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A meta-synthesis of how registered nurses make sense of their lived experiences of medication errors

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Introduction

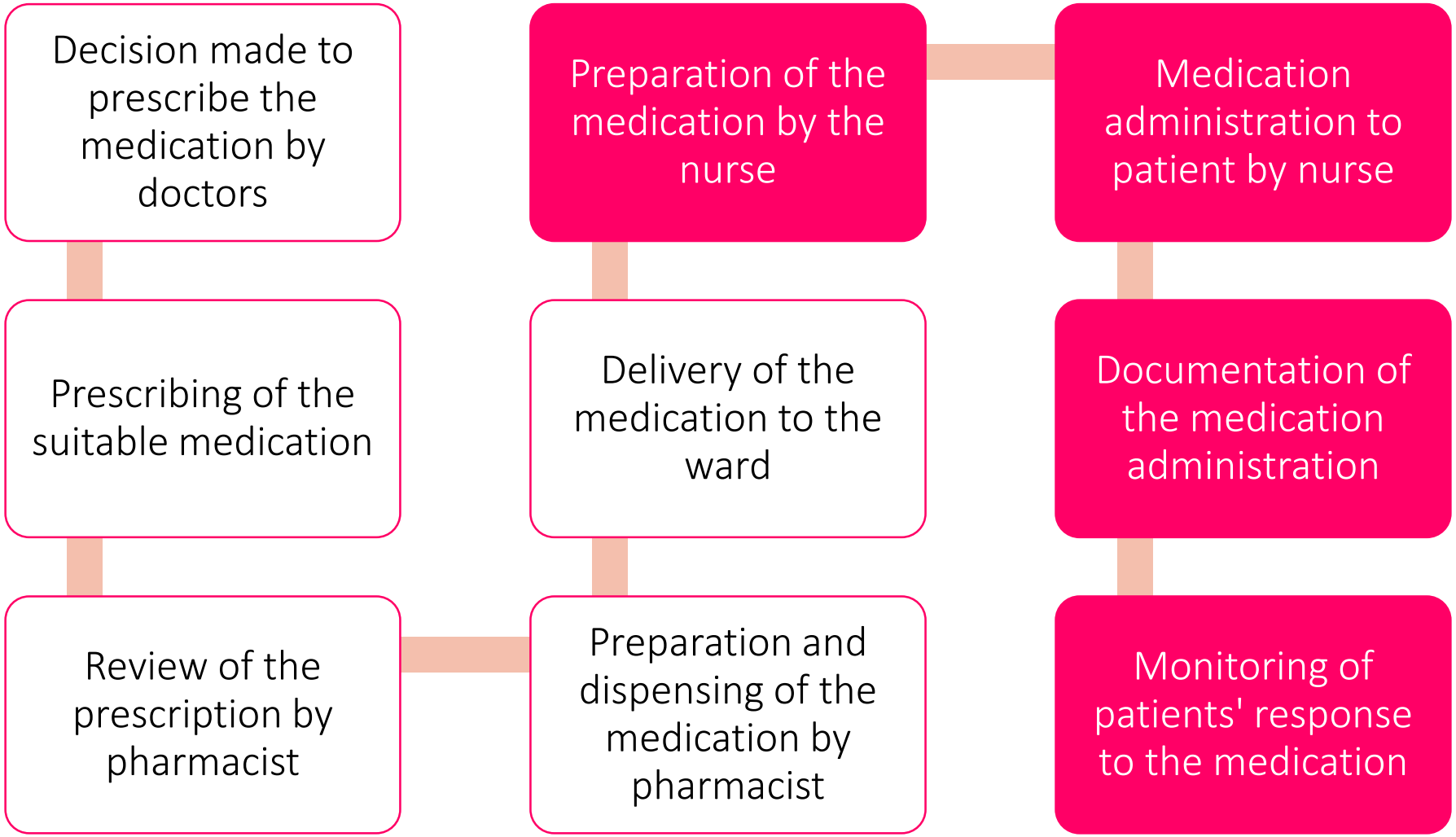
Facts about medications in nursing:

- medicine safety and medicines management are tasks that registered nurses are competent with and implement in their everyday clinical practice (Nursing & Midwifery Council, 2010)

- registered nurses spent around 25%–40% of their workflow to accomplish medication-related tasks (Armitage & Knapman, 2003; Keohane et al., 2008)

- nurses' play significant role in the patient safety chain and the identification of the error before reaching the patient (Jones & Treiber, 2010)

Medication administration process



Reid-Searl et al. (2010)

Introduction

Facts about medications in nursing:
- drug rounds

First phase: Methodology – observation

(1) The drug rounds (medications administered to patients at prescribed times)

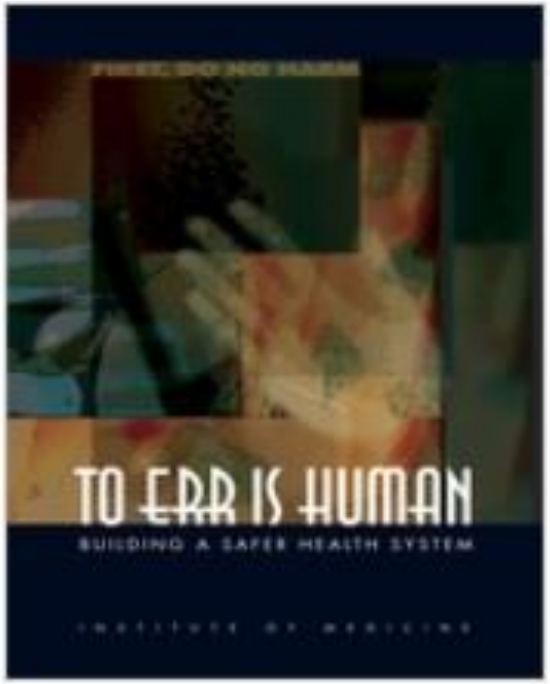
The type of drug therapy to be administered (oral, intramuscular injection, subcutaneous injection, or intravenous infusion or injection)

The prescribed times for administration of the drugs; starting and finishing times of the drug rounds; the way drugs were delivered (on a drug trolley, prepared at the time of administration)

p. 187, Palese et al. (2009)

Introduction

Facts about medications:



To Err is Human

Building a Safer Health System

Institute of Medicine (US) Committee on Quality of Health Care in America; Editors: Linda T. Kohn, Janet M. Corrigan, and Molla S. Donaldson.

Washington (DC): National Academies Press (US); 2000.

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Introduction

Define a medication error:

"any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient, or consumer. Such events may be related to professional practice, health care products, procedures, and systems, including prescribing, order communication, product labelling, packaging, and nomenclature, compounding, dispensing, distribution, administration, education, monitoring and use"

Official website, The USA National Coordinating Council for Medication Error Reporting and Prevention (NCCMERP) (2001)

Introduction

Nurses' clinical experiences and medication errors' incidence:

- the risk for error is 10.9% less for every year for the first 6 years of a nurse's clinical experience, while the potential of serious errors is decreased by 18.5% for every year of a nurse's clinical experience (Westbrook et al., 2011)

- 64% of the participants (with >1-year clinical experience) have been involved in cases of MEs the past month of study's conduction (Kim et al., 2011)

- more than half nurses (70% of the participants in a study) experienced medication administration errors during their career (You et al., 2015)

Background

The human experience is:

- a concept that matters in qualitative research and leads to the elicitation of deeper meanings of the phenomenon under investigation (Daher et al., 2017)
- the source that qualitative knowledge will emerge out from (Hall, 2006)

- a dimension that usually includes behaviour, attitudes/opinions/perceptions, values and emotions, knowledge, culturally shared meaning, social structure and relationships, processes and systems, and environmental context (Guest et al., 2013)

- reveals the uniqueness of individuals' accounts and the components that synthesise the phenomenon under investigation which will eventually form the “new” qualitative knowledge (Pietkiewicz & Smith, 2014).

Background

The essence of how individuals make sense of personal experiences is translated as follows:

How the lived experience and phenomenon under investigation (experience of making a medication error) is expressed by worldviews (encounters) of individuals (registered nurses), as they are engaged in it in a specific context (hospital ward, clinical settings) and what is the meaning the registered nurses assign to it?

The PICo (Population, phenomenon of Interest, Context) tool was used to formulate the research question:

What are the meanings that registered nurses assign to the lived experiences of making a medication error in their practice?

Methley et al., (2014); The Joanna Briggs Institute, (2014)

Aim

The meta-synthesis aims to:

(a) aggregate, interpret and synthesise the qualitative evidence of studies that explored nurses' lived experiences of medication errors

(b) appraise the methodological quality of the included studies.

Methods

Design:

- principles of a systematic literature review of qualitative research evidence (meta-synthesis) (Sandelowski & Barroso, 2003; 2007)
- thematic synthesis by Thomas and Harden (2008)

Search methods:

- databases: PubMed, BNI, CINAHL, EMBASE, AMED, PsycINFO, ProQuest, ScienceDirect and Wiley Online Library + hand search and Google Scholar
- keywords
- inclusion and exclusion criteria

Search outcome:

- PRISMA flow chart, 326 initial papers – 8 qualitative studies included

Methods

Quality appraisal:

- Table 1 - studies' basic features (aim, methodology, methods, findings, strengths, limitations)
- Table 2 - quality assessment according to CASP tool (CASP, 2013)
- Table 3 - COREQ checklist (Tong, et al., 2007)

Data abstraction and synthesis:

- 5 stages thematic synthesis by Thomas & Harden (2008)
- analytic techniques of the synthesis of translation (Walsh & Downe, 2005)

Findings

The meta-synthesis included 8 studies:

Arndt, 1994
Rassin, Kanti, & Silner, 2005
Stetina, Groves, & Pafford, 2005
Santos, de Camargo Silva, Munari, & Miasso, 2007
Schelbred & Nord, 2007
Luk, Ng, Ko, & Ung, 2008
Treiber & Jones, 2010
Smeulers, Onderwater, van Zwieten, & Vermeulen, 2014.

8 themes and 17 subthemes

Theme 1: Moral impact

1.1 Personal ethical codes

“no choice,” “right”, “rules,” and the nurses were “subjects” to ethical codes (Arndt, 1994)

1.2 Human fallibility

“how can my words have any importance after this? Being a professional nurse has always been a part of my identity. The error was a severe threat to my identity” (RN, p.320, Schelbred & Nord, 2007)

Theme 2: Emotional impact

2.1 Emotions

I felt guilty and uncomfortable about being the main origin of this discomfort for the patient. (RN, p.485, Santos et al., 2007)

After realising they made a ME: *Panicky, devastated, somewhat afraid to report the incident to my nurse manager*. (RN, p.1334, Treiber & Jones, 2010)

The hardest was hearing that I made a mistake. I was terrified and immediately thought what will be with the patient. (RN, p.878, Rassin et al., 2005)

2.2 Symptoms

…It's hard even today, it left me deeply traumatised. I can't forgive myself…". (RN, p.882, Rassin et al., 2005)

2.3 Catharsis

The decision I took soothed me because I did the right thing. I called my boss and communicated the event to her…. (RN, p.485, Santos et al., 2007)

Theme 3: Constructive learning

3.1 Self-learning and clinical nursing practice

development of a *personal rule* (p.1332, Treiber & Jones, 2010): being careful, adhere always the “5 Rights” and “lessons learned” (p.1337, Treiber & Jones, 2010)

You just have to look carefully, you always have to look carefully on the medication order, what it says, what is prescribed, what dosage for which patient. (RN, p.278, Smeulers et al., 2014)

strong feelings of responsibility (p.278) within the medication administration context (Smeulers et al., 2014)

improvement of self-awareness about not to judge colleagues when making errors and that nurses are prone to making errors (Schelbred & Nord, 2007)

being vigilant regarding medication tasks: mode of looking for knowledge (Santos et al., 2007), improving levels of knowledge (Santos et al., 2007), generation of a state of alertness when administer medications (Rassin et al., 2005; Santos et al., 2007)

3.2 Organisation’s culture

part of a process of change in the organisational structure of nursing education and practice (p.525, Arndt, 1994)

Theme 4: Impact on professional registration and employment

4.1 Professional registration

a nurse felt *like a criminal* (p.323, Schelbred & Nord, 2007)

Frustrations with the regulators noticed by nurses who thought that the regulator treat nurses who made medication errors in an insulting and ridiculous way (Treiber & Jones, 2010).

4.2 Employment

During the first month after the incident, the nurses were reacting with thoughts being fired; however, there are no data of actual employment issues (Rassin et al., 2005; Treiber & Jones, 2010). On the contrary, in another study a nurse who experienced a medication error (with no permanent harm) was transferred to other clinical settings and not permitted to administer medications, something that the nurse considered responsible her manager's behaviour (Schelbred & Nord, 2007).

Theme 5: Nurses' coping strategies with the experience

5.1 Self-management, colleagues and family

Nurses were willing to seek help (Santos et al., 2007) and help from colleagues that were close to them and felt encouraged by them (Schelbred & Nord, 2007).

I told my husband and sister-in-law. They tried to cheer me up. Initially they reacted half seriously half laughingly, and asked whether I killed anybody. (RN, p.881, Rassin et al., 2005)

You just have to look carefully, you always have to look carefully on the medication order, what it says, what is prescribed, what dosage for which patient. (RN, p.278, Smeulers et al., 2014)

In one case, a nurse mentioned that kept a distance and remained silent after the error and did not discuss the incident with the nurse managers or the support by the head of nursing was absent (Schelbred & Nord, 2007).

5.2 Professional support

In one study where the ME caused permanent patient harm, the nurses received support by professionals specialised in helping people in crisis (Schelbred & Nord, 2007).

Theme 5: Nurses' coping strategies with the experience

5.3 Compliance with the error reporting or not

Arndt (1994) emphasised association between words like *right* or *rule* and *reporting*, revealing in this way nurses' personal morality towards the medication administration policies.

> *I have to inform my manager.*
> (RN, p.523, Arndt, 1994)

Another explanation of not reporting an error was the fact that there was no harm to the patient (Treiber & Jones, 2010). In such cases, nurses justified that they did not want *to be treated like that* (p.523) and did not wish to provoke *hurt or harm* to themselves or to colleagues (p.523, Arndt, 1994).

Arndt (1994) characterised nurses' noncompliance with the policies as "counteridentification" (p.523). The decision-making on whether to report an error or not is intertwined with previous ("harsh") negative experiences of medication errors (p.523, Arndt, 1994), receiving unfair penalties by superiors: *…go through the procedures of disciplinary action in a hardline manner* (p.523, Arndt, 1994), degree of severity of the medication error: *…keep quiet about minor mistakes* (Arndt, 1994), *…to cover up a mistake under certain circumstances.* (p.523, Arndt, 1994), *covered their tracks* (p.1334, Treiber & Jones, 2010), category of the medication involved (Treiber & Jones, 2010) and seniors' reactions about the management of the case (Arndt, 1994).

Theme 5: Nurses' coping strategies with the experience

5.4 Nursing judgement

…But antibiotics we try to give within an hour, but if you're having an obstetrical emergency sometimes that takes precedence over the antibiotic especially if we're doing it prophylactically. So, you just have to use a lot of nursing judgement. (RN, p.177, Stetina et al., 2005)

Theme 6: Patient and family

6.1 Contact with the patient

Many of the participants reported that continuous contact with the patient who was involved in the ME was difficult; thereby, they avoided it (Schelbred & Nord, 2007).

6.2 Patient's status and safety

The drug notwithstanding, the patient deteriorated that afternoon. It was the hardest for me. The doctors tried to calm me down, and say this wasn't the cause. They tried to let it slide. But I never forgave myself. (RN, p.876, Rassin et al., 2005)

Theme 6: Patient and family

6.3 Disclosure of the error and its consequences or not

I didn't tell the patient that he was given the wrong medication. I as afraid it would affect his illness when I told him. The medicine I gave him was vitamins and one was a coagulant. It didn't really matter… (RN, p.31, Luk et al., 2008)

In one case the nurse lied to the patient (no severe harm) and in four cases the nurses acknowledged their errors (Luk et al., 2008).

6.4 Sympathy towards the nurse

Following the disclosure of the ME to the patients, they expressed their sympathy towards the nurses by comforting them (Schelbred & Nord, 2007) or kept a positive attitude (Rassin et al., 2005). In another study, the nurses were treated fairly and with "empathy" (p.33) by superior nurses (Luk et al., 2008):

Actually, they were very considerate. Though they knew that I might be wrong in that incident, they talked to me, explained, and even comforted me. Um …, how shall I say? They still allowed me to work though I made the mistake. (RN, p.32, Luk et al., 2008)

Theme 7: Identification of contributing factors to medication errors

…I think one of the things we get, as you get to be a more seasoned nurse, you don't follow all the steps of the five rights. (RN, p.176, Stetina et al., 2005)

identification of both individual and organisational factors

Theme 8: Identification of preventive measures for medication errors

- assessment of clinical situations based on their experience and clinical reasoning (Smeulers et al., 2014)
- follow the medication administration protocols, be always vigilant and aware of the potential for error occurrence (Smeulers et al., 2014)
- exemplifying of medicine safety practices: “Do-not-disturb tabards” (p. 281, Smeulers et al., 2014) were evidence-based, feasible, appropriate and comfortable when they are implemented in real environments (Smeulers et al., 2014)

Study / CASP questions	Arndt (1994)	Rassin et al. (2005)	Stetina et al. (2005)	Santos et al. (2007)	Schelbred & Nord (2007)	Luk et al. (2008)	Treiber & Jones (2010)	Smeulers et al. (2014)
Clear statement of the study's aim	✓	✓	✓	✓	✓	✓	✓	✓
Appropriate qualitative method	✓	✓	✓	✓	✓	✓	✓	✓
Appropriate design to address the aims of the research	✓	✓	✓	✓	✓	✓	✓	✓
Recruitment strategy to the aims of research	✓	✓	✓	✓	✓	✓	✓	✓
Collection of data in a way that addressed the research issue	✓	✓	✓	✓	✓	✓	✓	✓
Adequate consideration between researcher and participants	✓	✓	Brief report	✗	✓	✓	✓	✓
Ethical issues considered	✗	✗	Brief report	Only ethics approval reported	Brief report	Brief report	Brief report	Brief report*
Sufficient and rigorous data analysis	✓	✓	✓	✓	✓	✓	✓	✓
Clear statement of findings	✓	✓	✓	✓	✓	✓	✓	✓
Research valuability	✓	✓	✓	✓	✓	✓	✓	✓

Conclusion

- Deeper understanding of nurses' making sense of experiences of MEs, and towards this direction, a holistic view about the value and dimensions of the experience itself has been developed-8 key dimensions that synthesise the phenomenon of the lived experience.

- As front-line nurses are responsible for the medication administration to patients, the moral and emotional impact of the errors was devastating for their professional identity, employment status and personal life.

- The nurses could articulate what has gone wrong in the cases they were involved in. Yet, they detected strategies to cope with the error and its consequences and even more translated their experiences into a constructive lesson for themselves, their practice, the organisation they work in and identified ways to prevent future errors.

Relevance to clinical practice

The meta-synthesis contributes to:

- sharing the accounts of nurses who have already experienced medication errors, and, thereby, sharing their experiences
- keep clinical nurses vigilant, updated and effectively trained by the nurse educators about all the relevant issues of medicine safety and medication errors
- a better self-management of nurses' experiences, including how they self-reflect on them and how they respond to their error on personal level
- influencing nurses' support by nurse leaders: emphasise predominantly how every case of error is managed and the recognition of the value of nurses' experiences of medication errors
- influencing policies and initiatives about medications and improve the overall learning climate about medicine safety.

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REVIEW

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Abstract

Background: Medication errors are a frequent phenomenon in nursing, as the nurses are primarily responsible for preparation and administration of medications to patients. Little is known about how nurses make sense of their experiences of medication errors as a lived phenomenon.

Objective: To aggregate, synthesise and interpret the qualitative evidence of studies which explored nurses' lived experiences of medication errors.

Method: A meta-synthesis is presented with thematic analysis by Thomas & Harden

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