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Community pharmacists as educators in Danish residential facilities: a qualitative study

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Keywords

community pharmacy services; medication errors; patient safety; persons with disabilities; residential facilities

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Abstract

Objectives To explore experiences with engaging community pharmacists in educational programmes on quality and safety in medication handling in residential facilities for the disabled.

Methods A secondary analysis of data from two Danish intervention studies where community pharmacists were engaged in educational programmes. Data included 10 semi-structured interviews with staff, five semi-structured interviews and three open-ended questionnaires with residential facility managers, and five open-ended questionnaires to community pharmacists. Data were thematically coded to identify key points pertaining to the themes 'pharmacists as educators' and 'perceived effects of engaging pharmacists in competence development'.

Key findings As educators, pharmacists were successful as medicines experts. Some pharmacists experienced pedagogical challenges. Previous teaching experience and obtained knowledge of the local residential facility before teaching often provided sufficient pedagogical skills and tailored teaching to local needs. Effects of engaging community pharmacists included in most instances improved cooperation between residential facilities and community pharmacies through a trustful relationship and improved dialogue about the residents' medication. Other effects included a perception of improved patient safety, teaching skills and branding of the pharmacy.

Conclusions Community pharmacists provide a resource to engage in educational programmes on medication handling in residential facilities, which may facilitate improved cooperation between community pharmacies and residential facilities. However, development of pedagogical competences and understandings of local settings are prerequisites for facilities and pharmacists to experience the programmes as successful.

Introduction

Medication handling (ordering, storing, dispensing and administering medicines) at residential facilities for the disabled is a process with many pitfalls. The staff at these facilities administer the medicines, which is one of the most risky stages in the medication management system, leading to an increased risk of medication errors, and, consequently, to morbidity and mortality.^[1–4] Thus, medication errors at residential facilities for the disabled have been frequently reported, related to underuse or overuse of medicines, or medicines not being handled as recommended in guidelines and regulations.^[2,5–7] Furthermore,

they may not be formally reported to official reporting systems.^[7]

People living in residential facilities for the disabled constitute a vulnerable patient group with limited social, physical and/or intellectual resources. In addition to their mental and/or intellectual disabilities, they are at increased risk of somatic conditions, e.g. cancer, cardiovascular diseases, chronic obstructive pulmonary disease and type 2 diabetes.^[8–10] Residents are therefore at a substantial risk of receiving medicines related to their disabilities as well as to chronic illnesses, leading to

polypharmacy, which increases the risk of medication errors.^[11] Furthermore, it can be challenging to identify effects and side-effects of medical treatment in persons with intellectual disability.^[12] Thus, it is important that staff in residential facilities are competent in handling medication.

An American study of assisted living communities reported that staff without healthcare training commit more medication errors than staff with healthcare training.^[13] In Denmark – as opposed to many other countries – most, if not all, staff in residential facilities for the disabled are pedagogically educated social workers with no healthcare training. Training in handling medicines is supposed to be provided for staff upon employment, but often it is not available or is perceived not to be applicable to a residential facility setting.^[14] Considering the importance of medication handling competences among staff, this constitutes a serious patient safety risk to patients residing in residential facilities.

In a previous Danish study, community pharmacists delivered a quality improvement service to staff at residential facilities.^[5] It proved feasible and had the potential to reduce medication errors, but relying on pharmacists visiting the facility regularly was inadequate due to a great need for daily observations and frequent follow-ups on medication.^[5] Thus, community pharmacists had the potential to assist staff in preventing medication errors, but staff providing care still had to conduct the medication handling every day. Based on the experiences from this study, two further studies were initiated sequentially to develop, test and evaluate educational programmes on quality and safety in medication handling through competence development among residential facility staff, engaging community pharmacists as educators.^[15,16] A quantitative evaluation of one of the programmes showed significant effects on staff motivation, confidence, safety climate and competences in patient empowerment, communication with healthcare professionals and medication handling.^[16]

In nursing homes, most pharmacist-led interventions are aimed directly at patients.^[17] However, a pharmacist-led educational session for staff regarding medication administration proved a significant reduction in medication errors.^[18] Existing literature on community pharmacy services for people with disabilities is scarce,^[19] and points to a need for insight into experiences with using pharmacists as educators of other professions handling medication.

The aim of this article is therefore to explore experiences with engaging community pharmacists as educators in educational programmes on quality and safety in medication handling, where quality relates to quality assurance of workflows and adherence to guidelines. The

programmes targeted staff at residential facilities for the disabled, focusing on experiences among pharmacists and residential facility managers and staff, and the perceived effects of this intervention.

Methods

The analysis is based on qualitative data derived from two intervention studies targeting staff at Danish residential facilities for the disabled: The Medication and Medication Handling Study^[15] and the Quality and Safety in Medication Handling Study.^[16] Both studies engaged community pharmacists as educators and focused on quality and safety in medication handling. The programmes included predefined pedagogical principles and teaching materials which the educators should use. The programmes reached 15 residential facilities and 273 facility staff members, and 19 community pharmacists were engaged as educators (Table 1). Most staff were social workers, and both programmes were developed primarily for this profession.

To evaluate the intervention studies, a variety of data were gathered with different purposes. The secondary analysis reported here involved data on experiences of engaging community pharmacists as educators in the programmes and perceived effects for community pharmacists and residential facility staff of engaging pharmacists. Data comprised interviews and open-ended questionnaires, and an overview hereof is presented in Table 2.

The *interviews with staff and facility managers* were held immediately after completion of each of the educational programmes and were conducted face-to-face, either in groups or as single interviews. Most interviews were conducted with managers and staff separately. The interviews with managers in the Quality and Safety in Medication Management Study were conducted over the telephone; all other interviews took place at the local residential facility. When staff from two facilities participated in the same interview, the facilities were from the same municipality, and the interview was conducted at a facility chosen by the participants. Staff interviewees were recruited via the local facility managers to include staff with different educational backgrounds and levels of involvement in their residents' medication. All five facilities included in the Medication and Medication Management Study were invited to participate in an interview with staff and/or managers, and all ten facilities in The Quality and Safety in Medication Management Study were invited to participate in interviews with staff and managers separately. The interviews were conducted by researchers from Pharmakon – The Danish College of Pharmacy Practice – and were transcribed in summary^[15] or audiotaped and transcribed in full^[16] by the interviewer. The interviewer was not directly involved in the educational programme,

Table 1 Overview of the included studies on educational programmes on medication handling for staff at residential facilities for the disabled

Intervention study	Time for completion	Educators	Residential facilities	No. of participating staff	Programme duration	Contents of the sessions	Teaching methods	Teaching support for pharmacists
The Medication Handling Study ^{11,51}	April–June 2013	5 pharmacists from local community pharmacies	5 facilities in a rural area of 1 Danish region	159 <ul style="list-style-type: none"> Residential social workers (59%) Social & healthcare assistants (10%) Social & healthcare helpers (15%) Nurses (3%) Others (e.g. unskilled staff and students) (13%) 	6 sessions of each 1.5 h	<ul style="list-style-type: none"> Challenges and needs regarding medication handling Practical use of medicines Medicines for psychiatric disorders Medicines for disorders of the digestive system Antibiotics Medicines for epilepsy Analgesics Medicines for type 2 diabetes 	<ul style="list-style-type: none"> Lectures Case-based teaching Participant activation Training between sessions Tools applicable in daily practice 	<ul style="list-style-type: none"> Two-day joint seminar on pedagogy before teaching Site visit at the local residential facility before teaching Didactic supervision by research consultant

Table 1 Continued

Intervention study	Time for completion	Educators	Residential facilities	No. of participating staff	Programme duration	Contents of the sessions	Teaching methods	Teaching support for pharmacists
The Quality and Safety in Medication Handling Study ¹⁶	October 2013–April 2014	14 pharmacists from local community pharmacies (supplemented by consultants from Pharmakon, local risk managers and substance abuse consultants)	10 facilities in rural and urban areas (2 facilities in each of the five Danish regions)	114 <ul style="list-style-type: none"> Residential social workers (68%) Social & healthcare assistants (16%) Social & healthcare helpers (3%) Nurses (1%) Others (e.g. relaxation therapists and students) (12%) 	Five-day basic programme for all participants and two-day additional programme for participants with special responsibilities in medication handling.	<ul style="list-style-type: none"> Basic programme: <ul style="list-style-type: none"> Challenges and needs regarding medication handling Safe communication (SBAR) Medicines pedagogy Safety in handling medicines Safety climate Professional behaviour in relation to medicines Practical use of medicines Disease-specific modules chosen by the facilities Medication reconciliation Medication supervision Additional programme: <ul style="list-style-type: none"> Quality development Implementation of new work routines around medicines 	<ul style="list-style-type: none"> Lectures Case-based teaching Participant activation On-line self-evaluation tests after each session E-learning on medication handling and communication skills Training between sessions Tools applicable in daily practice 'How to' videos On-site medication supervision On-site evaluation of medication handling routines 	<ul style="list-style-type: none"> Two-day joint seminar on pedagogy before teaching Site visit at the local residential facility before teaching Weekly telephone meetings with research consultant

Table 2 Overview of data sources

Intervention study	Data type (all collected after the educational programme)	Original purpose	Quote coding	Analytical themes			Number of residential facilities represented
				Pharmacists as teachers	Perceived effects of engaging pharmacists	Interview persons/ respondents	
The Medication and Medication Management Study ^[15]	Interviews with managers and social workers participating in the programme	(1) Satisfaction with the programme and perceived effects of the programme for patients, residential facilities and community pharmacies.	RFSM-I-1	X	X	3 social workers + 2 managers	1
			RFS-I-1	X	X	4 social workers	2
			RFS-I-2	X	X	5 social workers	1
			RFM-I-1	X	X	1 manager	1
			CP-Q-1	X	X	1 community pharmacist	1
	Questionnaires (open-ended questions) to community pharmacists involved in the programme	(1) Satisfaction with the programme and perceived effects of the programme for patients, residential facilities and community pharmacies.	CP-Q-2	X	X	1 community pharmacist	1
			CP-Q-3	X	X	1 community pharmacist	1
			CP-Q-4	X	X	1 community pharmacist	1
			CP-Q-5	X	X	1 community pharmacist	1
				X	X	1 community pharmacist	1
The Quality and Safety in Medication Management Study ^[16]	Interviews with social workers participating in the programme	(1) Did participating in the programme make the staff competent in managing medicines? (2) Suggestions for how the programme could be improved (form and substance)	RFS-I-3	X	X	3 social workers	1
			RFS-I-4	X	X	6 social workers	2
			RFS-I-5	X	X	7 social workers	2
			RFS-I-6	X	X	3 social workers	1
			RFS-I-7	X	X	1 social worker	1
			RFS-I-8	X	X	7 social workers	2
				X	X		
				X	X		
	Interviews with facility managers participating in the programme	(1) Did participating in the programme make the staff competent in managing medicines? (2) Suggestions for how the programme could be improved (form and substance)	RFM-I-2	X	X	1 manager	1
			RFM-I-3	X	X	1 manager	1
			RFM-I-4	X	X	1 manager	1
			RFM-I-5	X	X	1 manager	1
			RFM-I-6	X	X	1 manager	1
				X	X		
				X	X		
				X	X		
Questionnaires (open-ended questions) to facility managers participating in the programme	(1) Do the facilities work together with the community pharmacies differently today than before the programme – and if so, how?	RFS-Q-1		X	1 social worker	1	
		RFS-Q-2		X	1 social worker	1	
		RFM-Q-1		X	1 manager	1	
				X			

thereby facilitating an atmosphere where critical perspectives could be raised.

The open-ended *questionnaires* were sent and returned by email. All five *pharmacists* involved in The Medication and Medication Management Study were invited to participate immediately after completing the educational programme, and all ten *managers* of the facilities involved in The Quality and Safety in Medication Management Study were invited approximately 18 months after completion of the programme, to explore longer-term satisfaction and cooperation with the pharmacies. The managers were asked to fill out the questionnaire themselves or ask one of their staff members to do so. The questionnaires were answered in writing by the respondents and thus were directly included in the data material (more information in Table 2).

Analysis

We conducted a secondary analysis of data produced for the purpose of overall programme evaluations focusing on experiences with engaging pharmacists in the programmes. The analytical approach was hermeneutic with a focus on understanding the life worlds as perceived by the interviewees and respondents.^[20] The data material was read through to gain an impression of the text as a whole, and meaning units were identified and synthesised into a consistent statement across interviews. Interview transcripts and responses to the open-ended questionnaires were analysed together. Analytically, the focus was on experiences with engaging community pharmacists in educational programmes, including the themes: 'pharmacists as educators' and 'perceived effects of engaging pharmacists in competence development'. The initial coding was conducted by the first author (AM) and critically revised by two other authors (LAT and CR). No software was used.

Ethics

No approval from ethical committees is needed for this kind of study, according to official Danish guidelines.

Results

The data material included the following:

- Eight interviews with residential facility staff
- One interview with residential facility and managers combined
- Six interviews with residential facility managers
- Five open-ended questionnaires to community pharmacists (educators)

- Three open-ended questionnaires to residential facility managers (two of these answered by staff)

A total of 15 residential facilities were included in the two studies. In the interviews, staff from 13 residential facilities and managers from 11 residential facilities were participating. All pharmacists included in the Medication and Medication Management Study participated. Three of ten facilities in the Quality and Safety in Medication Management Study responded to the open-ended questionnaire.

Two themes emerged from the analysis: (1) experiences of pharmacists of educators (including pharmacists' roles as medicines experts, their pedagogical skills and reflexions about tailoring teaching to local needs); and (2) perceived effects of engaging pharmacists (including the collaboration between residential facilities and community pharmacies, as well as other perceived effects).

The quotes are coded to provide information about the interviewee/respondent (residential facility staff (RFS), residential facility manager (RFM) or community pharmacist (CP)), data source (interview (I) or open-ended questionnaire (Q)) and data source number. The coding also appears in Table 2.

Experiences of pharmacists as educators

Pharmacists as medicines experts

A general perception among residential facility staff and managers from both studies was that pharmacists performed very competently as medicines experts and were well prepared. As a manager said:

The best [about the programme] has been the different approach to medicines that [the pharmacist] brought with her. (RFM-I-1)

A pharmacist elaborated:

I thought it [the teaching material] seemed a little 'light' (professionally) before I went out [and conducted the teaching] but it seemed to work just fine. (CP-Q-2)

Furthermore, one of the managers considered it advantageous to have a person from outside the facility as educator, to ensure teaching quality, and to demonstrate that the facility was dedicated to prevent medication errors.

Pedagogical skills

Some of the staff and managers had positive experiences with the community pharmacists' pedagogical skills. They

emphasised their flexibility in teaching methods, their ability to have everyone understanding the current topic and to facilitate relevant, yet sometimes unplanned, discussions. The perception that pharmacists pedagogically performed well was shared by some of the pharmacists who elaborated that this was especially when the participants were active and reflective. They underlined the importance of the joint seminar on pedagogy and the pedagogical supervision from Pharmakon as important for their ability to deliver successful teaching.

Other staff members pointed to some pedagogical challenges among the teaching pharmacists, including a perceived lack of teaching experience. A manager elaborated:

The educator from the pharmacy [...] did not dare to ask the critical questions, so we didn't gain much from it [the teaching]. (RFM-I-3)

Some of the pharmacists shared this experience. One exemplified:

[I] didn't dare to engage. With hindsight, I should probably have engaged a bit more in the conflicts that were just beneath the surface, e.g. regarding dose-dispensed medicines [...] [and] more transparency relating to medication errors, how they managed medication errors at the residential facility. (CP-Q-3)

The pharmacists experienced additional pedagogical challenges related to their often limited teaching experience: using different didactic methods, asking the 'right' questions and generally engaging the participants. They articulated a frustration with spending too much time on cases or participant involvement rather than "relevant pharmacological content". This implies that the pharmacists valued ordinary lectures as more important or efficient as compared to participant activation, or that they valued a focus on pharmacology over the context in which the medication handling takes place at residential facilities.

Some of the pharmacists did have teaching experience, but found it rather different to teach professionals without healthcare training as compared to teaching healthcare professionals. They expressed a need for didactic training, underscoring that this was no part of the curriculum at the university.

Tailoring teaching to local needs

Another factor for success pointed out by many staff members, managers and pharmacists was the pharmacists'

ability to relate their teaching to the local residential facility, e.g. by using relevant cases and topics. This included knowledge of the residents' diagnoses and medicines use (gained by reviewing their medication lists), and knowledge of the conditions and legislation, under which the staff handle medicines (gained by visiting the facility and/or discussing work routines with managers or staff prior to teaching). A manager explained:

[I] had a conversation with [the pharmacist], so that our own issues were included in the teaching, e.g. that our own teaching [...] had not been successful, and something about self-medication (substance abuse) [should be addressed in the programme]. (RFM-I-1)

Furthermore, the design of the educational programmes helped the pharmacists tailor their teaching to each facility, as the first teaching session included exploring participants' needs, wishes and goals for competence development. When the pharmacists did not understand the purpose of this first teaching session, it prevented staff's ability to transfer learning to everyday practice. A few pharmacists expressed a need for more in-depth knowledge on daily routines in the facilities, e.g. use of software programmes, or responsibilities of staff compared to general practitioners.

Perceived effects of engaging pharmacists

Collaboration between residential facilities and community pharmacies

A few managers and pharmacists experienced no changes in their interaction after the educational programmes. However, most pharmacists, managers and staff pointed to improved communication and cooperation as a result of the programmes. To some staff and managers, participating in the programmes had revealed, to them unknown, competences of the community pharmacist behind the pharmacy counter. A manager elaborated:

The project [educational programme] has contributed to us starting to realise what competences exist at the pharmacies, and today we utilise their resources much more. (RFM-Q-1)

The programmes made facilities aware of and able to engage the pharmacist in a dialogue about the residents' medicines. Better collaboration also resulted in simpler work procedures regarding delivery of medicines, solving financial issues and return of unused medicines.

Some staff members stated that before the programmes, they perceived the community pharmacist as someone who could deliver and dose-dispense medicines, but not as a counsellor on medicines. Afterwards, they perceived the community pharmacist as a trusted person who is easy to contact, and sometimes relevant to consult before the physician. A staff member said:

[Sometimes] we may have doubts about how to dose a medication [or] whether the active ingredient can be administered together with another active ingredient, and here we have a good dialogue [with the community pharmacist]. (RFS-Q-1)

Other effects for the community pharmacies

Some of the pharmacists articulated a professional pride in their ability to improve the quality and safety related to medicines at the residential facilities – a competence which several pharmacists also mentioned as a motivator for engaging themselves as educators. A pharmacist illustrated this by comparing with nursing homes, which generally have staff with healthcare training:

The knowledge of medicines is already limited among nurse assistants in nursing homes. Consequently, the need among social workers [working at residential facilities] must be even greater. (CP-Q-3)

Other reasons for the pharmacists to engage themselves as educators were their improved knowledge about medication handling in residential facilities and their acquired teaching experience in relation to professionals without healthcare training. Furthermore, their engagement in the programmes branded the pharmacy in a positive way.

Discussion

As educators, pharmacists succeeded as medicines experts. Some pharmacists and facilities experienced that some of the pharmacists faced pedagogical challenges. However, previous teaching experience and an actively obtained knowledge of the local residential facility setting before teaching provided sufficient pedagogical skills and an ability to tailor the teaching to local needs. Engaging community pharmacists often improved cooperation between residential facilities and community pharmacies. This was mainly ascribed to the trust which was built up during the programmes and to changes in residential staff's

perceptions of community pharmacists as healthcare professionals who are relevant counsellors on medicines. Other effects for the pharmacists included improvements in patient safety, branding of the pharmacy, knowledge of medication handling in residential facilities and teaching competences.

To our knowledge, this is the first study to explore experiences with engaging community pharmacists in educational programmes on quality and safety in medication handling, targeting staff at residential facilities for the disabled.

Methodological considerations

In this study, we used data from two different educational programmes on quality and safety in medication handling among staff at Danish residential facilities for the disabled. We explored the aim of the study from three different perspectives: residential facility staff, residential facility managers and community pharmacists engaged as educators. Furthermore, the data sources were many, diverse and they addressed different themes. Most data were produced immediately after finishing the programmes, but one data source was produced 18 months after. This data source included short, open-ended questionnaires addressing comparisons of the cooperation between community pharmacy and residential facility, encouraging perceptions of potential changes attributed to participation in the educational programme, thus exploring consequences in a longer perspective.

However, the two programmes were rather similar: they had the same aim, the teaching material was pre-developed, the content of the programmes was to a large extent overlapping, the community pharmacists were educators, the participants were staff at residential facilities (primarily social workers) and the programmes were both designed and organised by Pharmakon. A secondary, overall analysis across the two programmes is therefore considered valid.

Our results are based on a secondary analysis of data, primarily produced with other purposes than the ones of this article. Still, the content of the themes was repeated in many of the interviews and open-ended questionnaires, and it therefore seems possible that collection of more data would not shed any further light on the issue, and saturation thereby was reached. However, a deeper investigation of the issues could have provided a deeper insight into the content of the themes. This was not possible due to the analysis being secondary, and we recommend the topic of this article to be further explored.

Most, if not all, staff at residential facilities for the disabled in Denmark hold no education in healthcare.

In countries with more staff having basic healthcare training, staff's insight into pharmacist competences could be deeper and their use of pharmacists as counsellors on medicines might therefore be better as compared to a Danish context. However, a substantial proportion (20–28%) of staff participating in the programmes were of professions with healthcare training, suggesting that the gap between the settings of residential facilities and community pharmacies may remain in facilities with more staff with healthcare training.

Discussion of results

Some pharmacists preferred to present pharmacology didactically rather than focus on medication handling in an interactive way. That the pharmacists succeeded very well as medicines experts is not surprising, as it is their core competence from their training at university.^[21,22] Even though the teaching materials and programmes were pre-developed by a professional educational institution, and the pharmacists participated in didactic seminars prior to the programmes, their pedagogical skills still often proved challenging. Interestingly, one of the reasons behind the pharmacists' willingness to engage in the programmes and the perceived effects were precisely to improve their teaching skills – skills that are only a minor part of the professional socialisation taking place during university training.^[21,22]

Successful adult learning relies on immediately useful, relevant, engaging and respectful teaching, which connects theory and practice using cases and storytelling. The educational programmes were developed based on evidence-based models for adult learning,^[23,24] but community pharmacists generally do not hold a degree in adult education, and accordingly found the teaching approach difficult.

In most cases, pharmacists and facility staff perceived an improved cooperation after the educational programmes. The staff gained insight into the competences among community pharmacists, especially that they could be used as counsellors on medicines – an insight that is often lacking among the general population.^[25] The community pharmacists also gained insight into local work procedures, e.g. reception of medicines from the pharmacy, which in some instances led to changes in the delivery of medicines. These insights were facilitated through educational interactions, where their own competences and needs were shared and reflected upon, and a relationship of trust was built up. In addition, merely the actual encounter between staff at residential facilities and community pharmacists may induce interactions between professions that most often do not formally interact with each other.

The most recent educational programme^[16] has since this study been revised and made available electronically to all municipalities. The revision resulted in shortening of the programme, whereas the focus and structure of the programme were maintained. Staff from more than 50 residential facilities for the disabled have since participated in the programme, also with community pharmacists as instructors. Courses in teaching skills are available for community pharmacists, but they are not well attended. To further support pharmacists' teaching skills, an online learning material on teaching skills has been made available to all community pharmacists.

The programme was developed for residential facilities for the disabled, but as the programme is centred on the staff and their handling of medicines, and as the programme is flexible by nature, it could be adapted to other types of facilities where staff is responsible for handling medicines.

Conclusions

In conclusion, community pharmacists provide a resource to engage in educational programmes on medication management in residential facilities, which may facilitate improved cooperation between community pharmacies and residential facilities. However, development of pedagogical competences and understandings of local settings are prerequisites for facilities experiencing the programmes as successful.

Declarations

Conflict of interest

The author(s) declare(s) that they have no conflicts of interest to disclose.

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Authors' contributions

AM conducted the analyses, interpreted the results, drafted the manuscript and approved the submitted manuscript. ME-S designed the study, collected the data,

revised the manuscript and approved the submitted manuscript. KP designed the study, revised the manuscript and approved the submitted manuscript. CR designed the study, collected the data, revised the

manuscript and approved the submitted manuscript. LA designed the study, collected the data, interpreted the results, revised the manuscript and approved the submitted manuscript.

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