Adapting to Technological Change — Employees' Experiences on the Uptake of Automated Dispensing Cabinets in Kuopio University Hospital

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ABSTRACT

Introduction: As a part of automation technology change in hospitals, one major change that has revolutionized the practice of hospital medicine supply has been the introduction of automated dispensing cabinets in recent decades. Automated dispensing cabinets are computer-driven dispensing systems designed to prevent medical errors, promote better patient care and safety, and increase the efficacy of storage management. From the employee perspective, cabinets are known to improve workflow and increase work efficiency; however, research on the healthcare professionals' perceptions of the change process in the uptake of automated dispensing cabinets is lacking.

Aims: The aim of this study was to explore employees' experiences and positive and negative factors that have affected employees' ability to adapt to the uptake of automated dispensing cabinets.

Material and methods: An electronic questionnaire for hospital personnel (n=359) was distributed in Kuopio University Hospital in August 2016. The questionnaire took the form of narratives. The data was analyzed with content analysis and quantification.

Results: Forty employees responded the questionnaire. The most common positive factors were that change was considered a logical, technological continuum (n=14) and that the change had streamlined and facilitated work (n=13). The most common negative factors were that work had decelerated due to the change (n=22) and that employees were unable to affect the change (n=10).

Conclusions: Positive factors that enhanced employees' ability to adapt were most often work performance and efficiency-related factors, while negative factors that diminished employees' ability to adapt were typically work performance and efficiency-related and individual-related factors. This study concludes that it is crucial that change benefits practical work and that empowering teams and managers and engaging the organizational culture are a part of everyday work, which then naturally translates to change management.

Keywords: Automated dispensing cabinet, Automation, Change Adaptation, Pharmacy services, Hospital Personnel, Hospital, Surveys and questionnaires, Narratives

INTRODUCTION

Continuously changing working environments have inspired organizations and individuals to consider new ways of thinking, working, and leading in order to remain competitive (Sackmann *et al.* 2009). To this day, the continuous need for change has been recognized and adapting to change has become one of the supporting themes of change management (Cummings and Worley 2005, Senior and Swailes 2010). Based on earlier research conducted during recent decades, multiple factors linked to the individual, personnel, power, and social relations, and work performance and efficiency are known to effect individuals' ability to adapt to change (**Figure 1**). In healthcare, patient-related factors may also affect healthcare professionals' ability to adapt to change and their resistance to change (Landaeta *et al.* 2008, Fiorio *et al.* 2018). Resistance can be best addressed and adapting supported when we study individuals' perceptions and experiences, and understand why change is accepted or rejected (Davis and Songer 2009, Chung *et al.* 2012).

The uptake of automation technology is one of the major changes that has revolutionized the work in the healthcare sector during the recent decade (Pedersen *et al.* 2015, ASHP 2018, Berdot *et al.* 2018). Several innovations regarding, for example, medicine storage, surgery, and indoor logistics have been introduced to increase the operability and functionality of healthcare and medicine supply, decrease errors, and thus improve patient safety (Metsämuuronen *et al.* 2018). In hospital settings, automated dispensing cabinets are a major technological innovation in medicine supply. Automated dispensing cabinets are computer-driven dispensing systems that control and track the dispensing of medicines in order to reduce medicine dispensing times and dispensing errors, improve storage capacity and stock control, and increase the allocation of staff to tasks that require special expertise (Franklin *et al.* 2008, Lehnborn *et al.* 2013, Metsämuuronen *et al.* 2018, Ahtiainen *et al.* 2019). They were first introduced in American hospitals in the 1980s (Harolds and Harolds 2016) and were deployed in 97% of all American hospitals by 2014 (Pedersen *et al.* 2015).

Healthcare professionals' perceptions toward automated dispensing cabinets have not been widely studied, and only some studies on the subject have been published. Studies have reported improvements in workflow, work efficiency, and job safety for nurses after the uptake of automated dispensing cabinets (Franklin *et al.* 2007, 2008, Hull *et al.* 2010, Rochais *et al.* 2014, Zaidan *et al.* 2016, Douglas *et al.* 2017). A single study also reported an increase in employee frustration after the introduction of cabinets (Hull *et al.* 2010). However, research on healthcare professionals' perceptions of the change process in the uptake of automated dispensing cabinets is lacking. The aim of this study was to explore employees' experiences with the uptake of automated dispensing cabinets, and the positive and negative factors that have affected employees' ability to adapt to their uptake in Kuopio University Hospital.

Individual	Work performance and efficiency
• Affects, knowledge, attitudes and beliefs • Desire or fear of change • Satisfaction, motivation and commitment • Self-esteem and self-efficacy for coping with changes	• Benefitting or harming work performance • Technology, innovations, streamlining, processes, practices • Training, piloting, orientation • Ergonomics
Personnel, power, and social relations	Patient
• Communication • Collegial support or resistance • Managerial support of resistance • Social and authority relations and hierarchy • Trust • Participation in the change process and decicion making	• Patient care and wellbeing

Figure 1. Factors affecting individuals' ability to adapt to change. (Ends and Page 1977, Staw 1981, Hannan and Freeman 1988, Bryant 1989, Ledford et al. 1989, Morris and Raben 1995, O'Toole 1995, Piderit 2000, Wanberg and Banas 2000, Kegan and Lahey 2001, Oreg 2003, Gollop et al. 2004, Oreg 2006, Bruckman 2008, Landaeta et al. 2008, Chung et al. 2012, Pieterse et al. 2012, Vakola 2012, Jones and van der Ven 2016, Fiorio et al. 2018, Sungbong and Dongseung 2018)

Table 1. The uptake of automated dispensing cabinets in Kuopio University Hospital. (remodelled from: Kurttila et al. 2016)

Key aims of the development project
- User-oriented innovative development
- Efficiency improvements in medicine supply in wards with the launch of automated dispensing cabinets
    – Automated dispensing cabinets as medicine storage and supply systems are situated next to patient rooms and operating rooms
- Utilization of medical and patient records in medicine supply and care processes
    – Integration of patient records, hospital pharmacy records, user management, and identification technology (e.g., barcode readers) with automated dispensing cabinets
- User orientation and training to automation technology change
    – Orientation and training for all users by hospital pharmacy and by the device supplier

Process
- 2011: Initial planning
    – Logistics working group and hospital pharmacy began to plan new possibilities for the hospital medicine supply
    – Market mapping for potential suppliers of automated dispensing cabinets
    – Survey on the time used for medicine supply in Anaesthesia and Surgery Unit and in wards, June 2011
- 2012: Planning and piloting
    – Competitive tendering for the suppliers
    – Pilot 1: Anaesthesia and Surgery Unit piloted wireless networks, computers, and barcode readers in operating room setting, February–May 2012
    – Simulation 1: Piloting the first version of the automated dispensing cabinet in operating rooms for 100 persons who filled out a form for feedback, October–December 2012
- 2013–2014: Innovative development collaboration and piloting
    – Innovative development collaboration with the supplier NewIcon Oy
    – Wide and intense developing, aiming for user-friendly end-product
    – Multiple working groups on, for example, IT planning and the end-user perspective
    – Simulation 2: Automated dispensing cabinet placed in the operating room, January 2014
    – Orders of automated dispensing cabinets, June 2014
    – Pilot 2: Anaesthesia and Surgery Unit piloted the user identification to the automated dispensing cabinets and filling the cabinets, April–June 2014
    – Pilot 3: Intensive Care Unit piloted the usability of the cabinets, the communication between IT systems and the user identification, of which the third led to changing the card reader, October 2014–May 2015
    – Pilot 4: Recovery ward unit piloted the new card reader and the communication between IT systems, November–December 2014
    – Pilot 5: Anaesthesia and Surgery Unit piloted the communication between IT systems and was familiarized with the new working model, November–December 2014
    – Moodle training and exams for personnel, 313 persons were signed up for the orientation, from 2014 onwards
    – Orientation for personnel by the supplier, from 2014 onwards
- 2015: Installation, preparation, and uptake
    – Installation, preparation, and uptake of the automated dispensing cabinets
    – Pilot 6: Women's acute ward piloted the communication between IT systems and was familiarized with the new working model, January–February 2015
- 2016: Action
    – By the end of 2016, automated dispensing cabinets had been operating for 1 year and 8 months

MATERIAL AND METHODS

Research context

The study was conducted in Kuopio University Hospital in which multiple changes, such as building new sites and developing and streamlining ways of working, had taken place in recent years. A large-scale renewal in medical care and supply was conducted in 2011–2015, when over 40 automatic dispensing cabinets were deployed. The renewal was conducted as a user-oriented innovative change that allowed the employees to participate in the change process (Kurttila *et al.* 2016; **Table 1**).

This study was conducted in two units of Kuopio University Hospital with the longest experience in using automatic dispensing cabinets since their implementation in the Surgery and Intensive Care Unit. The personnel in these two units were also involved in planning and piloting the deployment of cabinets (**Table 1**). The study population was focused on nurses, specialist nurses, physicians, specialist physicians, and medical and nursing students working in the two units.

Data collection

Employees' experiences with the uptake of automated dispensing cabinets were studied using an electronic questionnaire (Eriksson and Kovalainen 2008, Fowler Jr. 2014). Electronic research refers to research activities that are conducted via new technology, such as computers or mobile devices (Eriksson and Kovalainen 2008). An electronic questionnaire was chosen so that employees could participate in the study in whatever time and place was suitable for them, as participants were employees working in various working hours. Furthermore, in comparison to e.g. interview study, electronic survey enabled collecting more answers in a short period of time from a clearly defined target group, e.g. the personnel of a hospital (Turunen 2008). In the questionnaire, participants were asked to share their experiences with narratives. Narratives can be described as stories to a specific audience at a specific time and in a specific context (Eriksson and Kovalainen 2008). The method is based on individuals' intrinsic habit to tell and hear stories, so-called narratives (Rhodes and Brown 2005, Eriksson and Kovalainen 2008, Flory and Iglesias 2010). The approach was chosen as it may be particularly useful in the study of crucial turning points, such as organizational changes (Puusa *et al.*2014).

At the time of the study, there were 359 full-time or part-time nurses, physicians, and medical and nursing students working in the two units selected for this study. Employees received foreknowledge on the study in early August 2016 via intranet.

The e-mail addresses of the study population were collected from the hospital's employee register. The invitation to participate in the study, the link to an electronic questionnaire in SurveyPal, and an information letter about the study, all in Finnish, were sent to the study population, each personally via e-mail. The link to the questionnaire was identical for all, so that no single respondent could be recognized. The invitations to participate were sent in late August 2016. Respondents had three weeks' time to participate in the study. One reminder was sent one week before the questionnaire was closed.

The questionnaire was constructed to encourage participants toward a narrative form of writing (Rhodes and Brown 2005, Flory and Iglesias 2010). The questionnaire form consisted of a space for the narrative and four background characteristics questions. Instructions for writing the narratives were provided with four supporting questions (**Table 2**).

The questionnaire form was constructed based on the authors' expertise because multiple research group members had been part of the planning and execution of the change process in several stages and positions. The form was not piloted before executing the study, as receiving any narratives on the employees' experiences of the change, despite their form or length, was considered valuable.

Data analysis

The narratives were analysed with content analysis (Eriksson and Kovalainen 2008, Hämeen-Anttila and Katajavuori 2008, Vaismoradi *et al.* 2013). The aim of the analysis was to summarize, classify, and make key interpretations of the data (**Figure 2**).

Content analysis can be done deductively, meaning it is based on the earlier literature, inductively, meaning categorization arises from the data, or by combining these two approaches. In this study, categories were formed deductively based on the earlier literature (**Figure 2**). Subcategories were formed inductively, meaning they arose from data. In order to increase the reliability of the analysis, quantifications and tabulations were also used (Silverman 2013). Quantifications were concluded from spontaneous mentions of topics in each narrative. Each topic was quantified once per narrative, regardless of multiple mentions in the same response.

Table 2. Supporting questions for writing the narrative.

- How have you experienced the change?

- When the change occurred, were you able to influence the change, and if you were, in what way?

- Have you discussed the change with your colleagues? Have you received support from your colleagues, and if you have, in what way?

- Which factors have had or might have had an influence (positive or negative) on your adaptation of the change process?

Reducing the data
- Parts of the text that answer the research questions are gathered
- Reduced descriptions of these text parts are formed
- *In this study:* All text parts on specific topics (e.g., the change streamlining work) are collected and preliminary titled "streamlining the work"

Grouping the data
- Reduced descriptions with uniform content are combined into subcategories and subcategories with uniform content into categories
- *In this study:* All work performance-related subcategories (e.g., "streamlining the work" and "adequate orientation and training") are gathered together to form a category "work performance and efficiency-related factors"

Abstraction of the data
- Combining the categories is continued as long as excluding categories are formed
- The name of the category is also fitting to include subcategories
- *In this study:* Any non-excluding categories are combined to form excluding categories (e.g., "work performance and efficiency") that consist of excluding subcategories (e.g., "streamlines and facilitates work"

Figure 2. Analysis process of content analysis and activities in this study at each stage.

Characteristics of the respondents and the narratives

A total of 40 employees (11%) participated in the study. The average age of the respondents was 45 years, ranging from 23 to 60 years. The average job tenure in the current position was 14 years, ranging from 0 to 32 years. The majority of the respondents (n=37) acted as (specialist) nurses, two as (specialist) physicians, and one as a supervisory nurse or physician. The majority of the respondents (n=36) used automated dispensing cabinets daily, while one respondent used cabinets weekly, and one less than

monthly. Two respondents had not used the cabinets.

The length of the narratives varied. The average length was approximately half a sheet (A4 sheet with font Times New Roman 12 and line spacing 1.5), varying from a single row to 37 rows. Narratives consisting of single rows often explained that the respondent did not have experience using the cabinets.

Ethical considerations

The study was not classified as a medical- or health-related, human-targeting study introduced in the

Table 3. Positive factors affecting employees' ability to adapt to the uptake of automated dispensing cabinets.

Topic	n[1]	Citation
Work performance and efficiency		
Change is a logical, technological continuum	14	"I think this change (uptake of automated dispensing cabinets) is a logical continuum in the development from medicine cabinets maintained by clinics toward automated dispensing cabinets and clinical pharmacy" (Respondent 19)
Streamlines and facilitates the work	13	"Earlier, I used the regular medicine cabinet in the clinic. Taking medicines from an automated dispensing cabinet is quicker" (Respondent 7)
Adequate orientation and training	4	"Orientation and training were provided in the use of automated dispensing cabinets" (Respondent 29)
Individual		
Ability to have an effect on the change	8	"Testing was conducted in our unit, and we all got to influence the development work of automated dispensing cabinets by providing feedback. And it felt like we were listened to" (Respondent 24) Personnel, power, and social relations
Personnel, power, and social relations		
Collegial support	5	"Colleagues helped in the use of automated dispensing cabinets, which helped a lot in adapting to this change" (Respondent 22)
Patient		
Promoting better patient care and safety	1	"Patient safety has improved . . . this (change) is for the benefit of the patient" (Respondent 36)

[1] *n refers to the number of spontaneous mentions of each topic in the data. Each topic was quantified once per response, regardless of any multiple mentions in the same response.*

Medical Research act (9.4.1999/488) and, therefore, did not require permission from the Research Ethics Committee of the Hospital District. The study also did not require a statement from the Committee on Research of the University of Eastern Finland (University of Eastern Finland 2018). The ethics of this study adhere to the ethical principles of the National Advisory Board on Research Ethics for research in the humanities and social and behavioral sciences (National Advisory Board on Research Ethics 2009). Organizational permission from Kuopio University Hospital was granted.

Respondents received an information letter prior to their participation. Replying to the questionnaire was thus seen as informed consent to participate. Respondents did not provide personal details (e.g., name or contact information) on the questionnaire. Data was reported in a way that individual respondents cannot be identified.

RESULTS

Multiple positive and negative factors affecting employees' ability to adapt to the uptake of automated

dispensing cabinets were recognized. Positive and negative factors were classified into four categories: 1) individual-related, 2) personnel-, power-, and social relations-related, 3) work performance- and efficiency-related and 4) patient-related (**Figure 1**).

Positive factors affecting employees' ability to adapt to the change

The most common positive factors affecting employees' ability to adapt to the change were related to work performance and efficiency (**Table 3**). A third of the respondents considered the uptake of the automated dispensing cabinets a logical continuum in the technological development of the working environment (n=14) and that the uptake of the cabinets streamlined and facilitated the work (n=13). Respondents commented that the use of automated dispensing cabinets was quicker and easier compared to the non-automated medicine storage systems. Four respondents mentioned that adequate training and orientation helped them to adapt to the uptake of automated dispensing cabinets.

In addition to work performance- and efficiency-related factors, individual- and personnel-, power-, and social relations-related factors influenced the adaptation in a positive manner. Eight respondents felt they had a chance to have an effect on the change. They reported they were given the opportunity to test the cabinets beforehand and to give feedback and improvement proposals, leading to the feeling of being heard. Five respondents considered that collegial support had been an important factor in support of their adaptation.

Negative factors affecting employees' ability to adapt to the change

The most common negative factors affecting employees' ability to adapt to the change were also related to work performance and efficiency (**Table 4**). Half of the respondents (n=22) considered that automated dispensing cabinets decelerated the work, mainly due to technical difficulties. The respondents considered that technical difficulties were commonly caused by inactivity and errors in the label printer or cabinets lacking refills. Six respondents maintained that inadequate orientation and training had negatively influenced their change experience and would have liked more proper training with the cabinets.

Individual factors were also major negative influencers in the change adaptation. Ten respondents stated that they had not been given a chance to af-

fect the change. The respondents felt that the employees should have been more involved in the planning of the change, as they are the ones who will be using the cabinets every day. Five respondents did not consider automated dispensing cabinets beneficial; instead, they felt that employees had put time and effort into working with cabinets without gaining any benefits from them. From personnel-, power-, and social relations-related factors, five respondents considered that change resistance and negative feedback from colleagues had negatively influenced their adaptation.

DISCUSSION
Main results

This study showed that employees' ability to adapt to a technological change was affected by several positive and negative factors. The most common positive factors that supported the adaptation were related to work performance and efficiency. Employees with positive attitudes considered that the change was a logical continuum that streamlined and facilitated their work. These results are supported by earlier studies (Franklin *et al.* 2008, Rochais *et al.* 2014, Zaidan *et al.* 2016). This indicates that the employee's approach to the introduction of new technologies is highly practical: the change is considered positive once it provides benefits regarding practical work.

According to this study, the employees' ability to have an effect on the change was also reported to enhance their ability to adapt. This is commonly acknowledged in change management literature (e.g. Wanberg and Banas 2000, Tsaousis and Vakola 2018) and in studies on change implementation in the healthcare setting (e.g. Kumar and Kwong 2011, Algauer *et al.* 2015, Ylitörmänen *et al.* 2018). The staff who participated in this study were reportedly involved in planning and piloting the deployment of automated dispensing cabinets. What is notable is that even though employees were reportedly engaged in the change, they felt that they did not have an opportunity to influence the change and that they were not heard. Hence, despite their participation in the process, engaging employees appears challenging. At least, orientation and training, engaging the organizational culture, supporting teams that trust their members and communicate openly, and immediate managers who provide feedback and treat everyone fairly have been suggested as cures to enhance employee engagement and hospital performance (Lowe 2012, Bulkapuram *et al.* 2015).

Table 4. Negative factors affecting employees' ability to adapt to the uptake of automated dispensing cabinets.

Topic	n¹	Citation
Work performance and efficiency		
Deceleration of the work	22	"Automated dispensing cabinets decelerate the work significantly. Taking medicines from the cabinet is difficult, and there is not enough space. Technical difficulties are encountered continuously" (Respondent 3)
Inadequate orientation and training	6	"I did not receive orientation or training to use the automated dispensing cabinet. I learned it by asking for help from co-workers and by doing... adaptation could have been easier with proper orientation" (Respondent 31)
Weaker ergonomics at work	1	"Work ergonomics has partly worsened... there is quite a lot of crouching. On the other hand, it is understandable that everything can't be at the right height for everyone" (Respondent 28)
Individual		
Inability to have an effect on the change	10	"We weren't really asked if we want automated dispensing cabinets, like we are not asked anything else . . . People who use automated dispensing cabinets should have been involved in the designing of the cabinets, because I find the design of the cabinets extremely poor" (Respondent 39)
Change is found neither beneficial nor positive	5	"Automated dispensing cabinets are not beneficial for nursing and care personnel at all, but on the contrary, they have enhanced the time used for medical care and medicine supply . . . I am irritated that these machines are so expensive, and the staff have made the development work for the company that developed the cabinets for free, in addition to the regular work . . . This (change) has taken time and effort, and that time is off of patient care" (Respondent 39)
Personnel, power, and social relations		
Change resistance of the colleagues	5	"We in the working community have mainly discussed the inoperativeness of the automated dispensing cabinets" (Respondent 23)

¹ *n refers to the number of spontaneous mentions of each topic in the data. Each topic was quantified once per response, regardless of any multiple mentions in the same response.*

The most common negative factors that may diminish employees' ability to adapt to change were related to work performance and efficiency as well individual-related factors, which is very much in line with the positive factors. Whereas a change that streamlines and facilitates work is considered positive, a change that decelerates work is deemed negative. The results of this study are consistent with earlier research, stating that automation changes that have a negative effect on the work may cause resistance (Hull *et al.* 2010, Metsämuuronen *et al.* 2018). However, it should be noted that learning new routines may be met with resistance at the beginning of the process, but once they are implemented, the overall impression may turn to positive (Stanleigh 2013). This study was conducted a little over a year after the introduction of automated dispensing cabinets. If it were to be repeated now, the employees' experiences with the cabinets might appear more positive.

Negative factors that decrease employees' ability to adapt can and should be seen as tools for organizational learning (Knowles and Linn 2004, Ford *et al.* 2008). According to this study, deceleration of the work, having no influence on the change, inadequate training, collegial resistance, and the perception that the change was not beneficial were typical factors that diminished employees' ability to adapt. In forthcoming changes, employee adaptation can be enhanced by fully engaging the employees in the change from the very beginning of the process and by providing information and training to the entire staff.

Strengths and limitations

This study was conducted as a questionnaire that took the form of narratives, which can be considered a suitable method for studying individuals' experiences and perceptions (Rhodes and Brown 2005, Flory and Iglesias 2010). Narratives can also be considered suitable for studying organizational changes, because they allow for understanding and rationalizing the change, learning from it, and developing the organization (Puusa *et al.* 2014). Written narratives can be considered especially beneficial in studying contradictory topics, because face-to-face methods, such as interviews, may provide a positivistic view on the studied topic. Requesting responses in written form was also considered beneficial because respondents could provide their answers at a time point that was most suitable for them. It should be noted that although the response rate can be considered low, the value and the aim of qualitative analysis is not in its generalizability, but in its transferability (Hämeen-Anttila and Katajavuori 2008). The current data can be seen adequate to cast light to employees' experiences and perceptions, and thus the results can be considered transferable and beneficial in other settings. Nonetheless, it is possible that the respondents of this study held more positive views compared with those who did not participate in the study (Tolonen 2005). This further highlights the importance of presented conclusions.

Instructions for writing the narratives were provided with four supporting questions. These questions were especially related to the change process, influencing the change, and colleagues' attitudes toward the change. Therefore, it is evident that the narratives were focused on these topics; thus, they do not provide an all-encompassing list of all factors that might influence employees' ability to adapt to change (Rhodes and Brown 2005, Flory and Iglesias 2010). For that reason it is understandable that some topics (e.g., patient and medication safety) were not emphasized in this study, but were found crucial in other studies with slightly different viewpoints (e.g., Fanning *et al.* 2016, ASHP 2018, Berdot *et al.* 2018). Analyzing the data with content analysis enabled a systematic examination of the topics that were at the core of the study (Eriksson and Kovalainen 2008, Hämeen-Anttila and Katajavuori 2008, Vaismoradi *et al.* 2013). Reliability of the analysis was increased with quantification and tabulations (Silverman 2013).

This study is limited to employees' experiences with a technological change in two units of a single university hospital. Therefore, the results of this study cannot be generalized to all Finnish hospitals. Nevertheless, this study provides valuable knowledge to be taken into account in future technological changes in hospital and healthcare settings, such as in the uptake of intelligent medication carts and in the development of closed loop systems. Furthermore, this study highlights important factors related to a successful change implementation for consideration in any change management.

CONCLUSIONS

The most common positive factors that enhanced employees' ability to adapt to the uptake of automated dispensing cabinets were related to work performance and efficiency. In practice, when the change streamlined and facilitated work, the employees seemed to welcome it with enthusiasm. Negative factors that diminished employees' ability to adapt

were typically related to work performance and efficiency as well as individual factors, indicating that a change that decelerates work or which prevents employees from having an influence on its implementation poses challenges. This study concludes that it is crucial that change benefits practical work, and that empowering teams and managers and engaging the organizational culture are part of everyday work, which then naturally translates to change management.

TIIVISTELMÄ

Teknologiamuutokseen sopeutuminen – työntekijöiden kokemuksia älylääkekaappien käyttöönotosta Kuopion Yliopistollisessa sairaalassa

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Johdanto: Osana sairaala-automaatioteknologian käyttöönottoa älylääkekaappien käyttöönotto on mullistanut sairaaloiden lääkejakelun viimeisten vuosikymmenien aikana. Älylääkekaapit ovat tietokoneohjattavia lääkkeiden jakelu- ja säilytysjärjestelmiä, joiden tarkoituksena on vähentää virheitä lääkejakelussa sekä parantaa potilas- ja lääkitysturvallisuutta ja varastonhallintaa. Älylääkekaappien tiedetään lisäävän työn tehokkuutta, mutta työntekijöiden näkemyksiä älylääkekaappien käyttöönoton muutosprosessissa ei ole tutkittu.

Tavoitteet: Tämän tutkimuksen tavoitteena oli tutkia työntekijöiden näkemyksiä älylääkekaappien käyttöönoton muutosprosessissa sekä työntekijöiden sopeutumista edistäviä ja heikentäviä tekijöitä.

Aineisto ja menetelmät: Kysely, jossa Kuopion yliopistollisen sairaalan työntekijät (n=359) jakoivat kokemuksiaan narratiivien muodossa elokuussa 2016. Aineisto analysoitiin sisällönanalyysia käyttäen ja kvantifioiden.

Tulokset: Yhteensä 40 työntekijää vastasi kyselyyn. Muutokseen sopeutumista edisti tyypillisimmin se, että muutos koettiin loogisena jatkumona automaatioteknologian käyttöönotossa (n=14) ja että muutos helpotti ja suoraviivaisti työtä (n=13). Muutoksen sopeutumista heikensi tavallisimmin se, että muutos hidasti työntekoa (n=22) ja se, etteivät työntekijät olleet voineet vaikuttaa muutokseen (n=10).

Johtopäätökset: Tärkeimmät muutokseen sopeutumista edistävät tekijät liittyivät työsuoritukseen ja työn tehokkuuteen, kun taas sopeutumista heikensivät työsuoritukseen, työn tehokkuuteen ja työntekijään henkilönä liittyvät tekijät. Työntekijöiden sopeutumisen kannalta onkin keskeistä, että muutos vaikuttaa positiivisesti käytännön työhön ja että organisaatiossa on jokapäiväisessä työssä osallistava työkulttuuri, joka näkyisi luontaisesti myös muutostilanteissa.

Avainsanat: älylääkekaappi, automaatio, muutos, lääkehuolto, sairaala-apteekki, sairaalan hoitohenkilökunta, kysely, narratiivi

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