliability and validity with UAP (Novak & Chappell, 1996). Intention to leave and overall job satisfaction were operationalized by single-item, 4-point scale measures that asked about the likelihood of remaining in the same position in one year, and the overall level of satisfaction with the current position, respectively.

Organizational interactions were operationalized as the perceptions of UAP regarding the overall quality of communication among all staff in the facility and the overall level of UAP participation in decision making about resident care in the facility. Quality of communication was defined as the timeliness, accuracy, and openness of communication between nursing home staff and was measured using a 14-item, five-point summary scale of UAP perceptions of the timeliness (Shortell et al., 1991), accuracy (Roberts & O'Reilly, 1974), and openness (Roberts & O'Reilly, 1974) of communication in the facility overall. The scale has shown adequate reliability and validity with UAP in previous research

(Anderson, Corazzini, & McDaniel, 2004). Participation in decision making was operationalized as UAP perceptions of the scope and intensity of UAP participation in decisions in relation to two care issues: restraint use and implementation of a toileting plan. Participation in decision making was measured using a 22-item, 10-point summary scale of perceived scope and intensity that has shown adequate reliability and validity in previous research (Anderson & McDaniel, 1998).

Additional, descriptive demographic data were collected using single-item measures of length of employment, education, age, sex, and ethnicity (see Table 1). All measures except for the demographic data were collected at the second data collection time point as previously described.

Focus group measures of psychosocial well-being and organizational interactions included semi-structured probes that asked UAP, how using the hand-held computing device made them feel about their job and how using the device may have influenced the way in which they communicated with the nurses about residents.

Analyses

As the projected sample size was small, analyses included univariate, descriptive statistics of measures, and the nonparametric Wilcoxon signed ranks test of differences in perceptions of psychosocial well-being and organizational interactions before and after use of the hand-held computing device to record BMS observations. To address the first research questions, the primary outcome was mean level of burnout on each of the three subscales of personal accomplishment, emotional exhaustion and depersonalization. Exploratory analyses were conducted of measures of intention to leave and overall level of job satisfaction. To address the second research question, the primary outcome was perception of quality of organizational communication. Exploratory analyses of perceptions of participation in decision making about resident care were also conducted. Transcribed, qualitative, focus group data were coded using a priori codes of perceptions of communication and participation in decision making about resident care, and a general categorical code of psychosocial well-being.

Results

Psychosocial Well-being: Survey Instrument Data

Results of the descriptive analyses of study variables are included in Table 2. Study participants self-reported overall low to moderate levels of burnout, using categories developed by the authors of the scale derived from national, normative data on health and human services workers of all educational levels (Maslach & Jackson, 1981). Specifically, respondents reported mean baseline and follow-up levels of personal accomplishment as at moderate risk for burnout, and low risk for burnout in the areas of emotional exhaustion and depersonalization. Results of the nonparametric, Wilcoxon signed ranks test of pre- post-intervention differences indicate no significant differences in mean level. Results of this analysis are presented in Table 3. Almost 100 percent of study participants report being either very or somewhat satisfied with their job, and very or somewhat likely to be in this job next year both at baseline and at follow-up.

Psychosocial Well-being: Qualitative Focus Group Data

When asked directly about the effect of the intervention on how they feel about their job, study participants indicated how using 'high-tech' equipment made them feel as if they were participating in what the larger healthcare arena already does in relation to using computers. One respondent clarified how this made her feel more important, "felt important, something

like an electronic baby or an upgrade.” Another respondent described this feeling as, “Palm pilots made me feel better. The world is changing to the high-tech side. Someday we may only be using computers.” UAP also commented on how family members of residents as well as peers not participating in the study asked about their use of PDAs and it made them “feel good.”

Organizational Interactions: Survey Instrument Data

Results of the Wilcoxon signed rank test of the mean level of perceived quality of communication among staff are presented in Table 3 and indicate a significant change following the use of the hand-held computing device to record BMS observations. Specifically, UAP rated poorer levels of communication in the facility following the intervention ($p < .05$). Exploratory, non-parametric Wilcoxon signed rank test of differences in participation in decision making did not indicate potentially significant changes.

Organizational Interactions: Focus Group Data

Qualitative focus group data indicated that UAP believed that using the PDAs to record observations of residents was useful in improving communication among UAP as a group in the facility. One respondent clarified how recording the observations sparked increased dialogue among UAP about the residents, “When the girls [sic] were helping me we’d talk about the residents more.” Several respondents noted how timely information was readily available for one another, ultimately facilitating communication among UAP, “It felt like it was helpful in learning about the patient,” as well as for new UAP, “It would be more information useful for all UAP, especially new ones.” Communication between UAP and licensed nursing staff for the purposes of resident care planning was described as at best absent and at worst a source of feeling unappreciated for the knowledge UAP have about residents, even when directly probed about the potential effects of the intervention on communicating with nurses about resident care, “Some of these nurses just don’t give a... [expletive removed].” Another respondent described the frustration as, “Sometimes I wish UAP made more decisions.” UAP also described how PDA use reinforced their sense of how they knew more about the residents than anyone else in the facility, especially the nurses, “We see...[the residents]...everyday and do more than just give them medications.”

Discussion

Efforts at improving the quality of the interactions between unlicensed nursing staff and the clinical leaders in long-term care provide one means of ensuring appropriately delegated and executed unlicensed nursing tasks, potentially decreasing the risks of adverse staff outcomes such as turnover and burnout. This study examined the extent to which one approach to restructuring the interactions between licensed nursing staff and UAP—the use of a hand-held computing observational tool—could improve perceptions of interactions between licensed nursing staff and UAP and improve the psychosocial well-being of UAP.

Results support the importance of exploring systems-level effects of interventions that change patterns of interactions among licensed and unlicensed nursing staff in long-term care. In particular, results indicate that providing UAP with the knowledge and tools to meaningfully record the kinds of observations of residents they make on a daily basis can be a source of empowerment that has complex system effects.

First, qualitative focus group data indicate that use of the technology improved the affect of several UAP, enhancing their feeling of importance and self-worth in being provided the opportunity to use this technology. However, group-level effects of decreased burnout or increased job satisfaction and commitment to the job did not change.

Second, qualitative focus group data suggested that use of the PDA to record resident observations also was seen as a means of improving communication about resident information among fellow UAP. Several participants cited the utility of have real-time data to pass to UAP at the change of shift, or to help UAP who might be new or assigned to a different unit an easy means of obtaining up to date information on resident behaviors that directly affect how they provide care. While focus group data on improved sense of self-worth and improved within-group communication indicate potentially positive effects of changing staff interactions, both quantitative and qualitative data indicate significant, adverse effects. In particular, UAP ratings of the overall quality of facility communication significantly decreased following the intervention. Moreover, focus group comments indicate UAP believed that use of the PDA observational tool validated the importance of what they see and know about residents, which was believed to be largely unappreciated by licensed nursing staff.

These latter results indicate that successfully improving facility-level performance through increasing UAP empowerment requires interventions that target both licensed and unlicensed nursing staff. Interventions that improve the systematic observational and reporting behaviors of UAP without targeting licensed nursing staff behaviors in response to UAP information about residents potentially exacerbate already strained relationships between licensed and unlicensed staff. These findings have critical implications for the design of staff development programs and underscore the importance of obtaining buy-in from both licensed and unlicensed staff when implementing new programs for how staff provide care.

There are considerable limitations to this study, largely in relation to the feasibility study design that includes a small sample size with no control group. While the study site was selected in an effort to minimize common threats to the validity of nursing home intervention studies, such as administration turnover or inadequate facility support of the research, it is unclear whether undocumented, facility-level effects shaped the change in perceived communication levels. Additionally, the lack of adequate control groups, including use of a non-computerized version of the BMS, did not allow the researchers to discern the differential effects of the technology versus the use of a standardized observational tool to record information about residents using licensed nursing language. Finally, the small sample size means that there may in fact be important but undetected differences in psychosocial well-being and organizational interactions because of the underpowered study. Nevertheless, the significant findings in relation to perceptions of communication warrant caution in the design of future programs that assume positive outcomes for UAP when staff development educators attempt to increase their knowledge and skills to systematically participate in care planning. Rather, UAP empowerment is a systems-level intervention with systems-level implications that requires focus on the interaction of licensed and unlicensed nursing staff in partnership to provide care to clinically complex residents in long-term care settings.

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Table 1

Study Participant Demographics (N=18)

<u>Variable</u>	<u>Coding</u>	<u>Mean (SD)</u>
Age	Age in years	38 (12.7)
Experience	Total years in facility	4.2 (7.3)
		<u>N (%)</u>
Sex	Female	17 (94)
Ethnicity	African-American	12 (67)
Education	Highest level of education completed:	
	High school	14 (78)
	Some college	2 (11)
	4 year college	2 (11)

Table 2

UAP Psychological Well-Being and Perceived Organizational Interactions

<i>Psychological Well-Being</i>		Pre N=18	Post N=16
Burnout:			
Personal Accomplishment	Scale of level of personal accomplishment, range: 0 (low) – 48(high)	37.9 (11.2)	39.8 (11.3)
Emotional Exhaustion	Scale of level of emotional exhaustion, range: 0 (low) – 54 (high)	15.4 (10.1)	14.7 (9.1)
Depersonalization	Scale of level of depersonalization, range 0 (low) – 30 (high)	3.7 (4.9)	5.8 (4.3)
Job Satisfaction	Scale of overall level of satisfaction with job, range: 1(very satisfied) - 4 (very dissatisfied)	1.6 (.62)	1.5 (.63)
Job Commitment	Scale of overall likelihood of being in position in one year, range: 1 (very likely) - 4 (very unlikely)	1.4 (.62)	1.6 (.81)
<i>Organizational Interactions</i>			
Communication	Scale of the extent to which communication is open, timely and accurate in organization; range: 1 (low levels)- 5 (high levels)	3.7 (.61)	3.4 (.59)
Participation in Decision Making	Scale of the level of scope and intensity of UAP participation in decision making about resident care; range: 1 (very low levels)- 10 (very high levels)	5.3 (1.6)	5.4 (2.8)

Table 3

Wilcoxon Signed Ranks tests of differences on staff outcomes following use of the computerized BMS (N=16)

Upper Panel: Difference in perceptions of UAP participation in decision making following use of the computerized BMS	
Z-statistic	-.09
Significance	.93
Lower Panel. Wilcoxon Signed Ranks test of the difference in perception of the quality of communication following use of the computerized BMS	
Z-statistic	-2.45
Significance	.01