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Exploring the influence of workplace supports and relationships on safe medication practice: a pilot study of Australian graduate nurses

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Background: Despite the growing awareness of the benefits of positive workplace climates, unsupportive and disruptive workplace behaviours are widespread in healthcare organisations. Recent graduate nurses, who are often new to a workplace, are particularly vulnerable in unsupportive climates, and are also recognised to be at higher risk for medication errors.

Objectives: Investigate the association between workplace supports and relationships and safe medication practice among graduate nurses.

Design: Exploratory study using quantitative survey with a convenience sample of 58 nursing graduates in two Australian States.

Methods: Online survey focused on graduates’ self-reported medication errors, safe medication practice and the nature of workplace supports and relationships. Spearman’s correlations identified that unsupportive workplace relationships were inversely related to graduate nurse medication errors and erosion of safe medication practices, while supportive Nurse Unit Manager and supportive work team relationships positively influenced safe medication practice among graduates.

Conclusions: Workplace supports and relationships are potentially both the cause and solution to graduate nurse medication errors and safe medication practices. The findings develop further understanding about the impact of unsupportive and disruptive behaviours on patient safety and draw attention to the importance of undergraduate and continuing education strategies that promote positive workplace behaviours and graduate resilience.

Introduction

Globally medication errors are one of the more frequent yet preventable errors occurring in healthcare settings. According to the Australian Commission on Safety and Quality in Health Care (ACSQHC, 2012), one in ten healthcare recipients are harmed as a result of errors, including medication errors. Medication errors are capable of causing significant morbidity and mortality, and also have substantial economic implications (James, 2013; Roughhead and Semple, 2009a). In the United States, medical errors (inclusive of medication errors) are the third leading cause of death within hospitals, costing an estimated $17–$30 billion a year (James, 2013). Similarly, in Australia, medication errors are the second most frequently reported incident occurring in hospitals after falls, costing approximately $660 million on an annual basis (Roughhead and Semple, 2009a, b).

Although many healthcare professionals may commit or contribute to medication errors, nurses are more susceptible to making errors as they spend close to half of their work time administering medications (Runciman et al., 2003). Furthermore, nurses are vital in preventing medication errors as they are generally accepted to be the last healthcare professional to intercept any errors before administration (Flynn et al., 2012). Hyman and Silver (2005) postulate that high rates of healthcare errors are unavoidable. However, others argue that the leading forms of medication error stem from human fallibility, particularly among graduate nurses who are inexperienced clinicians (Ebright et al., 2004; Smith and Crawford, 2003). Graduate nurses may be more predisposed to making medication errors as they lack familiarity with the work environment, and are still developing the competence to problem solve and identify any discrepancies in medication orders (Saintsing et al., 2011).

Background/Literature

Studies have associated graduate nurses’ lack of clinical confidence, emerging competence and ability to think critically and work independently in implementing safe medication practices as root causes of
medication errors (Ebright et al., 2004; Saintsing et al., 2011). Other studies have reported inadequate medication knowledge, poor organisational skills, exposure to new situations, inability to correctly follow physician orders and poor time management, as factors that can contribute to medication errors among graduate nurses (Berkow et al., 2008; Ebright et al., 2004; Fasolino and Snyder, 2012).

For graduate nurses to successfully transition from the university setting into the clinical arena, these novice nurses require guidance, acknowledgement and mentorship from their colleagues (Johnstone et al., 2008; Laschinger et al., 2009). This itself identifies that graduate nurses need reassurance and a safe environment. Despite the supportive nature of many workplace relationships, there are still workplaces characterised by high rates of incivility, bullying, and hostile behaviours which disrupt workplace relationships and safe care delivery. This hostility and disruptive behaviour may be more likely directed towards the newer members of the team, such as graduate nurses, impacting on their ability to work confidently and their desire to continue in the same profession. The turnover rate for newly graduated nurses in the USA ranges between 18.1 and 61% (Brewer et al., 2012: Winter-Collins and McDaniel, 2000) with approximately 60% of graduate nurses leaving their position within the first six months because of exposure to disruptive workplace behaviours (Winter-Collins and McDaniel, 2000). In Australia, limited studies are available that have examined graduate nurse turnover rates (Eley et al., 2010) with one recent report identifying 11.8% of graduate nurses intending to work overseas in the next 12 months (Huntington et al., 2012).

Importantly, exposure to disruptive behaviours may prevent graduate nurses from asking questions and acquiring necessary clinical knowledge to engage in safe practice (Feng and Tsai, 2012). Further, it is said that the custom of "naming, blaming and shaming" (Johnstone and Kanitsaki, 2008, p. 368) within the nursing profession reflects unsupportive workplace climates. Drawing attention to the impact of hostile interactions with colleagues, an Australian study reported that two thirds of the nurses in the study (n = 2407) made healthcare errors when upset over experiencing such behaviours (Farrell et al., 2006).

Similarly, a survey undertaken in the USA (n = 2849) by Rosenstein and O'Daniel (2008) reported that 71% of nurses studied identified that disruptive behaviours from colleagues such as a raised voice, disrespectful interaction, insults and berating in front of peers and patients, contributed to errors, with 27% reporting disruptive behaviour was linked with patient mortality and 18% witnessing at least one mistake being made as a consequence of intimidation from physicians or other nurses. The 2004 Institute of Safe Medication Practice (ISMP) report revealed that in a study of 2959 healthcare professionals, intimidation influenced patient care by affecting the way clinicians clarified medication orders (ISMP, 2004). Drawing upon these studies it has been asserted that supportive workplace relationships enhance safe medication practice while uncivil, hostile or disruptive workplace relationships increase the likelihood of medication errors (The Joint Commission on Accreditation of Healthcare Organisations, 2008).

The nature of workplace relationships has also been recognised to influence the safety climate in healthcare organisations (Moore and McAuliffe, 2012; Rosenstein and O'Daniel, 2005). Supportive workplace relationships, characterised by respect and willingness to listen flourish in environments that promote effective collaboration, recognition of others, and effective decision making (Fontaine et al., 2012; Walker et al., 2013). Rosenstein and O’Daniel (2005) reported that disruptive behaviours have a negative effect on workplace communication, concentration, collaboration and workplace relationships. Further, in a survey of physicians and nurses Rosenstein (2002) reported that disruptive physician behaviour influences nurses’ work practices, including their attitude towards patient care and team work. In 2012, a similar survey of 370 nurses and doctors found that disruptive physician behaviours directly impacted on patient care by affecting nurses’ efficiency, accuracy, safety and outcomes of care (Rosenstein and Naylor, 2012).

Considering the aforementioned literature, the primary aim for this exploratory study was to examine graduates self reported medication errors and establish whether the nature of workplace supports and relationships were associated with medication errors or safe medication practices. To guide the study the following questions were developed.

1: What is the nature and extent of graduate nurses medication errors and safe medication practices?
2: What is the nature of graduate nurses reporting of medication errors?
3: What is the nature of graduate nurse workplace supports and workplace relationships?
4: What is the relationship between graduates’ experience of workplace supports and relationships, and are these factors associated with medication errors or safe medication practice?

Methods

Reported here is the descriptive quantitative stage of a larger sequential mixed methods study. As little is known about the influence of workplace supports and relationships on graduate nurse medication errors, and a number of the variables in this study required newly developed measures, a survey based exploratory and descriptive research design was employed. This design provided the opportunity to refine a number of new measures and establish conceptual and operational understandings of the variables of interest (Clark-Carter, 2009; Munro, 2006). This providing a contextual understanding of the phenomenon and laying the foundations for developing hypothesis for further testing in subsequent stages of the study.

For the purpose of the first descriptive survey stage of the study the description of medication error was adopted from The National Council for Medication Error Reporting and Prevention (NCC-MERP), which defines medication errors as any errors or omissions that are a preventable event that may cause or lead to inappropriate medication use or patient harm (NCC-MERP, 2006, p.1). Also, nurses who were eligible for participation in this study had to fit the description of recent gradu- ate, which was defined as a registered nurse who is within the first 18-24 months of clinical practice following completion of a nursing degree. The framework used to direct this study was the principles and guidelines of the Human Research Ethics Committee’s (HREC) Code of Conduct for research. This study was approved by the relevant HREC in regards to the ethical protection of human subjects prior to the commencement of this study.

Survey Instrument

In developing the survey instrument, initially a search of published peer-reviewed manuscripts in five electronic data bases (CINAHL, Medline, Cochrane Proquest, and Pub med) was undertaken for the years 2004-2012. This search sought to identify existing suitable instruments and studies depicting the nature of workplace supports and relationships that may influence graduate nurse medication errors and safe medication practices, as well as measures of the nursing workplace and disruptive and supportive workplace behaviours. As no valid and reliable instrument was available at the time of the study suited to measuring the variables of interest, the authors developed a questionnaire largely drawn from the review of the literature. A small number of items were included from validated instruments focused on disruptive workplace behaviours and supervisory support and empowerment. The final survey contained 86 items that sought to identify the nature of medication errors, reporting of errors and safe medication practices and the nature of workplace supports and relationships.

Prior to using the survey instrument, the face validity of the instrument was established through review by an expert panel of nurse academics knowledgeable in instrument development, healthcare quality and safety, and workplace behaviours. The main objective of this
review was to establish that the items were unambiguous and relevant. The experts' comments were consistent. In response to the feedback a number of questions were refined or deleted to reduce duplication and improve clarity. The final version of the instrument was subjected to reliability assessment employing Cronbach's coefficient alpha (Pett et al., 2003), which is presented in Table 1. To ensure internal consistency and ensure that the scale items were measuring the same construct, item-to-scale correlations and inter correlations of items within the various scales were also performed (DeVellis, 2003). As a result of this analysis, six items with poor internal consistency were removed from the analysis.

The final instrument employed in the analysis was as follows:

### Demographic Characteristics

This section contained 5 items examining respondents' time since registration, their length of employment, and area of work.

### Nature of Medication Errors and Erosion of Safe Medication Practice

This section contained dichotomous and open ended questions examining respondents' self-reported experiences of medication errors and the nature of these errors (such as wrong patient, drug, dose, route, time or medication omission). To examine respondent experiences of behaviours that eroded the safety of medication practices a 16 item, five-point Likert scale was developed. These items specifically focused on "shortcuts" and unsafe medication practices reported to occur by graduate nurses in the presence of unsupportive colleague or physician behaviours. The total score possible for this scale was 80, with higher scores indicating the erosion of safe medication practice.

### Nature of Medication Error Reporting

This section contained 4 dichotomous and multiple response questions that examined the frequency and nature of reporting of medication errors (e.g. was it handed over to other nurses, documented in progress notes, incident report filled, doctor notified, etc.), and if not reported, the reasons (was patient harmed/near miss).

### Nature of Workplace Relationships

Employing five point Likert scales this section examined participants' perceptions of: Education and learning support provided in the workplace (5 items: total score 25), with higher scores indicating greater levels of these supports. All of the items in this sub-scale were newly developed for the purpose of the survey: disruptive nurse behaviours (9 items: total score 45) and disruptive physician behaviours (7 items: total score 35), with higher scores on these two scales indicating higher levels of these unsupportive behaviours. Four items in these scales were adapted and slightly modified from the validated Workplace Bullying Instrument (Hutchinson et al., 2008) designed to measure workplace bullying with permission from the author (α = 0.93): Exposure to supportive work team behaviours (15 items: total score 75) and supportive NUM behaviours (14 items: total score 70), with higher scores on these two scales indicating increasing levels of these supportive behaviours. The supportive NUM behaviour scale included four items from the Conditions for Work Effectiveness Questionnaire-II (CWEQ-II: α = 0.86) designed to measure Kanter's six empowerment structures in the workplace (Laschinger et al., 2010). These four items were modified slightly with permission granted by the Laschinger research team. A further three items from the Supportive Supervisory Scale (α = 0.91) were employed to measure the supportive nature of supervisors with permission (McGilton, 2010).

### Sample and Data Collection

Respondents were recruited through the databases of recent graduates from three Australian university schools of nursing. The databases of the three participating universities contained 1425 recent nursing graduates. It was estimated that 30% of recent graduates retained active university email accounts, providing a potential sample of 427 possible respondents. The survey link was emailed to graduates by administrative staff at each university without any direct involvement from the research team. To improve response rates, email reminders were sent for three consecutive fortnights by the respective health faculties of the participating universities. On line surveys commonly report response rates between 20 and 40% (Nulty, 2008), with Hertzog (2008) indicating a sample size of 90 sits towards the minimum threshold for preliminary studies. In total 58 recent graduates completed the survey.

### Data Analysis

Survey data was downloaded from the Qualtrics® online platform that was hosted on the University website and analysed using Statistic Package for Social Sciences (SPSS) version 20. Descriptive statistics were run on the complete set of data to identify logical responses and identify the extent of missing data. After which frequency distributions, including mean and standard deviations, and Spearman’s correlation analysis were also undertaken (Polit and Beck, 2006; Wood and Ross-Kerr, 2009).

### Results

The mean duration of employment following graduation for recent graduates in this study was 13.2 months. The majority was employed full time in either medical/surgical, acute or community care settings (Table 2). With regard to medication errors, a little under two thirds of the sample (58.6%, n = 34) reported making a medication error. The more common forms of error are summarised in Table 2.

Cross tabulations identified patterns of medication errors in relation to the areas worked, and the rate at which the error occurred. Graduates' working in Medical/Surgical units (46.6%, n = 27) reported the highest rates of medication errors, followed by ‘other’ acute and specialty areas (12.06%, n = 7). This pattern was similar to the proportion of graduates working in these areas, suggesting that work area did not influence the rate of medication error in this sample.

In a 'yes/no' response set, participants were asked to state if they had reported any of the medication errors they had made or witnessed. A total of 60.3% (n = 35) reported the error/s, with 24.1% (n = 14) respondents indicating that they did not report errors. Table 2 summarises the more common methods of error reporting. A little under a quarter of the sample (24.4%) reported that they did not report medication errors witnessed as a result of being bullied by other nurses, while 8.6% noted the reason for non-reporting was that no harm occurred to the patient (n = 5).

When identifying the available forms of education and learning support provided, graduates more commonly reported the presence of a nurse educator available on the ward (72.4%, n = 42), the provision of in-service education (67.2%, n = 39), use of learning packages (63.8%, n = 37), being buddied with experienced nurses (55.2%, n = 32), and debriefing sessions (22.4%, n = 13). With regard to medication practices and disruptive behaviours, a little under a quarter of the sample reported feeling pressured by prescribing doctors to administer a medication despite their concerns.

<table>
<thead>
<tr>
<th>Table 1</th>
<th>The internal consistency reliabilities of final sub-scales.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sub-scales</strong></td>
<td><strong>Number of items</strong></td>
</tr>
<tr>
<td>Supportive NUM</td>
<td>14</td>
</tr>
<tr>
<td>Education and learning support</td>
<td>5</td>
</tr>
<tr>
<td>Supportive work team behaviours</td>
<td>15</td>
</tr>
<tr>
<td>Disruptive nurse behaviours</td>
<td>9</td>
</tr>
<tr>
<td>Disruptive physician behaviours</td>
<td>7</td>
</tr>
<tr>
<td>Erosion of safe medication practices</td>
<td>16</td>
</tr>
</tbody>
</table>
Table 2
Demographic profile of respondents.

<table>
<thead>
<tr>
<th>Demographic characteristic</th>
<th>Number (n)</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment since graduation in months</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-6</td>
<td>14</td>
<td>24.1</td>
</tr>
<tr>
<td>7-12</td>
<td>20</td>
<td>34.5</td>
</tr>
<tr>
<td>13-18</td>
<td>13</td>
<td>22.4</td>
</tr>
<tr>
<td>19-24</td>
<td>8</td>
<td>13.8</td>
</tr>
<tr>
<td>N50 b36</td>
<td>3</td>
<td>5.2</td>
</tr>
<tr>
<td>Employment status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full-time</td>
<td>30</td>
<td>51.7</td>
</tr>
<tr>
<td>Part-time</td>
<td>17</td>
<td>29.3</td>
</tr>
<tr>
<td>Casual</td>
<td>11</td>
<td>19.0</td>
</tr>
<tr>
<td>Area of work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical/surgical</td>
<td>30</td>
<td>51.7</td>
</tr>
<tr>
<td>Acute care, specialty areas, community health</td>
<td>14</td>
<td>24.1</td>
</tr>
<tr>
<td>Mental health</td>
<td>6</td>
<td>10.3</td>
</tr>
<tr>
<td>Operating theatre</td>
<td>5</td>
<td>8.6</td>
</tr>
<tr>
<td>Orthopaedics</td>
<td>3</td>
<td>5.2</td>
</tr>
<tr>
<td>Medication error occurrence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nil occurrence</td>
<td>22</td>
<td>37.9</td>
</tr>
<tr>
<td>1-2 times</td>
<td>29</td>
<td>50.0</td>
</tr>
<tr>
<td>3-4 times</td>
<td>3</td>
<td>5.2</td>
</tr>
<tr>
<td>5-8 times</td>
<td>1</td>
<td>1.7</td>
</tr>
<tr>
<td>N12 times</td>
<td>1</td>
<td>1.7</td>
</tr>
<tr>
<td>Missing</td>
<td>2</td>
<td>3.4</td>
</tr>
<tr>
<td>Total</td>
<td>58</td>
<td>100</td>
</tr>
<tr>
<td>Type of medication error</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wrong time</td>
<td>17</td>
<td>29.3</td>
</tr>
<tr>
<td>Omission</td>
<td>16</td>
<td>27.6</td>
</tr>
<tr>
<td>Wrong dose</td>
<td>13</td>
<td>22.4</td>
</tr>
<tr>
<td>Wrong drug</td>
<td>6</td>
<td>10.3</td>
</tr>
<tr>
<td>Wrong patient</td>
<td>5</td>
<td>8.6</td>
</tr>
<tr>
<td>Wrong route</td>
<td>1</td>
<td>1.7</td>
</tr>
<tr>
<td>Methods used to report error</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reported to the nurse in charge[NUM</td>
<td>20</td>
<td>34.5</td>
</tr>
<tr>
<td>Verbally handed over to the next shift staff</td>
<td>20</td>
<td>34.5</td>
</tr>
<tr>
<td>Documentation in progress notes</td>
<td>19</td>
<td>32.8</td>
</tr>
<tr>
<td>Reported in IMS, QLQ PRIME, Riskman</td>
<td>14</td>
<td>24.1</td>
</tr>
<tr>
<td>Reported to the medical officer</td>
<td>12</td>
<td>20.7</td>
</tr>
</tbody>
</table>

To perform correlation analysis total scores on the various sub-scales were created by summing responses to create continuous variables. The internal consistency within the various sub-scales was established through item-scale correlation and Cronbach’s alpha which suggested the sub-scales was measuring the one construct and suited to sum-score analysis (see Tables 1 & 4). The mean levels or exposure to supportive and disruptive behaviours measured on the sub-scales is presented in Table 4. Overall graduates reported high levels of supportive NUM behaviours and education and learning supports and moderate levels of supportive work team behaviours.

Spearman’s correlations were also performed to explore the associations between workplace supports and erosion of graduate safe medication practices. This analysis indicated that a number of support factors had a significant positive influence on graduate nurse medication practice. These included a statistically significant relationship between supportive NUM relationships and erosion of graduate safe medication practice ($r = -0.46, p < 0.001$): supportive work team behaviours and erosions of graduate safe medication practice ($r = -0.51, p < 0.001$); and education and learning support and erosions of graduate safe medication practice ($r = -0.34, p < 0.001$). These results suggest that these forms of workplace support promote safe medication practice among graduates. Conversely, the Spearman’s correlations between measures of unsupportive workplace relationships and erosion of graduate safe medication practice indicated significant positive associations between disruptive nurse behaviour ($r = 0.68, p < 0.001$) and disruptive physician behaviour ($r = 0.52, p < 0.001$). These results suggest that an increase in disruptive nurse and physician behaviour erodes medication safety among graduate nurses.

Discussion

This study has revealed the impact of hostile and disruptive behaviour on graduate nurses’ medication practices. Available literature highlights that graduate nurses who have been subjected to hostile and disruptive behaviours experience poor psychological health and dissatisfaction with their work (Ebright et al., 2004; Brewer et al., 2012). Rosenstein and O’Daniel’s study (2006) with existing nursing staff, confirmed that disruptive behaviour leads to frustration, increased stress, loss of concentration, reduced collaboration, communication and impaired relationships. Similarly, graduate nurses influenced by disruptive behaviours from work colleagues, may experience loss of concentration and confidence leading to unsafe medication practices and errors. The findings of the current study suggest that disruptive behaviours, particularly from other nurses, may be an important contextual factor in graduate nurse medication errors and safe medication practice. These findings warrant further investigation as the small self report sample used in this analysis limits generalisability.

The importance of communication in healthcare settings has been well documented in the literature (Ebright et al., 2004; Mianis, 2010). There are challenging situations every day that require proficiency in interpersonal skills in all areas of nursing. The key components of highly accomplished communication skills require confidence, assertiveness and professional diplomacy, a skill which is under-developed in many health professionals most of all in newly recruited graduate nurses.

Table 3
Rank order of six frequently reported graduate nurse experience of disruptive nurse behaviour.

<table>
<thead>
<tr>
<th>Experience</th>
<th>Never (%)</th>
<th>Seldom (%)</th>
<th>Sometimes (%)</th>
<th>Often (%)</th>
<th>Always (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I experience condescending language and harsh tone of voice</td>
<td>26.7</td>
<td>37.8</td>
<td>24.4</td>
<td>11.1</td>
<td>0</td>
</tr>
<tr>
<td>Other nurses are impatient with my questions</td>
<td>35.6</td>
<td>35.6</td>
<td>20.0</td>
<td>8.9</td>
<td>0</td>
</tr>
<tr>
<td>I experience silent treatment and am ignored</td>
<td>55.3</td>
<td>17.8</td>
<td>17.8</td>
<td>11.1</td>
<td>0</td>
</tr>
<tr>
<td>I am publicly humiliated</td>
<td>57.8</td>
<td>20.9</td>
<td>20.9</td>
<td>2.2</td>
<td>0</td>
</tr>
<tr>
<td>I have experienced verbal abuse</td>
<td>57.8</td>
<td>22.2</td>
<td>15.6</td>
<td>4.4</td>
<td>0</td>
</tr>
<tr>
<td>I have experienced deliberate withholding of relevant clinical information</td>
<td>68.9</td>
<td>20.0</td>
<td>8.9</td>
<td>2.2</td>
<td>0</td>
</tr>
</tbody>
</table>

(24.44%, n = 11). Intimidation or bullying from nurses (37.78%, n = 17) and physicians (26.67%, n = 12) was commonplace and was reported to lead to graduates’ doubting their competence and contributing to medication errors. Graduates in this study also reported not completing a second RN check for SS’s (restricted medications/drugs of dependence) and parental and intravenous medications due to intimidation (13.4%, n = 6). On a five-point Likert scale of never to always, graduates reported feeling reluctant to approach nursing colleagues for medication administration advice (40%, n = 18) and administering medications they believed incorrect for the patient’s condition rather than approaching the prescriber (13.4%, n = 6). Additionally, graduate nurses identified that they felt blamed for medication errors made by doctors (20%, n = 9) and other nurses (26.67%, n = 12).

Other specific experiences of disruptive behaviour experienced by graduate nurses from fellow nursing colleagues are illustrated in Table 3 below.
While the exploration of confidence and communication was not the primary focus of this study, findings of this research suggest that confidence and communication enable safe medication practice and promote patient safety. In particular, the findings that graduates reported reluctance to approach particular colleagues for medication administration advice, or reported administering medications they believed to be incorrect for the patient’s condition rather than approaching the prescriber or discussing with other nurses, suggests that unsupportive or hostile behaviours may contribute to a lack of confidence and effective communication among graduates. Additionally, experiencing a lack of confidence as well as unapproachable colleagues may negatively impact graduates’ ability to communicate effectively, especially when confronted with uncertain areas of medication orders. This may potentially put patients at risk or harm. This finding resonates with the recent results of a survey study of Canadian nurses which identified that bullying and incivility from other nurses, physicians and supervisors increased perceptions of patient safety risk and nurse- assessed adverse events (Laschinger, 2014). The study by Manias et al. (2003) confirmed that the work dynamics of the clinical setting impact the ability of graduate nurses to communicate effectively within the multidisciplinary team. When interpreting the findings of the present study, it can be suggested that workplace supports and relationships are an important component in ensuring graduates safe practice, and at the unit level, NUMs play a vital role in sustaining environment that mitigate disruptive behaviours and foster supportive and safe work climates. This finding resonates with a large sample study (n = 10,000) that reported work group leadership practices were an important predictor of role conflict and bullying (Hauges et al., 2011).

Another critical area of safe medication management is medication error reporting. Error reporting is integral to the identification and mitigation of medication errors. A commonly discussed area in healthcare literature that inhibits error reporting is the culture of blame (Berwick and Leape, 1999). Of all healthcare professionals, literature acknowledges graduate nurses are at high risk of involvement in medication errors (Phillips, 2002; Sarvadikar et al., 2010). Other studies have revealed that graduate nurses need to be supported to build confidence to self-report errors (Sarvadikar et al., 2010). This study identified that unsupportive environments contributed to graduates’ fearing blame from doctors and nurses, and this inhibited error reporting. Conversely, the positive influence of supportive NUMs and positive work team behaviours were important influencing factors on graduates’ medication safety. This finding builds upon earlier studies that have identified that the interception of medication errors is more likely in a supportive practice environment (Flynn et al., 2012) and that reduced work engagement and burnout among graduate nurses are associated with workload demands and bullying (Laschinger et al., 2012). It is also recognised that building a transparent and positive safety culture at the unit level improves medication safety (Abstoss et al., 2011). Our findings suggest that the social work environment is an important factor in sustaining a transparent and safe medication environment for graduates.

It is widely accepted that a positive and supportive workplace is founded on the basis of collaboration and communication (Manias et al., 2005; Pilette, 2006). As novice practitioners, graduate nurses require a supportive work climate to build their confidence, skills and competency to sustain patient safety and for professional growth. In focusing on the workplace experiences of graduate nurses, the current study has identified the importance of workplace supports and relationships in mitigating medication errors and promoting medication safety. Factors such as NUM support and education and learning support are important factors in the work environment of graduates which positively influence the capacity for graduates to safely manage medications. Additionally, the findings of this study identified education and learning support to be positively associated with supportive colleague behaviour. This suggests that these forms of education and learning support identified by the graduates in this study such as debriefing and education sessions, access to learning packages, the provision of buddy with experienced nurses and the presence of a nurse educator on the ward may serve as important factors in sustaining supportive work climates. The importance of nurse educator availability for graduates’ relates to fostering increased competence, skill acquisition and professional development. Romyn et al. (2009) and Dyess and Sherman (2009) postulated that the erosion of the nurse educator role impacts graduate nurses’ successful transition to practice and the ongoing skill development of other nurses.

Limitations

The method employed to access the recent graduates is a limitation of this study. The participating universities contacted students through their last known email account stored on the university data base. As a considerable period of time had elapsed since graduation for those who received email invitations to participate in the study, it is possible that graduates did not access their email accounts and those who accessed their email accounts were likely to be newer graduates. Hence, the recruitment strategy may have influenced the profile of the respondents. A further limitation was the convenience sample, use of self-report, and lack of information on non-responders. These limitations may introduce bias as the sample may not be representative of the population under study and self-reported recall can be inaccurate (Fitzpatrick and Wallace, 2006). Although the sample size was small in this study, it is adequate for an exploratory study. Mass and Hox (2005) identified that a sample greater than 50 is sufficient to prevent bias in estimates of standard error while Johanson and Brooks (2010) assert that 30 participants from a representative population of interest is a reasonable minimum recommendation for an exploratory preliminary survey.

Conclusions

This study explored the influence of workplace supports and relationships and their relation to graduate nurses’ medication errors and safe medication practices. Of note, the study findings identified the significance of disruptive nurse behaviour in eroding safe medication practices. These are important findings as to date no other studies have reported the influence of bullying and intimidation on graduate nurses’ safe medication practices. Furthermore, supportive NUM relationships were identified as an integral and important factor in influencing the safety outcomes of medication practices among graduate nurses. Few studies have examined the factors that function to moderate counterproductive workplace behaviours and their impact on patient safety. These findings can be employed to inform hypotheses to be tested through further larger scale research, and may usefully inform the development of undergraduate and continuing education programmes.

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