ORIGINAL RESEARCH

Patient transfer skills and safety culture

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ABSTRACT

Background: Nursing practice includes a lot of patient handling and transfer movement, with high risk of work related back injuries. The article discusses employee perspectives on the meaning of a multi-component intervention and its impact on ergonomic patient transfer practice and safety culture.
Method: This was a qualitative study using content analysis approach. Data were answers to open questions about patient transfer practice and the meaning of a multi-component intervention carried out in one Norwegian municipality. Research focus were on patient transfer skills, safety culture, and psychosocial climate at the workplace. Data gathered one and a half year after termination of the intervention. Purposive sampling included sixty-one health care personnel. All had been participating in the intervention.
Results: The analysis revealed the theme "Competence, practice and health impact" with sub themes "Measures facilitates change" and "Influence over time". The intervention seemed to promote a safety climate with positive impact on employees' health. Further, the transfer movements were more comfortable and safe for the patients and they became more self-reliant. Comprehensive, educational, and technical measures facilitated for change. After intervention termination, the intervention had persistent influence over time on daily ergonomic patient transfer practices. Findings also revealed some challenges.
Conclusion: The findings shed light on impact of management that focus on comprehensive educational measures for an entire staff at a local work place. The study do not provide transferability to other contexts, but nurse leaders can use study findings to inform their efforts on learning and culture change among the workforce.

Key Words: Ergonomics, Employee health, Health care, Patient-transfer, Safety climate

1. INTRODUCTION

The article discusses health care personnel perspectives on a multi-component intervention and its impact on employee competence, ergonomic patient transfer practices, and safety climate at the work place. There is little research on effectiveness of manual handling training, leading to a positive change in employee's manual handling behavior, and reduction of work-related musculoskeletal disorders.[1] Nursing practice includes a lot of patient handling and transfer, traditionally perceived as "heavy work" with high risk of work related back injuries.[2–4] The injury risk has been consistently higher at nursing homes than in hospitals, presumably due to great need of patients' assistance to perform daily activities, and usually less staff per patient in nursing homes than in hospitals.[5] In Norway, a large number of staff leave the health care sector through sickness and disability benefits.[6] Musculoskeletal disorders entail costs for disabled workers, as well as costs for the society.[5,7,8] On the other hand, Norway in line with other western countries, face challenges in maintaining adequate capacity for care of a growing proportion of elderly people.[9,10]

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Patient transfer as a workload and health risk issue has had considerable attention from the early 1990s, when research began to demonstrate benefits from the use of mechanical lifting equipment and friction-reducing devices.[8,11] Research also pointed to single measures having little effect on quality of patient handling practices and work-related disorders.[1,2,12–15] A body of research supports the need of multifaceted approaches to reduce the risk of patient handling injuries to caregivers.[7,13,16] Technological and educational approaches and interventions with the focus on policy change described generally useful in improvement of patient transfer quality and raise of worker safety.[7,15] Employees may need to increase their knowledge of ergonomic patient-transfer principles, also acquiring skills and attitudes for practical application of the knowledge.[17] Learning and training should provide competence. "Competence is a relatively permanent personal quality to satisfy certain requirements to their full extent".[18] Collins and Menzel[5] recommend education including ergonomic assessments of patient handling activities, redesigning of patient lifting tasks, and utilizing new patient handling technology. Working out, and developing a form system on quality practice may be feasible both for learning and structuring patient transfer, and lead to reduction of exposure to risk factors which may lead to musculoskeletal injuries.[19] Safety leaders and administrative support is also recommended when developing safe patient handling- and movement programs.[3]

Patient-transfer situations involve acquisition of knowledge and ergonomic skills, and also collaboration and reflection together with other colleagues.[20,21] Practice is culturally and socially incorporated,[22,23] and reflects both workplace culture and service requirements, as well as individual and inter-professional competences. Changing from patient lifting to the "no lifting" policy is described as a new way of thinking about patient transfer.[24] A new way of thinking in organizations may require cultural change, *i.e.*, change of shared values and beliefs among people in the organization. Safety climate described as a manifestation of safety culture.[25] Amendment to ergonomic patient-transfer practice requires that those working together learn together and develop a common understanding of their practice. In itself, individual learning may provide no change at a group or an organizational level.[26,27]

Multi-component interventions may include a series of measures at personnel-, environment-, interaction-, and organizational levels, and thus can be complex and difficult to describe in detail.[28] Research literature reveal little knowledge of employee perspectives on the impact of management strategies on social, cultural and behavioral aspects of ergonomic patient transfer at the workplace and relationships between these aspects.[28,29]

This study was about the intervention case at one Norwegian municipality, Overhalla municipality with 3,600 inhabitants. The intervention, initiated by management, included all 75 employees who worked in a nursing home and a home care for disabled, and lasted one and a half year. The staff had an introduction and six hours education on ergonomic patient transfer. Each employee got ergonomic training with guidance during patient-transfer situations at their workplace. Guidance provided by a nurse and a physiotherapist who had special education to provide guidance. These two worked out guidelines for assessment, planning and documentation of patients' mobility plans. The intervention also involved upgrading and guidance to use new patient transfer equipment, as for example, mobile patient lifts.

The aim of the study was to obtain employee perspectives on the way the intervention was developed, implemented and maintained, and its importance over time on workplace culture, patient-transfer practices and safety climate. Was intervention measures perceived meaningful, and if so, how? More knowledge about staff perspectives may increase the knowledge base for health promotion management and workplace interventions.

2. METHOD

The study was a descriptive qualitative study, using content analysis of open survey questions one and a half years after termination of a multi-component intervention. The purpose was to describe the phenomenon conceptually, thus content analysis was useful in the description of the characteristics appearing in text content.[30,31] The article focuses on responses to the following: How did you experience the Patient-transfer project? If any, how will you describe impact of the project for you, work, and/or transfer practice? Compared with patient-transfer practices before the intervention, what is your experience of patient-transfer now?

2.1 Sampling

Purposeful sampling provided information rich cases for study in depth.[32] Requested to participate in the study were all the staff that participated in the intervention. Verbal information about the study provided by the former project leader of the intervention in meetings for all employees. Researchers provided written information and request for participation online. Everyone could freely choose whether to answer the questions online or not.

2.2 Sample

Sixty-one of seventy-five requested answered the questioner (two men and fifty-nine women). Response rate

81.3%. Among those answering, occupationally there were 22 assistant nurses, 31 nurses, 5 social educators, 3 assistants/unspecified profession. 34 worked in nursing homes, 13 in services for disabled people, and 19 in home care services. Three of the 61 were working at all tree workplaces. Four worked less than 50% position, the other 50%-100% position.

There was variation in how often each employee work with patient transfer:

- Rarely/sometimes 15 respondents
- Often 6 respondents
- Quite often/very often 40 respondents

The 46 who work often, quite or very often with patient transfer, expressed more extensively about the project's importance for them, than those who work rarely or not with patient transfer.

2.3 Analysis

Content analyses[30–33] were done when reading, coding and condensing text into categories, searching for theme and patterns in the text.

The first step of the analysis was to organize the answers in one text and read this material to get a general impression. The data program allowed maximum 80 words in answer of each question. Most answers were long and often complex, dealing with more than one meaning. Other answers were brief, such as "Yes, it (the intervention) meant a lot".

The next step was to identify meaning units and code these under emerging categories. Coding and condensing text included an interpretation process to reach beyond the manifest content and develop categories.[34] Category is the primary interpretation product of an analytical process, descriptively referring to explicit content of the text.[33] Categories group codes into meaningful clusters.[31,32] A category is an idea developed from coded utterances in the data text, and used to classify findings at the beginning of the theme development.[35] Theme are terms that refer to interpreted threads of meaning in units of the text and the relationships among sub-theme, identified in the text.[33,34] Sub-theme uncover patterns in the participants' account, and bring out what the content describes within a sub-theme of a theme.[34] Analyzing data for specific themes and sub-themes, information was aggregated into larger clusters of ideas.[36] Subsequent steps included interpretation of relationships within and between sub-themes of the theme.

2.4 Ethics

Study participation was voluntary, the written consent based on oral and written information. Everyone was free to leave the project, this having no consequences for themselves. Data gathered were in an anonymous way, responses to the questions electronic provided for the researchers. Results were prepared in such a way that individual participants may not be recognized. The Norwegian Data Protection Official for Research (`http://www.nsd.uib.no/personvern/en/`) did an assessment of the project, and consider ethical issues safeguarded.

3. RESULTS

The analysis revealed the main theme Integrated competence, practice and health impact. Sub-themes were "Measures facilitates change" and "Influence over time". The connection between sub-theme show that the intervention had an impact during the project period, with further influence after termination of the intervention. Table 1 provides an overview of theme and subtheme, categories interpreted from items with similar meaning and connotations, and examples of illustrating quotations.

3.1 Measures facilitates change

The sub-theme Measures facilitates change, emerged from analyzing statements about the intervention phase. Within the sub-theme, the category "intervention thoroughness, guidelines and expertise" emerged. Fifty-six of the sixty-one expressed that the intervention was very thorough and well implemented, positive, and useful. Measures appreciated and considered based on a holistic perspective on knowledge, skills, and attitudes to patient transfer. The expertise of mentors (a nurse and a physiotherapist), positively assessed: "The mentors have done a fantastic job, and had great influence on the staff". Thirty participants emphasized the usefulness of the forms. The tools were advantageous when learning to carry out ergonomic and safe patient transfer practice.

Measures facilitated learning. The intervention facilitated individual learning and training ergonomic skills: "Had a lot of good individual training". The project led to experiences of mastery of patient transfers, and a sense of personal growth; "I have become professionally better"; "I have become skilled in a good and practical way".

Highlighted was a change to a collaboration culture. Thanks to the intervention, the staff felt seen by mentor colleagues, and experienced collaboration that were open, gave a sense of confidence, and lead to continued learning. "We have managed to turn a bad culture to a good culture, when it comes to cooperation on working techniques". Getting more and more new tips from colleagues help to feel more and more competent. More respondents expressed to feel pride in working with very skilled colleagues: "I feel pride to work with so dedicated colleagues".

Table 1. Theme, subtheme, categories and illustrating quotations

Theme	Subtheme	Categories	Illustrating quotations
Integrated competence, practice and health impact	Measures facilitates change	Intervention thoroughness, guidelines and expertise	It was good and motivating that the project was so huge and that everyone participated. Thorough and well implemented. The new guidelines are our working tool.
		Measures facilitates a learning and collaboration culture	Have learned much that is useful. Very informative. Became easier to work with others using patient transfer knowledge. The project has led to increased awareness among *us* employees. *We* realize the importance for us as helpers and for patients when we use what we have learned. Much focus on movements provided better working environment. It (the intervention) has changed workday radically, eased the work and making sure we often go two together. There have been changes in many employees. We have become better at asking others in order to do the movement correctly.
	Influence over time	Technical aids and physical frames	Became aware of the benefits of use of tools that are available.
		Intervention impact on employee health	Load reduction. Everyday life has become easier with simple measures. It was very positive. Have had some back problems, and it has helped a lot on this. Reduce and prevent health ailments.
		Daily use of guidelines and ergonomic patient-transfer	We have transfer plan for all patients with the need. If I am unsure, I read guidelines. Uses part of it every day. We have become good at it, but still need to remind each other to use it.
		Challenges after intervention termination	Perhaps more displacement courses. It is a bit rare with semi-annually or annually (repetitions).

There were many comments about good updates of technical equipment during the intervention period. In order to use mobility equipment in everyday work, it was important that the equipment was available close to the workplace. In situations when one were doing the care for patients, one could not leave patients to retrieve equipment that was located some distance away.

Some unfortunate physical frames persisted. There were various challenges when performing patient transfers in home residents. A few apartments were small. Moreover, carpeted floors hampered use of equipment such as wheeling lift and wheelchair. There were low beds in apartments. "Apartments are not adapted for utilities. Cramped. Flooring where it is difficult to roll". Such conditions inhibited employees' use of what they have learned about ergonomic patient-transfer.

Measures facilitates change, was interpreted to have an integrated impact on psychosocial and cultural factors. Social support seem to foster feelings of self-efficacy.[37,38] Every one of the staff was included in the intervention. They were "seen", cared for, and valued by management. The results indicate some common values of quality and patient centeredness in the workforce, which was not necessarily new but seems to come forward, be shared and emphasized. There were utterances of proud being a part of the workforce. A safety climate at this stage not emphasized.

3.2 Influence over time

The theme deals with the current situation, one and a half year after intervention termination, seen in view of the impact of the intervention. This sub-theme covered three categories; 1) Intervention impact on employee health, 2) Daily use of guidelines and ergonomics improving patient care quality, and 3) Challenges after intervention termination.

Health importance: Altogether 40 informants stated that the project had a positive impact on their health. "Giant Project! ... It preserve our bodies, so we 'stand out' in work longer". There was heightened attention to safety and health: "The project has contributed to greater awareness of health promotion among us employees". Sixteen employees told about less muscular ailments and increased working capacity. For some their employment ratio was raised as result of the project. As some noted; "Feel less muscular pain", "We

don't 'wear out' with heavy lifting any more".

Daily use of guidelines and ergonomics improving patient care quality: Staff using the renewed competence, quality of practice was of significance for patients. They became more self-reliant: "We focus on quality"; "We focus on activating and not to take over their residual functions". "Current practice has become more comfortable and safe for the patients".

Those who were working often or very often with patient transfer told about daily use of what they had learned during the intervention period, and use of patient moving devices daily or frequently: "Daily, I read the patients' mobility plans and use ergonomic moving-knowledge", and "We use movement- / displacement plan for each patient". The staff reminded each other of the importance of ergonomic moving skills. The guidelines were useful when mapping patients' needs and writing mobility plans.

Quality tools were beneficial in situations characterized by new challenges: "I use these tools when I have questions, and need guidance". In addition, the tools were helpful for training of new employees, students and temporary workers. Everyone except for having knowledge of these tools. These four worked with no patient transfer.

Challenges after intervention termination: After intervention finish, there were some challenges in maintaining the good learning environment. There were no more allocated time for guidance at the workplace. Challenges related to everyday reality. Four utterances focused on time: "I use transfer techniques if there's time enough for that". 19 respondents (31%) highlighted the availability of transfer aids: "We use transfer techniques if there are aids available". Three revolved around rehearsing skills: "I use transfer techniques when I remember to do so". Throughout busy working days, the staff now were on their own in applying what they learned, maintaining skills, supporting each other in use of what they learned. Continuation of the safety process as an integral part of daily activities was a challenge during busy workdays. The challenge addressed the leaders of the organization. Some emphasized a need for frequent repetitions for all employees and especially repetitions for those in small positions or night-shift working. Small positions may inhibit training in use of what one has learned: "You forget techniques during periods when they are not used."

The sub-theme Influence over time provide information about sustainability of the intervention. There were continuing and changing impact on individuals, workforce, and patient-transfer tasks. A clearly stated impact on employees' health, and a change towards a safety climate of the work force culture emerged. Further, patient-centeredness and quality of practice resulted in patients becoming more self-reliant.

4. Discussion

The theme "Integrated competence, practice and health impact" consisted of the sub-theme "Measures facilitates change" and "Influence over time". Acquisition of ergonomic knowledge and skills, in combination with a focus on quality and patient-centered practice, seem to facilitate healthier behaviors, and thus promote health. Measures facilitated change in individuals and staff during the intervention period, had Influence over time, after termination of the intervention. Findings underline an integrated competence-, practice- and health impact of the multi-component intervention. Findings also revealed some managerial challenges in both educational maintenance of competence, time commitment and maintenance of instrumental support.

Measures during the intervention seem to facilitate change. The intervention thoroughness were highlighted. Change requires learning. Development in organizations involves learning in the organization as a whole. Everyone in the organization must learn.[26,27] This multi-component intervention combined more methods, and seem to have an integrated effect on individual, psychosocial, and cultural factors incorporated in practice.[22,23] Other studies demonstrate that interventions not always lead to expected behavioral change, this in spite of employees' understanding, awareness and training on safe patient transfer.[1,39] On the other hand, research show that interventions combining measures as education, training, ergonomic assessment, upgrading transfer equipment, development of quality tool and forms, and no-lifting politics, reduce the risk of musculoskeletal disorders among the health care staff.[7,13,16,29] Change seems to presuppose multicomponent interventions.[2,7,15] Organizations not always succeed with change. Perhaps success presuppose support of personal mastery among the employees? Social support seem to foster mastery.[37,38] In the studied intervention, every one of the staff were included and the findings explored participants to feel "seen", and cared for and valued by management. They felt appreciated on an equal basis with their counterparts, which is important when an organization plan to develop and change.[26,27] Emotional support includes forms of assistance that make people feel cared for and loved.[37,38] Educational measures facilitated feeling of competence[18] and mastery, underlining self-efficacy. Self-efficacy means individuals' perceptions about own ability to master own work.[40] Supervised training in actual patient transfer situations, seem to contribute to situation-adapted acquisition of the expected competence. Education on ergonomics provided knowledge of principles of safe patient handling and movement.[5] This may further have influenced

attitudes, and a culturally aligned and socially incorporated practice.[22,23] Common cultural perceptions of quality of care seem to come forward, be discussed and strengthened in the community. Senge[26,27] has emphasized common thinking and visions as significant for organizations to change. The results indicate some common values of quality and patient centeredness within the workforce, which was not necessarily new, but seems to come forward, shared, and emphasized. The patient centeredness seems incorporated in the workplace culture. There were utterances of proud being part of the workforce. Research has shown that relationships between social and cultural dimensions of practice is important to focus when change shall be implemented.[23] The new practice was deemed meaningful because patients received transfers that were tailored to the individual patients' movement needs and also raised their residual function. The transfer practice became more comfortable and safe for patients, while staff felt the job easier to master. Changing to ergonomic patients transfer and use of guidelines and individual plans for each patient, seemed to raise the quality of service. Developing a patient transfer program and use of patient handling knowledge and equipment may improve patient outcomes.[2,4,5] The findings point on patient centeredness as part of professional and ethical thinking, incorporated in the culture of the workforce.[22,23] The new way of ergonomic thinking[25] had to be integrated in the cultural patient-centered way of thinking.

In order to create change in the care service as an organizational whole, measures for some few individuals are not sufficient.[26,27,39] A cooperative climate seemed to evolve. Collaboration skills are useful in reflection and learning situations with colleagues.[20,21] The intervention measures facilitated more confidence and openness among colleagues, this fostering more collaborative learning and informational support among staff. Informational support refers to the social support that people receive in the form of valuable information.[37,38]

A safety climate, as a hallmark of culture[25] was not emphasized at the intervention phase. A turn to a safety climate seems to appear a while after intervention termination.

Influence of the intervention over time, explore some sustainability. After intervention termination the employees experienced the importance of it for their own health. They described positive health outcomes. That might strengthen the fidelity and adoption of ergonomic competence.[29] Increased work capacity important to the staff, may also promote continuity and stability for patients. Perception of the usefulness of ergonomic work might come during the intervention, but even more after termination of the intervention. Now, a safety climate seem to develop.[25] Acquisition of knowledge and skills, in combination with a focus on quality and patient-centered practice, seem to facilitate healthier behaviors, and thus promote health. The study gave no knowledge of whether absenteeism reduced, but several employees reported about increased employment ratio as the result of the intervention.

The study indicate maintenance of safety ergonomic practices challenged because of busy workdays. There seems to be some need for sustained follow-up. The staff's perspective points on relevance of continual health promoting management. This possibly also can be at help to meet future staffing needs.[10] Securing sustained ergonomic practice seems to require continuous monitoring.

The organization's efforts to ensure the safety of employees may have contributed to quality development and a safety climate, expressed through the workers' shared perceptions of the organization's safety policies and practices. Systemic thinking in management of the municipality seems to ensure a holistic perspective on meaning of work and care for the workforce, also considering psychosocial, cultural and structural factors as a basis for common learning and integration of safety measures in quality of care efforts. The intervention effects appears to be sustainable. However, there is a need of effect studies and longitudinal studies of the sustainability.

Credibility were endeavored from thorough analysis of the participants' statements. Open questions gave participants opportunity to feel free to express their viewpoints, but no possibility for interaction. The study conducted in one Norwegian municipality do not provide transferability to other contexts.

5. Conclusion

Implications of the findings for nursing education and practice are educational and managerial. An educational process with social support and integrated long lasting efforts for all employees at the workplace recommended. Nurse leaders may use study findings to inform their efforts on learning and culture change among the workforce. Longitudinal studies on safety climate and practice recommended.

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Conflicts of Interest Disclosure

The authors have no potential conflicts of interest.

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