Nursing and midwifery students' self-medication practices in Victoria, Australia

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Disclosure

- **Authors:** Associate Professor Allison Williams, Katherina Puy, Dr Kimberley Crawford

- **Learner objectives:**
  - **#1:** The learner will be able to understand the prevalence of self-medication in these student nurses and midwives, reasons for and types of medications used and their views of the safety of self-medication.
  - **#2:** The learner will be able to understand the implications of these findings and recommendations for further research.

No conflict of interest
Background to self-medication

- Treatment of common health problems, with medications especially designed and labelled for use without medical supervision and approved as safe and effective for such use (World Self-Medication Industry, 2009)

- Major form of self-care with more people taking greater responsibility for their own health (Jain et al. 2011)

- Professional care for minor ailments often unnecessary & contributes to healthcare burden (World Self-Medication Industry 2007)

- Inappropriate self-medication risks antimicrobial resistance, adverse reactions & prolonged suffering (Bennadi 2014)
Literature review

- Increase in self-medicating, particularly among young, female adults (Gutema et al. 2011)
  - socioeconomic influences, lifestyle, change in treatment approaches & disease patterns, easy access to medications & ability to self-care (Abay & Amelo 2010; Shaghaghi et al. 2014)
  - internet → access to information & medications on-line (Desai et al. 2015)

- People with higher levels of education self-medicate more (Bashir et al. 2013)
  - increased personal autonomy when making health decisions & less confidence in doctors (Figueiras et al. 2000)

- Previous studies conducted on nursing & midwifery students in Brazil, India & Nigeria → most commonly for pain & using analgesics, NSAIDs, antibiotics & antipyretics (Ehigiator et al. 2013; Souza et al. 2011; Stephen et al. 2013)
Aim

- To describe the self-medication practices of student nurses & midwives at one campus in the state of Victoria (population 5.7 million) of Australia’s largest university.
  - upon graduation, nurses & midwives have a key role in educating patients about medication based on their own experience & education, which may negatively influence patient self-medication (Banjeree & Bhadury 2012; Sawalha 2008).
  - caring for student nurses & midwives who may neglect their own health in the busyness of their lives is necessary to ensure quality of care of patients & a stable, responsible workforce.
  - reducing error & harm from self-medication is a public health concern of global importance (Schmiedl et al. 2014).
Method

- A cross-sectional study design using a self-administered web survey adapted from the work of Klemenc-Ketis et al. (2010)
- 713 nursing & midwifery students invited to participate undertaking:
  - Bachelor of Nursing
  - Bachelor of Midwifery
  - combined Bachelor of Nursing/Bachelor of Midwifery
  - combined Bachelor of Nursing/Bachelor of Emergency Health
- Survey
  - brief demographic information
  - prevalence
  - reasons
  - types of medications
  - safety of self-medication
- Ethics approval prior to data collection between February & May 2014
- Data was analysed descriptively (SPSS, V. 20, Chicago) - *p <0.05
Results

- 120 students completed the survey (response rate 16.8%).
- 110 (91.6%) self-medicated in the past year
- 112 (93.3%) female, mean age 23.9 years (± 7.7) years & 79 (65.8%) were enrolled in Bachelor of Nursing degree

<table>
<thead>
<tr>
<th>Variable</th>
<th>Number (%) (n=120)</th>
<th>Practiced self-medication (%) †</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>112 (93.3)</td>
<td>105 (93.7)</td>
</tr>
<tr>
<td>Male</td>
<td>8 (6.7)</td>
<td>5 (62.5)</td>
</tr>
<tr>
<td><strong>Year of study</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First year</td>
<td>35 (29.2)</td>
<td>33 (94.2)</td>
</tr>
<tr>
<td>Second year</td>
<td>38 (31.7)</td>
<td>34 (89.5)</td>
</tr>
<tr>
<td>Third year</td>
<td>47 (39.2)</td>
<td>43 (91.5)</td>
</tr>
<tr>
<td><strong>Course</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelor of Nursing</td>
<td>79 (65.8)</td>
<td>69 (87.3)</td>
</tr>
<tr>
<td>Bachelor of Nursing/Midwifery</td>
<td>17 (14.2)</td>
<td>17 (100.0)</td>
</tr>
<tr>
<td>Bachelor of Nursing/EMHealth</td>
<td>20 (16.7)</td>
<td>20 (100.0)</td>
</tr>
<tr>
<td>Bachelor of Midwifery</td>
<td>4 (3.3)</td>
<td>4 (100.0)</td>
</tr>
</tbody>
</table>

† Note: percentage refers to the percentage of students within that group that self-medicated and not the percentage of the total student sample
Results cont.

- Main reason – ‘play an active role regarding their health’
- Mean medications consumed per student 5.54 (+ 2.4)
  - nearly half (n=46) reported using previously prescribed antibiotics
  - 19 reported taking benzodiazepines
- As students progressed through their degree they were more inclined to offer advice on taking medications
- 92.7% (n=102) obtained medication from
- Medication obtained from
  - pharmacy (n=102, 92.7%)
  - supermarket (n=72, 65.5%)
  - home medicine cabinet (n=68, 61.8%)
# Student self-reported health problems over the past year

<table>
<thead>
<tr>
<th>Condition</th>
<th>First Year (n=33)</th>
<th>Second Year (n=34)</th>
<th>Third Year (n=43)</th>
<th>Chi-square (P value)</th>
<th>All Students (n=110)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headache</td>
<td>32 (96.9)</td>
<td>33 (97.0)</td>
<td>42 (97.7)</td>
<td>p&gt;0.05</td>
<td>107 (97.3)</td>
</tr>
<tr>
<td>Sore throat</td>
<td>29 (87.8)</td>
<td>32 (94.1)</td>
<td>39 (90.7)</td>
<td>p&gt;0.05</td>
<td>100 (90.9)</td>
</tr>
<tr>
<td>Minor cuts, abrasions and blisters</td>
<td>30 (90.9)</td>
<td>31 (91.2)</td>
<td>37 (86.0)</td>
<td>p&gt;0.05</td>
<td>98 (89.1)</td>
</tr>
<tr>
<td>Cold or flu</td>
<td>31 (93.9)</td>
<td>32 (94.1)</td>
<td>35 (81.4)</td>
<td>p&gt;0.05</td>
<td>98 (89.1)</td>
</tr>
<tr>
<td>Muscle or joint pain</td>
<td>26 (78.8)</td>
<td>31 (93.9)</td>
<td>35 (81.4)</td>
<td>p&gt;0.05</td>
<td>92 (83.6)</td>
</tr>
<tr>
<td>Cough</td>
<td>28 (84.8)</td>
<td>29 (85.3)</td>
<td>34 (79.1)</td>
<td>p&gt;0.05</td>
<td>91 (82.7)</td>
</tr>
<tr>
<td>Back pain</td>
<td>23 (69.7)</td>
<td>30 (88.2)</td>
<td>31 (72.1)</td>
<td>p&gt;0.05</td>
<td>84 (76.4)</td>
</tr>
<tr>
<td>Stress</td>
<td>28 (84.8)</td>
<td>25 (73.5)</td>
<td>29 (67.4)</td>
<td>p&gt;0.05</td>
<td>82 (74.5)</td>
</tr>
<tr>
<td>Fever</td>
<td>25 (75.7)</td>
<td>23 (67.6)</td>
<td>31 (72.1)</td>
<td>p&gt;0.05</td>
<td>79 (71.8)</td>
</tr>
<tr>
<td>Stomach cramps</td>
<td>25 (75.7)</td>
<td>22 (64.7)</td>
<td>27 (62.8)</td>
<td>p&gt;0.05</td>
<td>74 (67.3)</td>
</tr>
<tr>
<td>Diarrhoea</td>
<td>23 (69.7)</td>
<td>23 (67.6)</td>
<td>26 (60.5)</td>
<td>p&gt;0.05</td>
<td>72 (65.4)</td>
</tr>
<tr>
<td>Fatigue</td>
<td>21 (63.6)</td>
<td>21 (61.8)</td>
<td>28 (65.1)</td>
<td>p&gt;0.05</td>
<td>70 (63.6)</td>
</tr>
<tr>
<td>Types of medications</td>
<td>First Year (n=33)</td>
<td>Second Year (n=34)</td>
<td>Third Year (n=43)</td>
<td>Chi-square (P value)</td>
<td>All Students (n=110)</td>
</tr>
<tr>
<td>----------------------------------------------------------</td>
<td>------------------</td>
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<td>----------------------</td>
</tr>
<tr>
<td>Analgesics</td>
<td>32 (97.0)</td>
<td>34 (100)</td>
<td>42 (97.7)</td>
<td>p&gt;0.05</td>
<td>108 (98.2)</td>
</tr>
<tr>
<td>Lozenges</td>
<td>23 (69.7)</td>
<td>30 (88.2) *</td>
<td>27 (62.8)</td>
<td>p&lt;0.05</td>
<td>80 (72.7)</td>
</tr>
<tr>
<td>Decongestants</td>
<td>19 (57.6)</td>
<td>24 (70.6)</td>
<td>25 (58.1)</td>
<td>p&gt;0.05</td>
<td>68 (61.8)</td>
</tr>
<tr>
<td>Antihistamine medications</td>
<td>17 (51.5)</td>
<td>18 (52.9)</td>
<td>23 (53.5)</td>
<td>p&gt;0.05</td>
<td>58 (52.7)</td>
</tr>
<tr>
<td>Creams and ointments</td>
<td>13 (39.4)</td>
<td>15 (44.1)</td>
<td>26 (60.5)</td>
<td>p&gt;0.05</td>
<td>54 (49.1)</td>
</tr>
<tr>
<td>Antibiotics that were prescribed for a previous health problem</td>
<td>15 (45.5)</td>
<td>16 (47.1)</td>
<td>15 (34.9)</td>
<td>p&gt;0.05</td>
<td>46 (42.2)</td>
</tr>
<tr>
<td>Topical corticosteroids</td>
<td>10 (30.3)</td>
<td>14 (41.2)</td>
<td>20 (46.5)</td>
<td>p&gt;0.05</td>
<td>44 (40.0)</td>
</tr>
<tr>
<td>Antacids</td>
<td>14 (42.4)</td>
<td>11 (32.4)</td>
<td>17 (39.5)</td>
<td>p&gt;0.05</td>
<td>42 (38.2)</td>
</tr>
<tr>
<td>Anti-diarrhoea</td>
<td>9 (27.3)</td>
<td>12 (35.3)</td>
<td>11 (25.6)</td>
<td>p&gt;0.05</td>
<td>32 (29.1)</td>
</tr>
<tr>
<td>Laxatives</td>
<td>4 (12.1)</td>
<td>5 (14.7)</td>
<td>17 (39.5) *</td>
<td>p&lt;0.01</td>
<td>26 (23.6)</td>
</tr>
<tr>
<td>Benzodiazepine</td>
<td>6 (18.2)</td>
<td>3 (8.8)</td>
<td>10 (23.3)</td>
<td>p&gt;0.05</td>
<td>19 (17.3)</td>
</tr>
</tbody>
</table>
Results cont.

- 90.0% (n=99) of students sought professional help because their symptoms worsened or they thought their problem was serious (n=96, 87.3%)

- 25.5% (n=28) sought professional help from side-effects from self-medicating

- Most agreed that the “simultaneous use of multiple medications, including herbal medications, can be potentially dangerous”

- More students agreed that increasing medication dosages was more dangerous than lowering doses
### Reasons for seeking professional help

<table>
<thead>
<tr>
<th>Reason</th>
<th>First Year (n=33)</th>
<th>Second Year (n=34)</th>
<th>Third Year (n=43)</th>
<th>All students (n=110)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symptoms are worsening</td>
<td>28 (84.8)</td>
<td>30 (88.2)</td>
<td>41 (95.3)</td>
<td>99 (90.0)</td>
</tr>
<tr>
<td>When you think that the problem is serious</td>
<td>31 (93.9)</td>
<td>31 (91.2)</td>
<td>34 (79.1)</td>
<td>96 (87.3)</td>
</tr>
<tr>
<td>Symptoms last for more than a week</td>
<td>26 (78.8)</td>
<td>29 (85.3)</td>
<td>38 (88.4)</td>
<td>93 (84.5)</td>
</tr>
<tr>
<td>Usual treatment is not effective</td>
<td>24 (75.0)</td>
<td>27 (79.4)</td>
<td>26 (60.5)</td>
<td>77 (70.6)</td>
</tr>
<tr>
<td>Presence of severe pain</td>
<td>23 (69.7)</td>
<td>23 (67.6)</td>
<td>29 (67.4)</td>
<td>75 (68.2)</td>
</tr>
<tr>
<td>Side effects</td>
<td>8 (24.2)</td>
<td>10 (29.4)</td>
<td>10 (23.3)</td>
<td>28 (25.5)</td>
</tr>
</tbody>
</table>
Discussion

- First study in a developed country & in Australia
- Main reason for self-medication was to play an active role in health → decrease healthcare burden
- Healthcare students have higher medication knowledge which may increase self-medication (da Silva et al. 2012; Klemenc-Ketis et al. 2010)
- Recognised danger of increasing doses & use with other medications
- As the student progressed through their degree, they were more likely to offer advice to others
- Most students reported that they did not want to go to the doctor because of long waits & short consultation → health services need to improve
Discussion cont.

- Health of our future nursing and midwifery workforce
  - high incidence of stress, fatigue and depression
  - average number of medications consumed considerably higher than elsewhere (Castel et al. 1997; Sawalha 2008)

- Multiple medications → risk of medication interaction
  - prejudicial medication-medication interactions expected to increase exponentially (Ruiz 2010)
  - no significant differences in number of medications consumed between the first & third year students
    - first years may not have sufficient knowledge to choose or consume medications wisely → risk of wrong or inadequate information
    - misplaced self-confidence may lead to inappropriate self-medication (James et al. 2006)
Discussion cont.

- As with this study, analgesics most commonly used (Hughes et al. 2001; James et al. 2006)
  - correlates with headache being the most common reason to self-medicate

- Most obtained medications from pharmacy followed by the supermarket
  - no professionally qualified person to provide advice at the supermarket- risk of inappropriate self-medication

- Students sought professional help as a result of medication side-effects
  - ? administering medication incorrectly
  - ? adverse medication reaction
Discussion cont.

- Self-medication with previously prescribed antibiotics high across all year levels
  - higher than in other research (Grigoryan et al. 2006)
  - participants non-adherent in the first instance
  - risk developing antibiotic resistance – a global problem (Sarkar & Gould 2006; Jain et al. 2011)
  - other studies have found a lack of general knowledge on correct antibiotic use (Azevedo et al. 2009)
Limitations

- Response rate was low
  - anonymous so no direct reminders
  - response rate of web based survey \(\rightarrow 11\%\) lower (Manfreda et al. 2008)

- Student answers cannot be validated

- May be differences in the practice of self-medication between respondents & non-respondents

- Survey did not explore
  - whether students used all medications appropriately
  - medication doses
  - multiple medications at the same time or whether levels were safe
Implications for practice

- Government & health authorities need to investigate & ensure that self-medication is done responsibly
  - more attention should be given to the practice of self-medicating with over-the-counter & prescribed medications

- A larger study to see if results are consistent
  - develop strategies to support safe & responsible use of medication for both nurses and their patients, in particular, antibiotics
Conclusion

- Self-medication common
- No differences among year levels, although final year students were more confident providing medication advice to others
- Students reported
  - using antibiotics for previous health problems & benzodiazepines which requires further investigation
  - high incidence of stress, fatigue & back pain
- Further investigation needed
  - health & wellbeing of our future nursing workforce students
  - patient education about medication-taking when graduated
  - safe & quality use of medications
References


Gutema GB et al. (2011) Self-Medication Practices among Health Sciences Students: The Case of Mekelle University. JAPS 1:183-189


