Theme-based storytelling in teaching pharmacology to postgraduate nursing students

Nusrat Bano¹*, Jennifer de Beer², Tagwa Omer² and Hawazen Rawas²

Abstract: The pharmacology course is difficult and complex for many nursing students. Pharmacology instructors yearn to create joy of learning in their classrooms. One of the time tested techniques that engages learners is storytelling. A sound storyline piques audience interest and allows them to relate and build their connections. This study aims to describe the experiences of postgraduate midwifery nursing students with theme-based storytelling in a pharmacology course. A simple descriptive qualitative design was used. Theme-based storytelling was incorporated as a teaching strategy in a clinical pharmacology course. In-depth interviews were conducted by a purposeful sampling of eight students. Interviews were audio-recorded and transcribed verbatim. Content analysis was used to yield themes and sub-themes. Two main themes emerged as “affairs of the heart” and “state of the mind”. The first theme consists of three subthemes “hesitant”, “joy” and “warmth”. The second theme consists of two subthemes, namely, “clarity” and “control”. Theme-based storytelling provided a unique, unexpected, and enjoyable experience to the postgraduate midwifery nursing students.

Subjects: Adult Education and Lifelong Learning; Higher Education; Classroom Practice

Keywords: Pharmacology; nursing; storytelling; postgraduate

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PUBLIC INTEREST STATEMENT

Some courses in higher education are considered dry and difficult by the students, who sink into boredom if didactic lectures are given to them in a traditional format. Pharmacology is often perceived as a complex course by nursing, pharmacy, as well as medical students. In this study, the pharmacology teacher has used an age old teaching technique that entices audience (storytelling) with a sprinkle of modern technology, e.g., online blackboard learn system and smart screen class boards for graphical/digital presentations. To capture learner’s interest and incorporate elements of fun, certain themes, e.g., comedy, thrill, horror, etc., were used. Classical narration technique was also used. This study delves into the experiences of the postgraduate students instructed with narrative pedagogy and storytelling technique in pharmacology class.
1. Introduction

Nursing students are expected to practice safe drug administration. It requires sound pharmacological knowledge, good scientific judgment, and skills (Karavasiladou & Athanasakis, 2014). Nursing students struggle with the application of theoretical knowledge in clinical practice, which contributes to medication errors. In the pharmacology class, students are often perplexed by excessive information, drug nomenclature, and complex pharmacodynamics/pharmacokinetic processes. Traditional teaching methods in pharmacology are criticized as they cause “inability to transfer from didactic to clinical practice” in nursing students (Preston et al., 2019). Pharmacology instructors are thus faced with challenges to engage students, facilitate their learning, and generate subject interest. They often resort to innovative instructional designs and pursue effective teaching techniques to improve the learning outcomes in their students (Rawas et al., 2019).

One of such effective techniques is storytelling. It fosters deep learning via reflections in nursing students (Paliadelis & Wood, 2016). Storytelling is an inherent or acquired ability, allowing the narrator to take control, feel empowered, and assess experiences with a diverse perspective. It also allows learners to embrace factual concepts in a personalized manner. Storytelling fosters critical thinking skills by involving the two basic aspects of intelligence which are deep-rooted in comprehension, namely, understanding and explanations (Abrahamson, 1998). Although storytelling is a popular educational technique in higher education across various disciplines (Holstein et al., 2018; Niemi & Multisilta, 2016), however, this technique has diverse outcomes. McKillop (2005) showed that the storytelling technique elucidated deeper reflective ability in students but most stories narrated by students were centered on negative accounts. Furthermore, a large number of students are required for sufficient natural curiosity. Ethical practice of storytelling in classrooms is also criticized and questioned especially when personal stories are shared by students which are graded and publicly consumed (Stewart & Ivala, 2017).

A growing body of evidence indicates that narrative pedagogy or storytelling is widely used in midwifery and nursing programs to provide a globally relevant educational experience to learners (McAllister et al., 2009). Stories illuminate the understanding of the impact and meaning of illness, calamity, and transition in nursing students (Koening & Zorn, 2002). Studies have shown that storytelling in case-based and scenario-based learning, engages nursing students, and introduces them to the true nature of their professional work. McAllister et al. (2009) showed that by unfolding multilayered story in a postgraduate midwifery course, complex concepts can be effectively delivered (e.g., significance of knowing a person beyond its disease or issue to enable person’s strengths and capabilities, amidst health challenges and looming uncertainty). Narrative pedagogy and storytelling are regarded as signature pedagogies in nursing education. They enable learners to effectively familiarize themselves with their professional roles (e.g., what it is to be a nurse?) in practice-based disciplines, i.e., postgraduate nursing (Crookes et al, 2020).

The theoretical underpinnings of the present study lie in socio-cultural theories, where learning is described as the outcome of dialogical interactions among substances, people, and artifacts (Wells, 1999). Postgraduate nursing students are suitable candidates for this pedagogical approach as they have ample background knowledge of pharmacology acquired in clinical practice and undergraduate education. A postgraduate nursing class is usually a distinct group of mature learners with the capability to take responsibility of their own learning. Their challenges in learning pharmacology arise due to a large body of information and complexity of advanced concepts (Bano et al., 2019). Thus, in pursuit of an effective instructional design, that may invoke interest and invite active participation in the learning process, theme-based storytelling was used in the present study, with a purpose to describe experiences of postgraduate midwifery nursing students in a clinical pharmacology course.
2. Methodology

2.1. Study design
A simple qualitative study design was used following ethical approval. Students registered in clinical pharmacology course in the postgraduate midwifery master program at the college of nursing, King Saud bin Abdulaziz University for Health Sciences were included. The two credit hour course was completed over fifteen weeks consisting of two consecutive contact hours per week.

2.2. Instructional design
Theme-based storytelling was used as the instructional design. In the first week, the students were provided with the course outline consisting of the syllabus, inclusive of the list of medications. They were asked to indicate familiar medications that were related to any memorable event or incident. Based on the information individually submitted by the students, a course plan with the distribution of class time was chalked out.

2.3. Pre-class preparation
The teaching method required pre-class preparation for which the instructor booked meetings with the students. The instructor assigned individual students to prepare for story narration or graphical presentation with theme agreement as per course plan. Both students and the instructor were responsible for the sharing of stories, which were based on actual events. Stories were shared in digital format via the smart board. Themes were horror, comedy, crime, suspense, thrill, drama, action, and romance (Table 1). The class atmosphere was adapted accordingly with props, PowerPoint slide background selection, and room lighting, e.g., sudden flickering effect in horror, aromatic ambiance, etc.

2.4. Face-to-face class time
The storytelling lasted between 10 and 15 minutes which was followed by roleplay, group discussions, lectures by the facilitator where applicable and case application exercises. Peer debriefing occurred at the end of each contact session. The lecturer was guided by the course specification to ensure that learning objectives of each session were covered.

2.5. Data collection method, process, and analysis
Data collection commenced after course completion following informed consent. It began with three participants and continued until thematic saturation. Final data consist of eight interviews. In-depth individual interviews were audio-recorded and transcribed verbatim. Table 2

| Theme   | Concept-based core storyline           | Technique                |
|---------|---------------------------------------|--------------------------|
| Horror  | Recovery hallucination of ketamine    | Narration                |
| Comedy  | Noncompliance with insulin therapy in gestational diabetes | Roleplay |
| Suspense| Hypersexuality with levodopa          | Graphical presentation   |
| Crime   | Pediatric fatality with non prescription use of cough syrup | Graphical presentation |
| Thrill  | Sodium nitroprusside in neonatal hypertension | High fidelity simulation |
| Drama   | The dramatic effect of Sodium valproate | Narration                |
| Action  | Blackbox warning medroxyprogesterone  | Graphical presentation   |
| Romantic| Transdermal patches in honeymoon cruise (♀ scopolamine & ♂ nicotine) | Graphical presentation |
showcases the interview guide. The accuracy of transcribed data was cross-checked and compared with the audio recordings. The inductive approach suggested by Graneheim and Lundman (2004) was used for content analysis. First, the transcribed interviews were read and re-read to highlight experiences pertaining specifically to learning acquired by storytelling (body of text). Secondly, significantly similar statements consisting of sentences, words, phrases, and clauses were selected (meaning unit). These (significant) statements were summarized following categorization (condensed meaning unit) in the third stage. Finally, the summarized content was conceptualized to yield themes and subheadings (coded units). Pseudonyms were used for data reporting.

### 2.6. Academic rigor

Trustworthiness was achieved by employing the principles of Lincoln and Guba (1985). Member checking ensued for the credibility of transcribed data. Rich, thorough, and clear description was provided for transferability. Consistency of the findings was evaluated by an external audit to ensure dependability. A reflexive journal was maintained and congruency of the data to the finding was assessed by two qualitative experts for confirmability (audit trail).

### 3. Results

Content analysis of the data resulted in two themes, namely, “affairs of the heart” and “state of the mind”. The first theme consists of three subthemes “hesitant”, “joy”, and “warmth”. The second theme consists of two subthemes, namely, “clarity” and “control”.

#### 3.1. Affairs of the heart

The first theme was “affairs of the heart” with three subthemes, “hesitant”, “joy”, and “warmth”.

##### 3.1.1. Hesitant

The students described their emotional experiences upon being exposed to the teaching method as unexpected, which made them unsure of the outcome and skeptical at the beginning of the course. They were hesitant in committing fully to the process:

‘It was strange for us to sit in a Pharma class and listen to stories … I thought we are going to waste time in class and fail in an exam!’ (Sam)

‘Wallahi (by God) I was in shock! I thought maybe the teacher has not prepared lectures!’(Haley).

‘After the class, we were talking about how stories could help to solve MCQ in exams, we had no idea what was next!’ (July)

##### 3.1.2. Joy

The student experienced joy during the class once they grasped the technique and started taking an active part in the discussion and case solving exercise after the interactive lecture:

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**Table 2. Guide for face-to-face interview**

| Interview guide                                                                 |
|--------------------------------------------------------------------------------|
| Describe your experiences in pharmacology course conducted with theme based storytelling technique. |
| Describe the effects of theme based storytelling technique on your academic performance.            |
| Describe your feelings in pharmacology class during the learning process.                                   |
| Describe the thoughts that you had during the pharmacology class.                                        |
| Do you have any example to share based on your personal experience regarding storytelling learning technique? |
‘Never liked pharmacology before, but suddenly I was waiting to come to class, it was fun, it was easy to understand, I enjoyed the test also, even today, I remember many points!’ (Tina).

‘I will never forget my roleplay as the stubborn lady with insulin noncompliance and all of her dramas’ (Sarah).

‘I found myself waiting for the class to start … I realized later that I enjoyed being in the class’ (Alex)

3.1.3. Warmth
Student expressed that learning ensued in a warm and friendly environment. This created a sense of closeness between the students and teacher and students themselves;

‘We felt close to the teacher, her stories were like our experiences, and when we told our story, she was so interested in details and then we discussed all that in lecture same day!’ (Alex)

‘I had support and respect from my colleagues because sometimes our stories sounded familiar but sometimes very strange and new, but I know I will be careful after what I heard about the drug in her story.’ (Haley).

‘We connected while listening to each other’s experiences and I realized that we are so different as people but so similar to nurses.’ (July)

3.2. State of the mind
The second theme was “state of mind” with two subthemes “clarity” and “control”.

3.2.1. Clarity
The students described that they felt “clarity” of the mind in learning and were able to relate the information learnt to their own experiences; “When Alex told that the grandpa was hypersexual and gambling because of Parkinson drug, I am so clear about the dopamine theory now” (Sam).

‘Playing the role of triage nurse in SimBaby scenario helped me; I was 100% clear about answers in the exam.’ (Tina).

‘After my story ended and the lecture started, I found many answers to the questions that were in my mind and I kept on thinking about it later on and relating it to the incident I had until it all added up’(Alex)

3.2.2. Control
Students expressed that they experienced control over their thoughts and behaviors.

‘In the last weeks, I felt my relationship with pharmacology has changed, after listening to others, telling my own story, lecture and case solving, I feel that I will move with better confidence now and discuss more easily about medications.’(Alex).

‘We were constantly thinking, analyzing and relating to points from story and lecture in case solving!’ (July).

‘I was composed because I wanted them to feel the chill that I felt when the patient (anesthesia recovery) told me that her father and granny (both deceased) are by her side and saying that the baby is changed and the nurse did that ...pointing towards me.’ (Haley).

4. Discussion
The purpose of this study was to describe the experiences of postgraduate nursing students with a theme-based storytelling learning approach in pharmacology course. The findings indicate that the students
embraced storytelling within themes as a classroom learning activity after some initial reluctance. Once they were accustomed to the technique, they were also more receptive to the lectures that followed narrative accounts in the classrooms. Students described that they were genuinely interested in the meaningful interpretation of events in the stories and were able to relate to similar examples. The classroom served as a platform, where they could connect and relate to real-life experiences in a logical manner. The students also experienced deep learning as their minds gradually accepted the learning process and their hearts became attuned to it. Themes (e.g., horror, suspense, etc.) were an additional element of fun that reiterated emotional orientation and generated sensations of “commonality” and “shared resonance of experience” (Abrahamson, 1998).

The students expressed that they experienced uneasiness with the storytelling method at the beginning of the course and were skeptical and dubious about the effectiveness of this classroom technique. They gradually warmed up to the learning process and evolved into active classroom participants. Student’s experiences of joy in the friendly learning environment were consistent with another study that showed storytelling in midwifery students brought them closer with a realization of having the same experiences in different clinical scenarios (Hunter & Hunter, 2006). Urstad et al. (2018) reported similar experiences in nursing students regarding engagement, ownership, and deep learning with digital storytelling; however, the vulnerable role of the narrator highlighted in their study did not resound with the participant’s description of experiences in the present study.

The most frequently employed storytelling technique was based on graphical presentations (digital storytelling). The students expressed that they were able to grasp complex pharmacological concepts with clarity of mind. This finding is supported in previous studies that show that digital storytelling significantly improves critical thinking (Akyeampong, 2018) and visual memory capacity (Sarica & Usluel, 2016).

Another interesting student experience that was brought to light, was the perception of “control” in their learning process. This supports findings in previous studies, showing that control and responsible self-reflection in a student-centered learning environment are associated with positive learning outcomes (Lai & Hwang, 2016; Rahimi et al., 2015). In summary, storytelling technique in pharmacology course was generally welcomed by the students who were able to enjoy the learning experience during knowledge acquisition.

4.1. Study limitations
This is a small-scale study reported from a single institution. All study participants were female. The instructional technique was employed in a single course. Furthermore, this study does not report the impact of demographic characteristics of the participants on the findings. A longitudinal quantitative study design is suggested to evaluate the impact of diverse participant characteristics on their learning outcomes with theme-based storytelling. Data source triangulation is also recommended.

5. Conclusion
This study reports the positive experiences of postgraduate nursing students in learning pharmacology with an unusual technique of theme-based storytelling. They described an enjoyed learning experience which enabled them to grasp and retain pharmacological concepts easily with a controlled thought process in the development of drug-related knowledge.

Storytelling technique improvised by modern technology can be used in several effective ways to encourage deeper reflective thinking in postgraduate students. A complex course component can be effectively delivered using digital formats, e.g., video-based storytelling. A comprehensive learning resource developed over time, based on such videos can be utilized as pre-class learning content on e-learning system. This can allow learners to relate to the course content before face-to-face class interactions and enhance their preparedness for classroom activities.
Online storytelling can also be employed to connect students with similar backgrounds and course interests. This can form a community with a support network, where learners can relate to concepts via storytelling and break fear of acquiring complex concepts, through an enjoyed learning experience.

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**Competing interest**
The authors declare no competing interest.

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