2018-05

Experiences of undergraduate nursing students in peer assisted learning in clinical practice: a qualitative systematic review

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http://hdl.handle.net/10026.1/10590

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The experiences of peer assisted learning (PAL) on the learning of undergraduate nursing students in clinical practice: A qualitative systematic review
--Manuscript Draft--

Cover Letter

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02/01/18

'The experiences of peer teaching on the learning of undergraduate nursing students in clinical practice: a systematic review'

Dear JBI editors and external reviewers,

Thank you for your comments regarding the original amendments. We have reviewed the feedback provided from the reviewer and made appropriate changes or further comments to each point identified. These have been documented within a table containing a list of changes, which can be correlated to the revised review.

We hereby claim that this work is my own as the corresponding author and was completed with the input and support of the co-authors. We can confirm that there were no conflicts of interest regarding this systematic review. All information and work undertaken within the review was completed with regards to ethical adherence.

If you have any queries, then please do not hesitate to contact me.

Kind regards

Matt

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Lecturer in Nursing: Child Health

The experiences of peer assisted learning (PAL) on the learning of undergraduate nursing students in clinical practice: A qualitative systematic review

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1 **Executive summary**

2 **Background**

3 Peer-assisted learning (PAL) considers the benefits of peers working in collaboration and
4 supporting each other in professional roles. This approach to facilitate learning is effective within
5 universities, but there is limited exploration within the clinical practice environment. Within the
6 UK 50% of student nurses' learning is undertaken within clinical practice, providing a large
7 portion of student allocation within these areas, but unexplored in relation to PAL. Therefore, it
8 was clear that existing evidence examining PAL in clinical practice needed further exploration
9 to understand its value on student nurses' learning.

10 **Objectives**

11 The objective of this qualitative systematic review was to identify and synthesize the best
12 available evidence related to experiences of peer assisted learning among student nurses in
13 clinical practice to understand the value PAL has for this population.

14 **Inclusion criteria**

15 ***Types of participants***

16 The systematic review considered studies that included male and female nursing students aged
17 between 18-50 years.

18 ***Phenomena of interest***

19 The review considered studies that explore undergraduate nursing students' experiences of
20 PAL within the clinical practice environment.

21 ***Types of studies***

22 This qualitative review considered studies that utilized designs such as phenomenology,
23 grounded theory, ethnography, action research and feminist research. Other text such as
24 opinion papers and reports were to be considered if no qualitative studies could be located. The
25 review excluded quantitative studies, as well as those addressing PAL outside of the nursing
26 profession and students within the nursing profession but not including undergraduate student
27 nurses.

28 ***Context***

29 This review considered studies that included aspects related to experiences of PAL in the
30 clinical practice setting, as seen by undergraduate nursing students and the researcher.

31 **Search strategy**

32   A three-step search strategy was undertaken to find both published and unpublished studies in
33   English from 2003-2017, searching various databases, and included searching of reference lists
34   within articles selected for appraisal.

35   **Methodological quality**

36   Each of the included studies were assessed for methodological quality independently by two
37   reviewers, using The Joanna Briggs Institute Qualitative Assessment and Review Instrument
38   (JBIQARI) Critical Appraisal Form for Interpretive and Critical Research.

39   **Data extraction**

40   The Joanna Briggs Institute Qualitative Assessment and Review Instrument (JBI-QARI) data
41   extraction tool was used to extract qualitative data.

42   **Data synthesis**

43   Qualitative research findings were synthesized using JBI-QARI.

44   **Findings**

45   From the eight included studies, 38 findings were extracted. These findings were further
46   aggregated into seven categories, and then into three synthesized findings. These three
47   synthesized findings are as follows:

48   ☐   Challenges of clinical practice are mitigated by peer support.

49   ☐   Support and feedback develops competence and confidence and reduces stress and anxiety.

50   ☐   Peers are role models for enhancing clinical knowledge.

51   **Conclusions**

52   Peer-assisted learning exists in clinical practice in both formal and informal circumstances.
53   Friendship and community are often expressed as occurring when peers work together.
54   Support and feedback help students develop in their clinical role and enhance clinical
55   knowledge. Outcomes include enhancing the competency and confidence of peers and
56   reducing stress and anxiety. Challenges of clinical practice are mitigated through PAL.

57   **Keywords**
58   Clinical practice; education; PAL, peer-assisted learning, undergraduate nursing

59

60 **Summary of findings**

<table>
<tr><td colspan="6">The experiences of peer assisted learning (PAL) on the learning of undergraduate nursing students in clinical practice: A qualitative systematic review

Population: undergraduate student nurses

Phenomena of interest: the experiences of PAL and teaching in the clinical environment

Context: undergraduate nurses undertaking their placements in the acute clinical setting</td></tr>
<tr><td>Synthesised finding</td><td>Type of research</td><td>Dependability</td><td>Credibility</td><td>ConQual score</td><td>Comments</td></tr>
<tr><td>Challenges of clinical practice are mitigated by peer support.</td><td>Qualitative</td><td>High</td><td>Down grade one level*</td><td>Moderate</td><td>*Downgraded one level due to mix of unequivocal (U) and credible (C) findings

7U + 1C</td></tr>
<tr><td>Peers are role models for enhancing clinical knowledge.</td><td>Qualitative</td><td>High</td><td>Down grade one level*</td><td>Moderate</td><td>*Downgraded one level due to mix of unequivocal (U) and credible (C) findings

10U + 2C</td></tr>
<tr><td>Support and feedback develops competence and confidence and reduces stress and anxiety.</td><td>Qualitative</td><td>High</td><td>Down grade one level*</td><td>Moderate</td><td>*Downgraded one level due to mix of unequivocal (U) and credible (C) findings

16U + 1C</td></tr>
</table>

61

62 **Background**

63 Peer-assisted learning (PAL) is an initiative in which peers work in collaboration and support each

64 other as they develop skills and knowledge related to their professional role. Topping defines peer

65 learning as the ''acquisition of knowledge and skill through active helping and supporting among

66 status equals or matched companions''.[1(p.630)] A peer is one who presents at a similar level of

67 development with another peer, with the sharing of learning and guidance between these persons

68 being more equitable.[1] The support of peers to facilitate learning has been used by universities for

69 many years.[1,2] There are many areas of terminology that are often associated with PAL, which include

70 ''peer teaching'',[3] ''peer support''[4] and ''peer mentoring''.[5,6] The variations between these terminology

71 often relate to the consideration of informal and formal roles of peer learning whereby in formal

72 examples such as peer teaching students are characterized by specific role taking.[1] The

73 consideration of mentoring is also one often associated with a set of specific roles performed. This is

74 usually in an encouraging and supporting one-to-one relationship between a worker who has more

75 knowledge and experience in a joint area of interest and a protégé.[7] This relationship or process is

76 characterized by both shared learning and a commitment to developing each other's professional

77   growth, features noted within the area of PAL.[1,7] However, the role of peer relationships has also seen

78   to exist in informal mentor roles identified through mutual identification and personal development

79   needs but unstructured to formal programmes of mentorship.[8] The roles of these individuals are often

80   not specific, but vary depending on the needs of both the mentor and protégé. However, important to

81   note is that informal mentoring can be represented by either a hierarchical role such as superior

82   learner to less experienced learner or peer (similar level of learning). [7]

83

84   Studies evaluating PAL within nursing suggest that it contributes to enhancement in the competence

85   of student learning and self-efficacy in clinical settings.[3,9] Evidence also suggests that student nurses

86   should be encouraged to become peer teachers.[10] Owen and Ward-Smith[11] evaluated the interactions

87   during simulated learning between third-year students playing the role of patients and mentors

88   alongside first year students providing care and receiving guidance from senior students. This near-

89   peer teaching approach provided a positive learning opportunity for all students and encouraged

90   knowledge and skills attainment.[11] Formal peer mentoring between second-year nursing student

91   mentors and first-year mentees within the academic environment appear to show benefits, as these

92   partnerships support the transition from university to nursing practice by preparing students to be

93   mentored in clinical settings and reducing students' anxiety.[2,6,12] Thus, PAL in nursing seems to be

94   beneficial to students' teaching and learning, although it has been argued that peers providing support

95   lack the level of experience of professional teachers and educators.[1]

96

97   The implementation of PAL among other health professional groups has been gathering momentum

98   for the last few years.[13] A literature review summarized the key concepts of PAL within the areas of

99   peer teaching, training and peer assessment among medical students.[14] However, when exploring

100   domains for learning within medical programs, it became clear that this mode of learning is rooted

101   within Higher Education Institutes (HEI) rather than the clinical environment.[13] Peer-assisted learning

102   has also been explored within Occupational Therapist education, although the evidence base remains

103   sparse. Such work identified that there are difficulties arising in placement areas when PAL is being

104   considered and these include that students are often placed singularly in clinical practice resulting in

105   limited contact with peers in the field.[15] Further exploration of the literature identified some

106   consideration of PAL within midwifery, albeit limited in nature. One study explored the perceived value

107   of PAL from perspectives of undergraduate midwifery students and paramedic students and revealed

108   that the approach served to provide respect and understanding of each other's roles.[16] The lack of

109   evidence of the benefits of PAL in healthcare professionals' education might be due to the differences

110   in education and practice experience between these quite diverse groups. Therefore, it is helpful to

111   explore more fully the structure or format of undergraduate nursing education programs to capture

112   why the uptake of PAL has been greater than for other professional groups.

113

114   Within the United Kingdom (UK), as in many other countries world-wide, nursing student learning is
115   not limited to taking place within HEIs alone. The UK's Nursing and Midwifery Council standards for
116   supporting learning in practice require that 50% of student learning must be undertaken within
117   practice.[17] The assessment of learning within these areas is undertaken primarily by registered nurse
118   mentors, who are responsible for providing learning opportunities, feedback and assessment of
119   competencies.[17] However, the quality of mentorship is variable, and the level or type of support given
120   can differ in many ways. For example, Andrews and Chilton[18] found that not all mentors see
121   themselves as teachers. Clinical workload can also limit opportunities for students to work together
122   with their mentors.[19,20] Such situations may leave students feeling nomadic in their placement areas,
123   resulting in students seeking out each other for further support.[21] Interestingly, as the intake sizes of
124   students have grown, particularly in the UK, with corresponding rising demand for clinical placements,
125   so too has the likelihood of nursing students being allocated to the same placement areas.[4] This
126   scenario provides more opportunity for PAL to occur.
127

128   Most of the learning that takes place in practice between nursing students has been labelled as
129   informal.[21] The recognition of potential gaps in time spent with qualified nursing mentors and the
130   missed opportunities to learn alongside them have led to formal studies of peer learning in practice.[6]
131   However, within these, there is a paucity of available evidence exploring the perceived value of PAL
132   and the students' interactions and behaviors within acute clinical settings. Campbell et al[22] were
133   among the first researchers to explore how student nurses learn together in clinical settings. Peer
134   support emerged as one of the most influential factors of student learning. Specific areas in which this
135   support was most beneficial encompassed the provision of emotional support, sharing of experience
136   to facilitate learning and using peers to support with physical tasks.[22] It was a further 10 years before
137   developments in the area of PAL began to produce specific research related to PAL within nursing.
138

139   When exploring the responsibilities of mentors,[17] it is clear that there is a lack of clarity around the
140   experiences of competence that may or may not exist between peers to facilitate learning.
141   Competence has been difficult to define in nursing;[23,24] however, Roach[25] defines it as ''the state of
142   having the knowledge, judgement, skills, energy, experience and motivation required to respond
143   adequately to the demands of one's professional responsibilities.''[25(p.3)] This should not be confused
144   with the process of assessing specific competencies of student nurses in practice.[26] Chojecki et al.[27]
145   found that the types of competencies that are developed by student nurses in clinical practice are
146   knowledge, critical thinking, professionalism and psychomotor and technical skills. Prion et al[28]
147   explored competencies of preceptees' (i.e. those new to either the profession or an organization) in
148   three areas; knowledge, practical skills and attitudes. Each of these are needed as part of the
149   students' professional growth and so if these competencies are not reflected through PAL, then the
150   experiences as well as influence of attitudes and behaviors of peers needs to be explored further.
151

152 Peer-assisted learning is gathering momentum in terms of its formal recognition within the UK and
153 internationally[12], however, for nursing education, the experiences of how PAL contributes towards
154 students' learning in practice require clarification in order to fully inform the rationale for the growth in
155 this approach to learning. With this in mind, a preliminary search of the literature identified numerous
156 qualitative studies, and a few quantitative studies, that focused on PAL (and its associated
157 approaches) within nursing. A previous qualitative systematic review[29] was located that explored the
158 value of peer-learning in undergraduate nursing education, but this did not explore the experiences of
159 PAL on nursing students' learning in the clinical environment. No other reviews were located.
160 Therefore, in order to address this gap in the evidence base, the systematic review reported here was
161 undertaken to synthesize the literature and aggregate key themes that have emerged in relation to
162 experiences of PAL among student nurses in clinical settings.
163
164 This review was conducted according to an *a priori* published protocol.[30]
165
166 **Objectives**
167
168 The objective of this qualitative systematic review was to identify and synthesize the best available
169 evidence related to experiences of peer teaching and learning among student nurses in the clinical
170 environment.
171 More specifically, the objectives were to:
172
173   ☐   Identify nursing students' experiences of PAL and teaching within the clinical setting.
174   ☐   Identify qualitative data that highlight the strengths and weaknesses of PAL among student
175   nurses in the clinical settings.
176   ☐   Explore whether experiences of PAL enhance the perceived competence of student nurses'
177   learning in clinical settings.
178
179 **Inclusion criteria**
180 ***Types of participants***

181 This qualitative review considered studies that included both male and female participants enrolled on
182 an undergraduate nursing programme, across all years and groups of study and the associated
183 terminology of undergraduate, junior or freshman/fresher, sophomore and senior nursing students. The
184 age of participants was those over 18 years to enable the inclusion of a range of adult learners. This
185 qualitative review also included participants across all associated fields of nursing including, child
186 health/pediatric, adult/general, mental health and learning disability.
187

188 ***Phenomena of interest***

189

190 This review considered studies that evaluated undergraduate nursing students' experiences of PAL

191 within the clinical practice environment. This included opportunities for learning and interaction linked

192 to associated terminology including; 'peer tutoring', 'peer mentoring' and 'peer support'. Studies that

193 give reference to and consideration towards student nurse peers working alongside each other in the

194 clinical practice setting were also considered.

195 ***Types of studies***

196 This review considered studies that focused on qualitative data including, designs such as

197 phenomenology, grounded theory, ethnography, action research and feminist research.

198 In the protocol, it was stated that if such research studies were not found then other text such as opinion

199 papers and reports were to be considered, however this was not necessary. The current review

200 excluded quantitative studies, as well as those studies addressing PAL outside of the nursing profession

201 and those that involved students within the nursing profession but did not include undergraduate student

202 nurses.

203 ***Context***

204 This review considered studies that included aspects related to experiences of PAL in the clinical

205 practice setting, as seen by undergraduate nursing students and the researcher.

206 **Search strategy**

207 The search strategy aimed to find both published and unpublished studies. A three-step search strategy

208 was utilized in this review. Following an initial limited search of the COCHRANE Central Trials Register,

209 ERIC, MEDLINE and CINAHL, analysis of the text words contained in the title and abstract, and of the

210 index terms used to describe the article was undertaken. The search for unpublished studies included

211 ProQuest Thesis and Dissertations. The COCHRANE Central Trials Register was explored only for

212 completeness, to identify any possible qualitative components of quantitative studies included in

213 systematic reviews on PAL. A second search using all identified keywords and index terms was

214 undertaken across all included databases.

215 The databases searched were:

216 ERIC, via EBSCOhost

217 MEDLINE, via EBSCOhost

218 CINAHL, via EBSCOhost

219 COCHRANE Central Trials Register

220 ProQuest Theses and Dissertations

221

222 Thirdly, the reference lists of all identified reports and articles were searched for additional studies. Only

223 those studies published in English were considered for inclusion in this review and there were limits

224   imposed to restrict the dates of the search; only studies published in the last 13 years between 2003 -
225   2017 were considered for inclusion in this review. Although the presence of PAL had been explored by
226   Topping, who studied the evidence from 1981 to 2006[1]; because of its application to clinical education
227   programmes, including nursing[31] it was not until 2003 that the need to explore peer support is formally
228   considered and acknowledged[4.] At this time practices related to the supervision and supporting of
229   student nurses by peer mentors, in clinical settings were becoming more prevalent. Details of the search
230   strategy process are located in in Appendix I.
231

232   **Method of the review**

233   Qualitative papers selected for retrieval were assessed by two independent reviewers for
234   methodological validity prior to inclusion in the review using the standardized critical appraisal
235   instrument from the Joanna Briggs Institute Qualitative Assessment and Review Instrument (JBI-
236   QARI).[32] Any disagreements that arose between the reviewers were resolved through discussion and
237   so a third reviewer was not needed.

238   **Data extraction**

239   Qualitative data were extracted from papers included in the review using the standardized data
240   extraction tool from JBI-QARI.[33] The data extracted included specific details about the populations,
241   study methods and findings significant to the review question and the phenomena of interest.

242   **Data synthesis**

243   Qualitative research findings were pooled using JBI-QARI. This involved the assembly of the findings
244   rated according to their quality, which were then categorized on the basis of similarity in meaning. These
245   categories were then subjected to an aggregated meta-was to produce a comprehensive set of
246   synthesized findings.

247   **Results**

248   ***Description of studies***

249   As shown in figure 1 (PRISMA [Preferred Reporting Items for Systematic Review and Meta-Analyses]
250   flow diagram) 567 articles were identified from a detailed systematic search process across a number
251   of selected databases. Five articles were identified through other sources. These articles were imported
252   from databases into End-Note bibliographic software whereby 50 duplicates were removed. After
253   removal of duplicates, a total of 522 titles and abstracts were screen for eligibility and 509 records not
254   relevant to the topic were excluded. The remaining 13 potentially relevant articles were subject to further
255   detailed assessment of eligibility by review of the full text. Five full-text articles were removed as they
256   did not meet the protocol criteria (see Appendix II). The remaining eight studies were included within
257   the qualitative appraisal.

258   **Figure 1**

259   ***Characteristics of included studies***

260   The studies included within the review were published during the period of 2004-2015. The participants

261   that were included within the studies included undergraduate student nurses from all levels and stages

262   of study, including sophomore student nurses. The studies included both male and female students

263   aged between 18-50 years of age.

264

265   The setting for the included studies was acute healthcare settings:

266

267   • Four of the studies were set within a single hospital with one clinical area[10,35,36,39]

268   • Two studies were in a single hospital with multiple wards[21,38]

269   • One of the studies was set within multiple hospitals within multiple wards[37]

270   • One study did not report the specific clinical practice setting[34]

271

272   Of the eight included studies, three different countries were represented within the review:

273

274   USA[12,35,36,39]

275   UK[21,37,38]

276   Iran[34]

277

278   A range of qualitative methodologies were represented in the studies listed below:

279

280   Content analysis[34]

281   Phenomenology[12,35]

282   Mixed methods survey[36,39]

283   Social constructionism[37]

284   Ethnography[21,38]

285

286   The stated phenomena of interest within the eight articles included within the review were broadly

287   categorized into two phenomena. The first was studies that were concerned with undergraduate

288   student's nurses experiences of PAL within the clinical practice setting.[21,34-38] The second category of

289   phenomena was related to undergraduate nursing students experiences of peer mentoring.[12,39] The

290   phenomena of interested was reasonably homogenous across all studies as they concerned

291   themselves with undergraduate student nurse experiences of peer learning. From the eight included

292   studies, six identified formal circumstances, in which undergraduate nursing students were purposively

293   paired with other student nurses in mentor roles.[12,34-37,39] The remaining two studies explored

294   interactions outside of formal circumstances. [21,38]

295

296   A table of characteristics of included studies can be found in Appendix III.

297

298   ***Methodological quality***

299

300   From the assessment of methodological quality, criteria 1,3,4,5 all of which relate to the philosophical

301   perspective, congruity between research methodology and methods as well as representation of

302   analysis and interpretation of these results, were met by all included studies (see Table 1). Congruity

303   between the research methodology and the research question in criteria 2 was clear in all, but four of

304   the included articles.[12,34,37,39] In criteria 6, a statement locating the researcher culturally or theoretically

305   was not included in any of the articles. The influence of the researcher on the research, within criteria

306   7, had only been addressed in one of the articles.[36] Additionally the assessment of criteria 8, which

307   relates to the representation of the participants' voices, was addressed in all but one of the included

308   studies.[37] Consideration of ethics and clear indication of ethical approval and process outlined in

309   criteria 9 was clear in all but two studies.[12] Finally, within criteria 10 all but one of the included articles

310   demonstrated clear examples of conclusions that flow from the analysis and the interpretation of the

311   data. [39]

312

313   **Table 1**

314   **Findings of the review**

315   From the eight included studies, 37 findings were extracted through JBI-QARI (Appendix IV). For each

316   of these 37 findings, a level of credibility was assigned from the following choices to indicate the level

317   of support: Unequivocal [U], Credible [C] and Unsupported [US] (Appendix V). Of these, 33 were

318   considered to be 'Unequivocal' evidence, with the remaining four assigned as being 'Credible' evidence.

319   All findings were synthesized and assigned to seven categories based upon their similarity in relevance.

320   One of the findings was not included within a category as it did not align to any of them. These seven

321   categories were then further combined through meta-aggregation into three synthesized findings. A

322   table of the extracted findings for each study can be viewed in Appendix IV.

323   The three synthesized findings were: ''Challenges of clinical practice are mitigated by peer support.'',

324   ''Peers are role models for enhancing clinical knowledge'' and ''Support and feedback develops

325   competence and confidence and reduces stress and anxiety.'' A full overview of the findings linked to

326   categories and synthesized findings can be seen in Appendix VI. Each of the synthesized findings will

327   now be reported more fully.

328

329

330   Synthesized finding 1:

331   Synthesized finding 1; ''Challenges of clinical practice are mitigated by peer support.'' was created from
332   the aggregation of two categories, underpinned by eight extracted findings. Overall, students reported
333   feelings of being isolated when first coming into the clinical practice environment, and they struggled to
334   find a balance when working solo as they were often pulled in various directions by other clinical staff.
335   Nursing students appear to find solace and support by forming their own communities and friendships
336   with other student nurses when in clinical practice.

337   The first category 'Navigating the course in clinical practice', is developed from two extracted findings:
338   'Gaining acceptance' and 'The challenges of initial practice experience', which capture how students
339   struggle to find the balance in their role and feel isolated when working alone in a new clinical practice
340   experience.

341   The second category 'Connecting with peers to create bonding and mutual support', is developed from
342   a total of six findings: 'Birds of a feather flock together: students converge together, particularly when
343   they find themselves alone or when their mentors are busy elsewhere', 'Friendship and learning in
344   clinical practice', 'Learning with peers', 'Socialization practice', 'The students develop an 'ask anything'
345   culture where they see each other as valuable sources of information' and 'The students see each other
346   as a discrete group which only fellow students can understand and so develop their own parallel
347   community to help each other: 'being in the same boat'. These findings reflect how peers naturally form
348   the friendships needed and practice socialization to use each other as resources. Through these
349   actions, they develop their own specific communities.

350   Synthesized finding 2:

351   Synthesized finding 2; ''Peers are role models for enhancing clinical knowledge'' was aggregated from
352   two categories, derived from 12 extracted findings. This summarizes that peers use each other as role
353   models for modeling and enhancing their knowledge of care, although there is some indication of
354   difficulty in defining each other's role when working together.

355   The first category 'Enhancing knowledge of care', is derived from nine extracted findings: 'Affective
356   modeling of care', 'Curricular staging for novices', 'Hands on modeling of care for mentors', 'Improved
357   understanding of the clinical educator role', 'Knowledge is not necessarily linked to seniority', 'Mentees
358   perceive an active role modeling of care', 'Peer learning provides first learning efficacy', 'Improving
359   clinical judgment', 'Time management and prioritization of care'. Together these findings reflect how
360   peers work together to develop their clinical knowledge and skills, as well as their judgement to model
361   effective care.

362   The second category 'Complex choices when sharing learning opportunities' is derived from three
363   extracted findings: 'Challenges of student role in dyad', 'Difficulty in negotiation of task', 'Peer
364   exploitation'. These findings capture some of the challenges experienced by peers when working
365   together, which are largely centered on undefined roles when engaging in PAL.

366   Synthesized finding 3:

367   Synthesized finding 3; ''Support and feedback develops competence and confidence and reduces
368   stress and anxiety'' was aggregated from three categories, formed from 17 findings. Student nurses,
369   who work alongside each other as peers in clinical practice, use each other for support and feedback
370   to enable them to develop their competence and confidence, as well as to reduce feelings of stress and
371   anxiety.

372   The first category: 'Support and reassuring learning from mentors', is derived from four findings 'Clinical
373   instructor had a role to play in student learning', 'Mentees received reassurance from senior mentors',
374   'Patient role in student learning' and 'Personal growth and development'. These findings, together with
375   their extracted data, capture how students gain support and reassurance from their peers and those
376   acting as mentors.

377   The second category 'Increasing confidence/reducing anxiety and stress', is developed from a total of
378   seven extracted findings: 'Decreased anxiety and increased confidence', 'Paradoxical dualism',
379   'Improved self-confidence', 'Improved self-confidence', 'Positive support from peers', 'Reduced anxiety'
380   and 'The teaching role provided a positive change'. These findings reflect how peer learning and support
381   have perceived positive benefits in decreasing stress and anxiety and improving self-confidence.

382   The third category 'Complimentary learning aids clinical skill development', was derived from six
383   findings: 'Developing clinical skills', 'Increased efficiency with tasks', 'Overwhelming the patient',
384   'Survival skills', 'Teaching how to care' and 'Team working and collaboration'. These findings
385   summarize the impact of PAL on clinical skills development. It highlights the main benefits from positive
386   support provided by peers.

387   **Discussion**

388   The purpose of this qualitative systematic review was to explore the experiences of PAL undertaken to
389   enhance the learning of undergraduate student nurses in clinical practice. The focus of this review took
390   into consideration both formal and informal circumstances of PAL and its associated terminology.
391   Studies that were included for analysis contained a mixture of formal and informal examples of PAL.
392   Formal circumstances were identified in six of the included studies, in which undergraduate nursing
393   students were purposively paired with other student nurses in mentor roles.[12,34-37,39] However, two of
394   the studies explored peer learning outside of these formal structures, whereby undergraduate nursing
395   students found themselves in contact with other peers when allocated to the same clinical practice
396   placement areas, but not in a mentorship capacity.[21,38] Such occasions arose by chance, rather than
397   formal process. In reports from one study, students expressed their experiences of working solo and
398   described feelings related to anxiety and isolation, especially when coming into a new clinical
399   placement:

400   ''It was crazy, it was really busy but just coming into the hospital alone, it's massive… loads of

401   people… I felt lost at first and had knots in my stomach."[37(p.806)]

402   Formal roles of senior to junior peers were evident from the included studies that explored formal
403   parings, however, the review found that learning is not only linked to seniority:

404   "Where you are in your training holds no significance since you are often able to offer guidance
405   to a student who is further on than yourself, just as much as you can gain from someone who
406   is less experienced. It depends more on the individual experiences you have as a student and
407   not on the amount of time you've been training."[38(p.370)]

408   For most students, bonds and friendships formed naturally through their role as student nurses:

409   "I have found the company of fellow students while on clinical placement to be very reassuring.
410   A new placement, whether it is my first or last, is always daunting. Students tend to stick
411   together and swap experiences and anecdotes."[21(p.37)]

412   This led to the development of peer communities within clinical areas. From the development of these
413   communities, students were able to connect with their peers to create bonding and to find both mutual
414   support and guidance, findings that emerged across multiple studies.[21,34,37,38] Furthermore, it has been
415   noted how the formation of friendships and communities has been valuable for social gain, through
416   more formal pairings of peer learners in the academic environment. Loke and Chow,[40] in their study
417   pairing of senior to junior student nurses, reported experiences of positive benefits in socialization with
418   other students. Both student groups appreciated the chance to expand their circle of friends and
419   experienced value in the friendships that developed through these parings.

420   One area where students were able to develop their practical learning was in the enhancement of their
421   clinical skills. Examples included practical skills, such as manual handling[35] and vital sign monitoring:

422   "She asked about the BP/TPR [blood pressure/temperature, pulse and respiration] chart which
423   I subsequently described and introduced her to. I found this really useful because it made me
424   re-examine how I had been introduced to the chart on the ward and the way in which it had
425   been explained to me. Describing to another student the basics of blood pressure and pulse,
426   and also the importance of respiratory obs [observations] made me more aware of how
427   important it is to get a sound initial grasp of a subject before feeling able to embark on
428   attempting to understand it further."[21(p.40)]

429   There were also examples of developing competence in the areas of task efficiency[33] and team
430   working.[36] Beyond practical skills, students were able, through PAL, to develop their competence in
431   aspects of time management and prioritization of care, to enhance their overall knowledge of care:

432   "Having to explain why I was doing what I was doing helped me to realize to prioritise
433   better."[36(p.201)]

434   Students reported how their development of clinical knowledge arose as a result of role modeling of
435   care from those peers who acted as mentors to other students.[12,35,36] Similar benefits were found in one

436 study between peer support and learning offered during clinical skills practice.[41] Within the clinical skills
437 laboratory, small peer groups of students reported experiences of enhancement of clinical skills
438 proficiency through the learning obtained from other peers.

439 The experiences of students through PAL were reflected in the perceived increased confidence that
440 emerged across multiple studies:

441   "I was nervous to have someone follow me around at first. But I ended up feeling more confident
442   knowing that I have someone experienced by my side."[36(p.201)]

443 The review findings capture the origins of this confidence, which came from the mutual understanding,
444 amongst peers, of knowing what it was like to be a student nurse in the clinical practice
445 environment.[12,34,35] However, it was also clear that senior students were able to reflect on their own
446 development through supporting other peers, and thus increase their own confidence.[12,39] Alongside
447 the increase in confidence arising from PAL, students also appeared to reduce their feelings of stress
448 and anxiety:

449   "I kind of liked working in pairs. It kind of helped me not be so scared and helped build my
450   confidence. It's easier to ask a student for help sometimes than an instructor just because they
451   are on the same level as you."[35(p.4)]

452 After some initial fears of being paired with peers, students soon expressed positive feelings from the
453 support provided by another peer working alongside them.[34-36,39] This example of increased confidence
454 was also captured by Goldsmith et al,[9] who evaluated peer learning partnerships between senior and
455 junior peers in clinical skills settings. The authors noted an increase in student confidence who valued
456 these experiences. Multiple studies also make references to increased confidence and reduced anxiety
457 through the benefits and experiences of PAL in both academic and clinical skills envionments.[41-42,43]
458 Interestingly, one quantitative study that used questionnaires to capture student nurse experiences of
459 informal peer group learning, reported feelings of increased anxiety. However, the study does not
460 capture or report on the rationale for these anxieties.[44]

461 This review identified examples of two-way partnerships among the peer groups. Many of the students
462 who acted as peer mentors in formal roles were able to develop their learning, particularly in the area
463 of providing reassuring guidance and support to other peers:

464   "I felt like I wasn't going to do anything detrimental because if I was about to do something
465   completely wrong someone was there to say, 'Whoa. Don't do that."[12(p.395)]

466 Junior peer mentees were also able to provide positive feedback to senior peer mentors to encourage
467 recognition of their personal growth and development:

468   "I felt good when a first year came up to me and said 'thanks I've really learned a lot today,
469   you really did well'… it felt great to get that kind of recognition."[37(p.808)]

470 One outcome, as expressed by one of the junior peers, related to how PAL helped to develop their

471 experience and prepare them for solo working in the future.[35] Furthermore, peers viewed each other as
472 role models for care provision or delivery; further examples of two-way learning partnerships.[12] The
473 enhancement and positive recognition of learning and personal growth is something that has also been
474 captured in learning partnerships between nursing students within the academic environment.[40] Loke
475 and Chow[40] evaluated formal sessions between senior and junior peers, and noted that student
476 experiences reported how support from others helped enhanced their personal growth and
477 development. This was also perceived by students to be beneficial to help them in their future working
478 lives. Goldsmith et al[9] captured the same positive response arising from student experiences of
479 perceived opportunities for personal growth through peer learning partnerships in clinical skills settings.
480 Furthermore, positive experiences, linked to giving and receiving feedback and constructive criticism,
481 had also been captured between groups of peers from the same year group in clinical skills settings.[41]

482 Student nurse peers, especially those in a senior peer mentor capacity, recognized and expressed a
483 new appreciation for the clinical educator role.[35,36] However, it is also important to note some of the
484 challenges that were expressed by undergraduate nursing student peers. These arose occasionally in
485 the area of accurately defining the roles of peers within the same pairs.[34,35] This was evident in aspects
486 of clinical task allocation.[34,35] In these instances, it was noted by one peer that their partner was keen
487 to take on the lion share of the clinical activity:

488   "The peer's role should be more supervisory than duty performance. One of the problems of
489   my peer was that instead of giving me a chance to do the work, he tried to do all the activities
490   by himself."[34(p.5)]

491 However, it reflected how it was difficult to negotiate the task as each peer wanted the experience
492 largely for themselves and not to enter into the role of spectator:

493   "I felt, for instance, one of our patients needed their Foley removed and you have to choose
494   who's going to do it because you both can't do it. So that was kind of hard because it was like
495   you knew you would really get the full experience of getting to try everything. You had to decide
496   who was going to get to do it (…) I like to do things. I would rather get the opportunity to do
497   everything for that patient rather than sit and watch somebody else do it."[35(p.5)]

498 Some students also reported missed learning opportunities, due to the personality of their peers who
499 tended to dominate the learning opportunities rather than share out the experiences with their
500 counterparts:

501   "Since you're probably doing half of everything, [you] kind of miss out on some of the learning
502   because you're not doing everything first hand. If there's a more dominant personality in the
503   pair then that person tends to do more of the talking and take more of the initiative than the
504   other person… But if you tend to let the other person take control then I think it could detract
505   from your personal learning because you don't do it first hand and so you don't realize that you
506   are not learning. Sometimes I'll be watching something and I'll think like, "Oh yeah, I'm getting

507   this" and then when you go to do it on your own it's totally different.''[35(p.6)]

508   Interestingly, it was noted within the findings, that these challenges faced arose from some of the

509   studies that implemented formal parings of peers.[35,36] However, despite the evidence of these

510   challenges, it was still clear that they were surpassed by the benefits that PAL had to offer as an overall

511   concept. Further examples of mismatch in personalities were noted in a study that considered the

512   learning partnerships between junior and senior peer pairings to support nursing activities within the

513   academic environment. Both groups of students experienced missed opportunities of learning due to

514   lack of preparation, direction, differences in personalities and mismatched styles of learning.[40]

515   A limitation of this review that must be acknowledged is that all but one of the included studies were

516   conducted in the western world (USA and UK). Therefore it is important to note that the terminology

517   linked to and associated with PAL may differ and have different connotations internationally. Further

518   review of the outlying study revealed that PAL was defined very similarly to that of the western

519   interpretation[1] in that it was described as a two-way reciprocal learning process amongst an equal to

520   include the sharing of knowledge, ideas and experiences to benefit groups of both peer and student.[34]

521   Despite this, the wider application of these findings should still be considered as being limited to western

522   society and, therefore, further research may be required.

Conclusion

524   Overall, it is clear that this systematic review indicates that there is experiential evidence supporting the

525   belief that getting involved with PAL in clinical settings is beneficial for student nurses. Peer-assisted

526   learning amongst undergraduate nursing students exists in clinical practice in both formal and informal

527   circumstances. Furthermore, students experience friendship and develop a sense of community from

528   working together as peers, and that these benefits are cemented by the shared understanding of what

529   it is like to be a student nurse on placement within the clinical environment. Peers are perceived to

530   provide and be provided with adequate support and feedback to help other nursing students develop

531   as effective practitioners in the clinical setting. The evidence indicates examples of shared experiences

532   of how they used each other as role models to enhance the development of their clinical knowledge

533   and skills. This was seen in particular in the area of clinical skills teaching. Further, these shared

534   experiences demonstrate that PAL is valuable in enhancing the perceived competency and confidence

535   of peers and thus reduces associated stress and anxiety. Many of the challenges of being a learner in

536   clinical practice are mitigated through PAL; however, some issues have emerged from the evidence, in

537   relation to students who experienced examples of dominating personalities, as well as the lack of clarity

538   related to role allocation within the formal mentor-mentee dyad. These notwithstanding, it is clear that

539   the perceived benefits outweigh the perceived challenges and thus go a long way to support PAL as a

540   useful concept in clinical practice.

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543 *Implications for practice*

544 ☐ Healthcare organizations need to be made aware of the role that PAL has in enhancing the
545   experiences of undergraduate student nurses in the clinical environment (Grade A – Appendix
546   VII).

547 ☐ Healthcare organizations should consider how they can develop clinical practice areas to
548   become effective and nurturing environments for undergraduate student nurses to work
549   together with their peers within both the formal and informal clinical context (Grade A –
550   Appendix VII).

551 *Implications for research*

552 Drawing from the synthesized findings of the systematic review, recommendations for research arise
553 that consider further the experiences of PAL on enhancing the learning of undergraduate nursing
554 students in clinical practice:

555 ☐ In light of the paucity of evidence related to participant observation, further ethnographic
556   research that captures the experiences of informal learning amongst peers in clinical practice
557   is warranted and would add to the current body of literature.

558 ☐ Further longitudinal research that explores the experiences of PAL across multiple clinical
559   areas would inform the existing evidence base.

560 ☐ Further research is needed to determine whether engaging in formal and informal peer mentor
561   partnerships in PAL have different effects on the experiences and outcomes of undergraduate
562   nursing students.

563 ☐ Further research is needed to consider the implications of personalities on the experiences and
564   outcomes of student nurses engaging in PAL.

565 ☐ Further research is needed that consider the patients experiences when being cared for by
566   students engaging in PAL.

567

568 **Conflict of interest**

569 There were no conflicts of interests regarding this systematic review.

570 **Acknowledgements**

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References

1. Topping KJ. Trends in peer learning. Educ Psychol 2005;25(6):631–45.

2. Gilmour J, Kopeikin A, Douche´ J. Student nurses as peermentors: congeniality in practice. Nurse Educ Pract 2007;7(1):36–43.

3. Brannagan K, Dellinger A, Thomas J, Mitchell D, Lewis-Trabeaux S, Dupre S. Impact of peer teaching on nursing students: perceptions of learning environment, self-efficacy, and knowledge. Nurse Educ Today 2013;33(11):1440–7.

4. Aston L, Molassiotis A. Supervising and supporting student nurses in clinical placements: the peer support initiative. Nurse Educ Today 2003;23(3):202–10.

5. Yates P, Cunningham J, Moyle W, Wollin J. Peer mentorship in clinical education: outcomes of a pilot programme for first year students. Nurse Educ Today 1997;17(6):508–14.

6. Li HC, Wang LS, Lin YH, Lee I. The effect of a peer-mentoring strategy on student nurse stress reduction in clinical practice. Int Nurs Rev 2010;58(2):203–10.

7. Tourigny L, Pulich M. A Critical Examination of Formal and Informal Mentoring Among Nurses. Health Care Manag 2005;24(1):68-78.

8. Kram KE, Isabella LA. Mentoring alternatives: the role of peer relationships in career development. Acad Manage J. 2000;43(6):1177-94.

9. Goldsmith M, Stewart L, Ferguson L. Peer learning partnership: an innovative strategy to enhance skill acquisition in nursing students. Nurse Educ Today 2006;26(2):123–30.

10. McKenna L, French J. A step ahead: teaching undergraduate students to be peer teachers. Nurse Educ Pract 2011;11(2):141–5.

11. Owen A, Ward-Smith P. Collaborative learning in nursing simulation: near-peer teaching using standardized patients. J Nurs Educ 2014;53(3):170–3.

12. Giordana S, Wedin B. Peer mentoring for multiple levels of nursing students. Nurs Educ Perspect 2010;31(6):394–6.

13. Furmedge DS, Iwata K, Gill D. Peer assisted learning beyond teaching: how can medical students contribute to the undergraduate curriculum? Med Teach 2014;36(9): 812–817.

14. Burgess A, McGregor D, MellisC. Medical Students as peer tutors: a systematic review BMC Med Educ 2014;14(1):115.

15. Thomas A, Storr C. Web CT in occupational therapy clinical education: implementing and evaluating a tool for peer learning and interaction. Occup Ther Int 2005;12(3):162–79.

16. McLelland G, McKenna L, French J. Crossing professional barriers with peer-assisted learning: undergraduate midwifery students teaching undergraduate paramedic students. Nurse Educ Today 2013;33(7):724–8.

17. Nursing and Midwifery Council. Standards to support learning and assessment in practice. 2009; [internet]. [cited 2015 September 6]. Available from: http://www.nmc-uk.org/Documents/Standards/nmcStandardsTo-SupportLearningAndAssessmentInPractice.pdf

18. Andrews M, Chilton F. Student and mentors perceptions of mentoring effectiveness. Nurse Educ Today 2000;20(7):555–562.

19. Lloyd-Jones M, Walters S, Akehurst R. The implications of contact with the mentor for preregistration nursing and midwifery students. J Adv Nurs 2001;35(2):151–60.

20. Hurley C, Snowden S. Mentoring in times of change. Nurs Crit Care 2008;13(5):269–75.

21. Roberts D. Learning in clinical practice: the importance of peers. Nurs Stand 2008;23(12):35–41.

22. Campbell I, Larrivee L, Field PA, Day R, Reutter L. Learning to nurse in the clinical setting. J Adv Nurs 1994;20(6):1125–31.

23. Bradshaw A. Defining 'competency' in nursing (part I): A policy review. J Clin Nurs 1997;6(5):347–54.

24. Maylor M. A curriculum to ensure nursing staff competency. Br J Nurs 2012;21(15):10–7.

25. Roach. RCN competencies: integrated core competence framework for registered nurses. 2015; [internet]. [cited 2016 July 18]. Available from: https://www.rcn.org.uk/__data/assets/pdf_file/0005/276449/003053.pdf (date accessed 5th November 2015).

26. Gallagher P, Smith T, Ousey K. Problems with competence assessment as it applies to student nurses. Nurs Educ Prac 2012;12(6):301–3.

27. Chojecki P, Lamarre J, BuckM, St-Sauveur I, Eldaoud N, Purden M. Perceptions of a peer learning approach to pediatric clinical education. Int J Nurs Educ Sch 2010;7(1):1–14.

28. Prion S, Berman A, Karshmer J, Van P, Wallace J, West N. Preceptor and self-evaluation competencies among new RN graduates. J Contin Educ Nurs 2015;46(7):303–8.

29. Stone R, Cooper S, Cant R. The value of peer learning in undergraduate nursing education: a systematic review. 2013 Int. Sch. Res. Notices Nurs 2013;2013:930901

30. Carey MC, Kent B, Latour JM. The role of peer-assisted learning in enhancing the learning of undergraduate nursing students in clinical practice: a qualitative systematic review protocol. JBI Database System Rev and Implement Rep 2016;14(7): 117-123.

31. Secomb A. A systematic review of peer teaching and learning in clinical education. J Clin Nurs 2008;17(6):703-716.

32. Lockwood C, Munn Z, Porritt K. Qualitative research synthesis: methodological guidance for systematic reviewers utilizing meta-aggregation. Int J Evid Based Healthc. 2015;13(3):179–187.

33. Lockwood C, Porrit K, Munn Z, Rittenmeyer L, Salmond S, Bjerrum M, Loveday H, Carrier J, Stannard D. Chapter 2: Systematic reviews of qualitative evidence. In: Aromataris E, Munn Z (Editors). *Joanna Briggs Institute Reviewer's Manual.* The Joanna Briggs Institute, 2017. Available from https://reviewersmanual.joannabriggs.org/

34. Ravanipour M, Bahreini M, Ravanipour M. Exploring nursing students' experience of peer learning in clinical practice. J Educ Heath Promot 2015;4(46):1-12.

35. Austria MJ, Baraki K., Doig A.K. Collaborative learning using nursing student dyads in the clinical setting. Int J Nurs Educ Scholarsh 2013;10(1):1-8.

36. Harmer BM, Huffman J, Johnson B. Clinical Peer Mentoring. Nurse Educ 2011;36(5):197-202.

685 37. Christiansen A, Bell A. Peer learning partnerships: exploring the experience of pre-registration
686 nursing students. J Clin Nurs 2010;19(5-6):803-810.
687
688 38. Roberts D. Friendship fosters learning: the importance of friendships in clinical practice. Nurse
689 Educ Pract 2009;9(6):367-371.
690
691 39. Sprengel AD, Job L. Reducing student anxiety by using clinical peer mentoring with beginning
692 nursing students. Nurse Educ 2004;29(6):246-250.
693
694 40. Loke AJ, Chow FL. Learning Partnership-the experience of peer tutoring among nursing students:
695 A qualitative study. Int J Nurs Stud 2007;44(2):237-44.
696
697 41. Rush S, Firth T, Burke L, Marks-Maran D. Implementation and evaluation of peer assessment of
698 clinical skills for first year student nurses. Nurse Educ Pract 2012;12(4):219-26.
699
700 42. Broscious SK, Saunders DJ. Peer coaching. Nurse Educ 2001;26(5):212-4.
701
702 43. Daley LK, Menke E, Kirkpatrick B, Sheets D. Partners in practice: a win-win model for clinical
703 education. J Nurse Educ 2008;47(1):30-2.
704
705 44. Hughes LC, Romick P, Sandor MK, Phillips CA, Glaister J, Levy K, Rock J. Evaluation of an
706 Informal Peer Group Experience on Baccalaureate Nursing Students' Emotional Well-Being and
707 Professional Socialization. J Prof Nurs 2003;19(1):38-48.

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Search id: (e.g. S1: Search one)	results
S1: peer learn*[ti,ab]	2,367
S2: peer mentor*[ti,ab]	640
S3: peer tutor*[ti,ab]	587
S4: peer support[ti,ab]	1,465
S5: peer assisted learning[ti,ab]	159
S6: S1 OR S2 OR S3 OR S4 OR S5	4,471
S7: DE: ''Peer Teaching''	4,403
S8: DE ''Peer Groups''	2,457
S9: S6 OR S7 OR S8	10,127
S10: nursing student* OR student nurse*[ti,ab]	2,910
S11: nursing undergraduate OR nurse undergraduate*[ti,ab]	283
S12: S10 OR S11	3,005
S13: DE ''Undergraduate Study''	12,443
S14: S12 OR S13	15,353
S15: clinical environment[ti,ab]	199
S16: practice environment[ti,ab]	1,600
S17: ward environment[ti,ab]	12
S18: S15 OR S16 OR S17	1,798
S19: S9 AND S14 AND S18	**2**
Legend: • DE-Descriptors [exact] • ti,ab-title, abstract	

738 **Appendix I: Search strategy**

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741 **Database: ERIC, search date 22/11/17, final results: 2**

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750   **Database: CINAHL, search date 23/11/17, final results: 225**
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Search id: (e.g. S1: Search one)	results
S1: peer learn*[ti,ab]	727
S2: peer mentor*[ti,ab]	487
S3: peer tutor*[ti,ab]	147
S4: peer support[ti,ab]	3,113
S5: peer assisted learning[ti,ab]	95
S6: S1 OR S2 OR S3 OR S4 OR S5	4,182
S7: (MH: ''Peer Group'')	9,535
S8: (MH: ''Learning+'')	80,014
S9: (MH: ''Learning Methods+'')	15,352
S10: S6 OR S7 OR S8 OR S9	91,507
S11: nursing student* OR student nurse*[ti,ab]	40,796
S12: nursing undergraduate* OR nurse undergraduate*[ti,ab]	4,126
S13: S11 OR S12	41,710
S14: (MH: ''Students, Nursing+'')	28,698
S15: S13 OR S14	41,845
S16: clinical environment[ti,ab]	4,300
S17: practice environment[ti,ab]	3,397
S18: ward environment[ti,ab]	397
S19: S16 OR S17 OR S18	7,682
S20: (MH: ''Learning Environment, Clinical+'')	1,689
S21: S19 OR S20	7,682
S22: S10 AND S15 AND S21	**225**
Legend: • MH-Exact subject heading • +-explode all trees	

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758 **Database: Medline, search date 23/11/17, final results: 134**
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Search id: (e.g. S1: Search one)	results
S1: peer learn*[MeSH,ti,ab]	884
S2: peer mentor*[MeSH,ti,ab]	555
S3: peer tutor*[MeSH,ti,ab]	204
S4: peer support[MeSH,ti,ab]	3,560
S5: peer assisted learning[MeSH,ti,ab]	182
S6: S1 OR S2 OR S3 OR S4 OR S5	4,855
S7: (MH: ''Peer Group+'')	17,372
S8: (MH: ''Learning+'')	335,982
S9: S6 OR S7 OR S8	354,935
S10: nursing student* OR student nurse*[MeSH,ti,ab]	30,831
S11: nursing undergraduate* OR nurse undergraduate*[MeSH,ti,ab]	3,569
S12: S10 OR S11	31,673
S13: (MH: ''Students, Nursing'')	20,941
S14: S12 OR S14	31,673
S15: clinical environment[MeSH,ti,ab]	5,566
S16: practice environment[MeSH,ti,ab]	2,950
S17: ward environment[MeSH,ti,ab]	471
S18: S15 OR S16 OR S17	8,669
S19: S9 AND S14 AND S18	**134**
Legend: • MeSH-Medical Subject Heading • MH-Exact subject heading • +-explode all trees	

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772 **Database: COCHRANE Central Trials Register, search date 23/11/17, final results: 203**
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Search id: (e.g. #1: Search one)	Results
#1: peer learn*[ti,ab,kw]	426
#2: peer mentor*[ti,ab,kw]	286
#3: Peer tutor*[ti,ab,kw]	166
#4: Peer support[ti,ab,kw]	5662
#5: Peer assisted learning[ti,ab,kw]	319
#6: #1 OR #2 OR #3 0R #4 OR #5	5,983
#7: MeSH descriptor [Peer Group] explode all trees	1189
#8: MeSH descriptor [Learning] explode all trees	15,039
#9: #6 OR #7 OR #8	21,026
#10: nursing student* OR student nurse*[ti,ab,kw]	2,559
#11: nursing undergraduate* OR nurse undergraduate*[ti,ab,kw]	266
#12: #10 OR #11	2584
#13:MeSH descriptor: [Students, Nursing]+	329
#14: #12 OR #14	2,584
#15: clinical environment[ti,ab,kw]	7905
#16: practice environment[ti,ab,kw]	2747
#17: ward environment[ti,ab,kw]	525
#18: #15 OR #16 OR #17	8396
#19: #9 and #14 and #18	**203**
Legend: • MeSH-Medical Subject Heading • MH-Exact subject heading • +-explode all trees • kw-keyword	

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785 **Database: ProQuest Theses and Dissertations, search date 24/11/17, final results: 3**
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Search id: (e.g. S1: Search one)	Results
S1: peer learn*[ti,ab,kw]	2,117
S2: peer mentor*[ti,ab,kw]	301
S3: peer tutor*[ti,ab,kw]	146
S4: peer support[ti,ab,kw]	2,558
S5: peer assisted learning[ti,ab,kw]	99
S6:S1 OR S2 OR S3 OR S4 OR S5	4,063
S7: MJMAINSUBJECT.EXACT("Peer Tutoring")	53
S8: S6 OR S7	4,063
S9: nursing student* OR student nurse*[ti,ab,kw]	1,130
S10: nursing undergraduate* OR nurse undergraduate*[ti,ab,kw]	164
S11: S9 OR S10	1,141
S12: MJMAINSUBJECT.EXACT("Nursing Students")	437
S13: MAINSUBJECT.EXACT("Nursing Education")	371
S14: S11 OR S12 OR S13	1,201
S15: clinical environment[ti,ab,kw]	2,037
S16: practice environment[ti,ab,kw]	9,261
S17: ward environment[ti,ab,kw]	136
S18: S15 OR S16 OR S17	10,799
S19: S8 AND S14 AND S18	**3**
Legend: • MJMAINSUBJECT.EXACT-exact subject heading	

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793 **Appendix II: Excluded studies**

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795 Walsh A. The effect of social interaction on mental health nurse student learning. Nurse Educ Pract
796 2015;15(1):7-12.

797 **Reason for exclusion: The study explored the effect of social interaction for learning**
798 **amongst mental health student nurses. On further investigation the study was more**
799 **focused upon the academic environment with no clear indication of the impact within**
800 **clinical practice.**

801 Walker S, Dwyer T, Broadbent M, Moxham L, Sander T, Edwards K. Constructing a nursing identity
802 within the clinical environment: The student nurse experience. Contemp Nurse 2014;49:103-112.

803 **Reason for exclusion: The study explores the student nurse experience within clinical**
804 **practice and mentions the term peer; however, there is insufficient evidence and**
805 **discussion linking experiences of peers working together.**

806 Houghton CE. 'Newcomer adaptation': a lens through which to understand how nursing students fit in
807 with the real world of practice. J Clin Nurs 2014;23(15-16):2367-75.

808 **Reason for exclusion: lack of methodological quality. On further consideration, the**
809 **study did not provide clear congruity between the research methodology and the**
810 **interpretation of the results. The study also did not demonstrate adequate**
811 **representation of the participants and their voices.**

812 Mamhidir AG, Kristofferzon ML, Hellström-Hyson E. Nursing preceptors' experiences of two clinical
813 education models. Nurse Educ Pract 2014;14(4):427-33.

814 **Reason for exclusion: On further investigation this study relates to peer learning in**
815 **relation to registered nurse preceptors and not undergraduate student nurses.**

816 Brannagan K, Dellinger A, Thomas J, Mitchell D, Lewis-Trabeaux S, Dupre S. Impact of peer teaching
817 on nursing students: perceptions of learning environment, self-efficacy, and knowledge. Nurse Educ
818 Today 2013;33(11):1440–7.

819 **Reason for exclusion: The study mentions the focus of peer learning in clinical teaching**
820 **practice, however, on further examination the setting for this study did not meet the**
821 **context for the inclusion criteria (clinical practice).**
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824 **Appendix III: Table of included studies**

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Study	Methodology	methods	Phenomena of interest	Setting	Geographical	Cultural	Participants	Data analysis	Authors conclusions	Reviewers comments
Ravanipour; M., Bahreini; M., Ravanipour; M. - Journal of Education and Health Promotion (2015)	Qualitative content analysis	Focus group interviews	Exploring student nurses' experiences of peer learning in clinical practice	Clinical practice setting	Iran	28 female Iranian undergraduate student nurses	N=28, 91.4% female undergraduate nurses, mean age 22 years.	Thematic analysis	Nursing students reported general satisfaction concerning peer learning due to much more in-depth learning with little stress than conventional learning methods. Peer learning is a useful method for nursing students for practicing educational leadership and learning the clinical skills before they get a job.	Congruity between the methods and methodology. Conclusions drawn from the results relate to the aims of the study.
Austria; M.J, Baraki; K., Doig; A.K. - International Journal Of Nursing Education Scholarship (2013)	Qualitative interpretive descriptive phenomenology	Individual semi-structured interviews	Experiences of collaborative learning amongst undergraduate nursing students in the clinical practice setting.	25 bed inpatient surgical oncology unit	USA	Undergraduate nursing students	N=11 undergraduate nursing students and 9 patients. Nursing students assigned into peer dyads.	Thematic analysis	Peer engaged in collaborative learning report positive learning experiences. Reports included reducing student anxiety, increased confidence and task efficiency. Students also presented a challenge in the reduced opportunity to perform hands on skills, which had to be negotiated within each pair.	Clear method and methodology. Conclusions taken from the results of the study fit with the aims of the study.
Harmer; B.M., Huffman; J., Johnson; B., 2011	Mixed methods	Survey	Experiences of peer mentoring amongst undergraduate nursing students in clinical practice.	Clinical practice environment	USA	sophomore nursing students	N=32 sophomore nursing students. Paired 16 sophomore (first year) students with 16 senior students.	Thematic analysis	Clinical peer mentoring provides educators with an innovative strategy that partners students to provide care in clinical settings. It is consistent with situated learning theory. Tanner's Clinical Judgement Model used with student pairs improved their ability to reflect on practice, prioritize care, and make sound clinical judgement.	Contingency between the chosen methods and methodology. Conclusion flows form the results to remain consistent with the aims of the study.
Giordana; S., Wedin; B. - Nursing Education Perspectives (2010)	Qualitative descriptive phenomenology	Focus group interviews	Student nurses' experiences of peer mentoring	Nursing home practice setting	USA	Undergraduate nursing students	N=20 undergraduate student nurses	Thematic analysis	Mentees find it reassuring to have someone working with them who has already mastered skills for the mentoring experience. Mentees described feelings of improved self-confidence and reduced anxiety. Faculty staff also recognised reduced anxiety and had positive feelings about the peer mentoring experience.	There is congruity between the philosophical perspective and the methodology, however the aims and objectives are unclear.
Christiansen; A., Bell; A. - Journal of Clinical Nursing (2010)	Interpretive qualitative design	Focus group interviews	Pre-registration nursing students' experiences of peer learning partnerships in clinical practice	Clinical practice setting	UK	Undergraduate nursing students	N=54 undergraduate nursing students	Thematic analysis	Peer learning partnerships facilitated by mentors in clinical practice can support the transition to nursing for first year students and can help more experienced students gain a confidence and a heightened readiness for mentorship and registered practice.	There is congruency between both the methodology and the interpretation of the results, the evidence provides clear themes and are credible.

Roberts; D. - Nurse Education in Practice (2009)	Qualitative interpretive ethnography	Participant observations	Explore nursing students' experiences of peer learning in clinical practice.	General medical and surgical ward clinical settings	UK	13 females and 2 male undergraduate nursing students	N=15 undergraduate nursing students, 13 women and 2 men, age range: 18-45 years.	Thematic analysis	Student nurses exist on the edge of the community of practice (of qualified staff) and therefore form their own parallel community. Students use friendships that they have developed in practice to enable them to learn. Knowledge is contextually bound and not therefore linked to seniority, or length of time served on the course.	Clear outline both the methods and methodology. Offers congruity between these elements and demonstrates clear themes from the analysis to inform the conclusion.
Roberts; D. – Nursing Standard (2008)	Qualitative interpretive ethnography	Participant observation	Explore undergraduate nursing students' experiences of peer learning within the clinical practice environment.	Clinical practice setting	UK	13 Females and 2 male undergraduate nursing students.	N=15 undergraduate nursing students, 13 Women and 2 men, age range: 18-45 years.	Thematic analysis	Friendships were an important aspect of peer learning for the students in the study and friendship fostered learning. Peer learning in the clinical practice setting is an informal and underestimated aspect of clinical learning and is valued by students.	Clear outline of methods and methodology, displaying congruity between methods and the research question.
Sprengel; A.D. Job; L. - Nurse Educator (2004)	Mixed methods	Survey	Undergraduate student nurses' experiences of peer mentoring in the clinical setting in reducing anxiety.	Clinical practice setting	USA	30 undergraduate nursing students	N=30 undergraduate nursing students. 23 aged 18-19. 7 students aged 20.	Unclear, some mention of themes, but there is not clear discussion of data analysis in relation to qualitative data.	Students through peer mentoring experiences verbalise reduced anxiety, reduced confusion and perceive a more positive environment for learning to occur. Peer mentoring encourages greater student responsibility and active learning.	The congruity between the research methodology and the objectives of this study are unclear. This is the same as the conclusions which struggle from the analysis of the data.

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862 ## Appendix IV: List of study findings and illustrations

863 **Ravanipour M, Bahreini M, Ravanipour M. Exploring nursing students' experience of**
864 **peer learning in clinical practice. J Educ Heath Promot 2015;4(46):1-12.**

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Finding	Illustrations from study	Evidence
Paradoxical dualism	"When the peer was our classmate, our stress got less; it was easier to talk about our problems to him/her than to the teacher. The teacher could criticize us why we hadn't learned such cases yet. Naturally answering our friends was much easier." (p4)	Unequivocal
Peer exploitation	"The peer's role should be more supervisory than duty performance. One of the problems of my peer was that instead of giving me a chance to do the work, he tried to do all the activities by himself."(p5)	Unequivocal
Peer learning provides first learning efficacy	"The teachers should assess the students individually. However, it would be better if the teachers make a comparative assessment of the students' work with that of their peers; this is due to the fact that some students' group work is better than their individual performance."(p5)	Credible
Socialization practice	"I believe we should train our peer students in a completely sympathetic friendly way to learn something, not teasing the peers for training them. Because if they were to know everything, why would they need to have peers?"(p5)	Unequivocal

866 **Austria MJ, Baraki K., Doig A.K. Collaborative learning using nursing student dyads in**
867 **the clinical setting. Int J Nurs Educ Scholarsh 2013;10(1):1-8.**

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Finding	Illustrations from study	Evidence
Positive support from peers	"The first day I was really nervous and even though I had been working with patients for a long time I was still really nervous. It was a new experience and you're a nursing student now it was just good to have someone there, right with you, going through the same thing."(p4)	Credible
Decreased anxiety and increased confidence	"I kind of liked working in pairs. It kind of helped me not be so scared and helped build my confidence. It's easier to ask a student for help sometimes than an instructor just because they are on the same level as you."(p4)	Unequivocal
Increased efficiency with tasks	"It's very convenient because they help each other, they help me… it takes two to lift me up, to move me around and that makes it that I don't hurt so bad. Also one leaving gets something that they need, and the other one stays with me, so I thought of that was a convenience…. When	Unequivocal

	they gave me a wipe, a bath, and shampoo, we were able to do it better because one was giving me the shampoo and the other one was scrubbing my feet and, massaging with a cream. I felt very pampered, very pampered and it was a very good experience."(p5)	
Overwhelming the patient	"They wanted to offer me a bath, they wanted to offer to do anything that had to be done and they just really wanted to help, and when you're feeling kind of, well I had the hiccups, and I kind of liked to just not have to do much."(p5)	Unequivocal
Difficulty in negotiation of tasks	"I felt, for instance, one of our patients needed their Foley removed and you have to choose who's going to do it because you both can't do it. So that was kind of hard because it was like you knew you would really get the full experience of getting to try everything. You had to decide who was going to get to do it (…) I like to do things. I would rather get the opportunity to do everything for that patient rather than sit and watch somebody else do it."(p5)	Unequivocal
Challenges of student role in dyad	"Since you're probably doing half of everything, [you] kind of miss out on some of the learning because you're not doing everything first hand. If there's a more dominant personality in the pair then that person tends to do more of the talking and take more of the initiative than the other person… But if you tend to let the other person take control then I think it could detract from your personal learning because you don't do it first hand and so you don't realize that you are not learning. Sometimes I'll be watching something and I'll think like, "Oh yeah, I'm getting this" and then when you go to do it on your own it's totally different."(p6)	Unequivocal
Patient role in student learning	"It was exhilarating, to be someone that could help develop a career…. Almost like a mentor. They asked questions and I gave responses, and I made my responses as an intelligent and verbose as possible, and as detailed as possible, because I understand that these guys as students need to know the right questions to ask, and how to ask the questions."(p6)	Unequivocal
Clinical instructor has a role to play in student learning	"I think we received more support because of being in a pair so that [the instructor] had less people to run around with. There [were] four groups to kind of follow around and work with rather than eight separate people to keep track of."(p6)	Unequivocal
Curricular staging for novices	"I think that it's a good thing when we have such limited experience. When I progress in nursing school it will be nicer to be on my own and fly solo and work with my own knowledge."(p6)	Credible

869 **Harmer BM, Huffman J, Johnson B. Clinical Peer Mentoring. Nurse Educ 2011;36(5):197-**
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Finding	Illustrations from study	Evidence
Improved self-confidence	"I was nervous to have someone follow me around at first. But I ended up feeling more confident knowing that I have someone experienced by my side."(p.201)	Unequivocal
Time management and prioritization of patient care	"Having to explain why I was doing what I was doing helped me to realize to prioritise better."(p201)	Unequivocal
Improving clinical judgement	"It was nice to have the (mentor) say, 'you are placing too much emphasis on this and not enough emphasis on that.' That really helped me make better decisions."(p201)	Unequivocal
Team working and collaboration	"I also improved my communication skills and remembered not to make assumptions about other students' abilities and skills."(p201)	Unequivocal
Improved understanding of the clinical educator role	"I have a better understanding of how difficult it is to be a clinical instructor. I mentored 2 Students. I couldn't imagine being responsible for 8 students' learning."(p201)	Unequivocal

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874 **Giordana S, Wedin B. Peer mentoring for multiple levels of nursing students. Nurs**
875 **Educ Perspect 2010;31(6):394–6.**
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Finding	Illustrations from study	Evidence
Mentees received reassurance from senior mentors	"I felt like I wasn't going to do anything detrimental because if I was about to do something completely wrong someone was there to say, 'Whoa. Don't do that."(p395)	Unequivocal
Mentees perceive and active role modelling of care	"Wow! I can be that comfortable at some point. To see a student who had been there and gotten it."(p395)	Unequivocal
Hand on modelling of care from mentors	"You go in and you start doing one thing, and then you put them into your place. And you're like, okay do this. And then you start being their assistant, the extra pair of hands."(p395)	Unequivocal
Affective modelling of care	"She probably taught me as much as I taught her, but still I was able to help theorize things for her and make her more efficient with tasks." (p395)	Unequivocal

Teaching how to care	"She was really nervous to do blood pressures, so we just worked on teaching her how to do that.…She was really scared that she had the wrong numbers, so I had to do it behind her.…I proved it to her by looking in the chart. I noted she has low blood pressure, she is an older lady."(p396)	Unequivocal
The teaching role provided a positive change	"So often in the program, we're always put into something new. We're always the new student. We're always the nervous student and there's always someone that knows so much more than us…For once, we got to be the one, the person that knows more."(p396)	Unequivocal

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878 **Christiansen A, Bell A. Peer learning partnerships: exploring the experience of pre-**
879 **registration nursing students. 2010;19(5-6):803-810.**
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Finding	Illustrations from study	Evidence
The challenges of initial practice experience	"It was crazy, it was really busy but just coming into the hospital alone, it's massive… loads of people… I felt lost at first and had knots in my stomach."(p806)	Unequivocal
Gaining acceptance	"You are just pulled in every direction. The auxiliaries want you to do their work with them and you are supposed to be working with the staff nurses and learning something, it is hard to reach a balance."(p807)	Credible
Learning with peers	"Learning with a peer is not always about skills but sometimes just saying, look it will be alright, things will get better"(p807)	Unequivocal
Personal growth and development	"I felt good when a first year came up to me and said 'thanks I've really learned a lot today, you really did well'… it felt great to get that kind of recognition."(p808)	Unequivocal

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882 **Roberts D. Friendship fosters learning: the importance of friendships in clinical**
883 **practice. 2009;9(6):367-371.**
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Finding	Illustrations from study	Evidence
The students develop an 'ask anything' culture where they see each other as valuable sources of information	"Other students are a favourable option for gaining or consolidating your knowledge...you know, you can ask them anything...something five times a day and not feel stupid, as undoubtedly they will have done or will do the same thing to you."(p369)	Unequivocal
The students see each other as a discrete group which only fellow	"When you begin university you are told about all the support available to you, but the most important support network is never mentioned: fellow students. No one can empathise with you like another student can."(p369)	Unequivocal

students can understand and so develop their own parallel community to help each other: 'being in the same boat'		
Birds of a feather flock together: students converge together, particularly when they find themselves alone or when their mentors are busy elsewhere	"You find other students, so that you can get into the whole nursing team on the ward."(p370)	Unequivocal
Knowledge is not necessarily linked to seniority	"Where you are in your training holds no significance since you are often able to offer guidance to a student who is further on than yourself, just as much as you can gain from someone who is less experienced. It depends more on the individual experiences you have as a student and not on the amount of time you've been training."(p370)	Unequivocal

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889   **Roberts D. Learning in clinical practice: the importance of peers. Nurs Stand**
890   **2008;23(12):35–41.**
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Finding	Illustrations from study	Evidence
Friendship and learning in clinical practice	"I have found the company of fellow students while on clinical placement to be very reassuring. A new placement, whether it is my first or last, is always daunting. Students tend to stick together and swap experiences and anecdotes."(p37)	Unequivocal
Survival skills	"I don't think it's just technical things – it's not like that, it's just survival skills. It's things I could cope with…you know…on a ward."(p38)	Unequivocal
Developing clinical skills	"She asked about the BP/TPR [blood pressure/temperature, pulse and respiration] chart which I subsequently described and introduced her to. I found this really useful because it made me re-examine how I had been introduced to the chart on the ward and the way in which it had been explained to me. Describing to another student the basics of blood pressure and pulse, and also the importance of respiratory obs [observations]	Unequivocal

	made me more aware of how important it is to get a sound initial grasp of a subject before feeling able to embark on attempting to understand it further."(p40)	

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893 **Sprengel AD, Job L. Reducing student anxiety by using clinical peer mentoring with**
894 **beginning nursing students. 2004;29(6):246-250.**
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Finding	Illustrations from study	Evidence
Improved self-confidence	"It was good to work with a freshman because I felt like I have come a long way and it was a good confidence booster for me."(p249)	Unequivocal
Reduced anxiety	"The other student was really nice and made me feel more at ease."(p249)	Unequivocal

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916 **Appendix V: JBI Levels of Credibility**

Level of Credibility	Definition
1. Unequivocal[U]	Relates to evidence beyond reasonable doubt which may include findings that are matter of fact, directly reported/observed and not open to challenge
2. Credible [C]	Those that are, albeit interpretations, plausible in light of data and theoretical framework. They can be logically inferred from the data. Because the findings are interpretive they can be challenged.
3. Unsupported [US]	When 1 nor 2 apply and when most notably findings are not supported by the data.

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918 **Appendix VI: Detailed overview of synthesis**

919 **Synthesis 1:**

Findings	Categories	Synthesized findings
Gaining acceptance: 'you are just pulled in every direction. The auxiliaries want you to do their work with them and you are supposed to be working with the staff nurses and learning something, it is hard to reach a balance' (p807)	Navigating the course in clinical practice	**Challenges of clinical practice are mitigated by peer support.** Students reported feelings of being isolated when first coming into the clinical practice environment and struggled to find a balance when working solo as they were often pulled in various directions by other clinical staff. Nursing students appear to naturally find solace and support in forming their own communities and friendships with other student nurses when in clinical practice.
The challenges of initial practice experience: 'it was crazy, it was really busy but just coming into the hospital alone, it's massive… loads of people… I felt lost at first and had knots in my stomach'. (p806)		
Birds of a feather flock together: students converge together, particularly when they find themselves alone or when their mentors are busy elsewhere: "You find other students, so that you can get into the whole nursing team on the ward." (p370)	Connecting with peers to create bonding and mutual support	
Friendship and learning in clinical practice: 'I have found the company of fellow students while on clinical placement to be very reassuring. A new placement, whether it is my first or last, is always daunting. Students tend to stick together and swap experiences and anecdotes' (p37)		
Learning with peers: 'learning with a peer is not always about skills but sometimes just saying, look it will be alright, things will get better' (p807)		

Socialization practice: "I believe we should train our peer students in a completely sympathetic friendly way to learn something, not teasing the peers for training them. Because if they were to know everything, why would they need to have peers?" (p5)
The students develop an 'ask anything' culture where they see each other as valuable sources of information: other students are a favourable option for gaining or consolidating your knowledge...you know, you can ask them anything...something five times a day and not feel stupid, as undoubtedly they will have done or will do the same thing to you". (p369)
The students see each other as a discrete group which only fellow students can understand and so develop their own parallel community to help each other: 'being in the same boat': when you begin university you are told about all the support available to you, but the most important support network is never mentioned: fellow students. No one can empathise with you like another student can" (p369)

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921 **Synthesis 2:**

Findings	Categories	Synthesized findings
Affective modelling of care: "She probably taught me as much as I taught her, but still I was able to help theorize things for her and make her more efficient with tasks." (p395)	Enhancing knowledge of care	**Peers are role models for enhancing clinical knowledge.** Peers use each other as role models for modelling and enhancing their knowledge of care, although there is some indication of

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Curricular staging for novices: "I think that it's a good thing when we have such limited experience. When I progress in nursing school it will be nicer to be on my own and fly solo and work with my own knowledge."(p6)		difficulty in defining each other's role when working together.
Hands on modelling of care for mentors: "You go in and you start doing one thing, and then you put them into your place. And you're like, okay do this. And then you start being their assistant, the extra pair of hands." (p395)		
Improved understanding of the clinical educator role: "I have a better understanding of how difficult it is to be a clinical instructor. I mentored 2 Students. I couldn't imagine being responsible for 8 students' learning."(p201)		
Knowledge is not necessarily linked to seniority: "Where you are in your training holds no significance since you are often able to offer guidance to a student who is further on than yourself, just as much as you can gain from someone who is less experienced. It depends more on the individual experiences you have as a student and not on the amount of time you've been training."(p370)		
Mentees perceive an active role modelling of care: "Wow! I can be that comfortable at some point. To see a student who had been there and gotten it."(p395)		

Peer learning provides first learning efficacy: "The teachers should assess the students individually. However, it would be better if the teachers make a comparative assessment of the students' work with that of their peers; this is due to the fact that some students' group work is better than their individual performance." (p5)		
Improving clinical judgement: ''It was nice to have the (mentor) say, 'you are placing too much emphasis on this and not enough emphasis on that.' That really helped me make better decisions.''(p201)		
Time management and prioritization of care: 'Having to explain why I was doing what I was doing helped me to realize to prioritise better.'(p201)		
Challenges of student role in dyad: Since you're probably doing half of everything, [you] kind of miss out on some of the learning because you're not doing everything first hand. If there's a more dominant personality in the pair then that person tends to do more of the talking and take more of the initiative than the other person… But if you tend to let the other person take control then I think it could detract from your personal learning because you don't do it first hand and so you don't realize that you are not learning. Sometimes I'll be watching something and I'll think like, "Oh yeah, I'm getting this" and then when you go to do it on your own it's totally different. (p6)	Complex choices when sharing learning opportunities.	

Difficulty in negotiation of task: 'I felt, for instance, once of our patients needed their Foley removed and you have to choose who's going to do it because you both can't do it. So that was kind of hard because it was like you knew you would really get the full experience of getting to try everything. You had to decide who was going to get to do it (….) I like to do things. I would rather get the opportunity to do everything for that patient rather than sit and watch somebody else do it.'(p5)		
Peer exploitation: "The peer's role should be more supervisory than duty performance. One of the problems of my peer was that instead of giving me a chance to do the work, he tried to do all the activities by himself." (p5)		

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923 **Synthesis 3:**

Findings	**Categories**	**Synthesized findings**
Clinical instructor had a role to play in student learning: 'I think we received more support because of being in a pair so that [the instructor] had less people to run around with. There [were] four groups to kind of follow around and work with rather than eight separate people to keep track of.' (p6)	Support and reassuring learning from mentors	**Support and feedback develops competence and confidence and reduces stress and anxiety.** Peer assisted learning provides the necessary support and feedback to peers to enable them to develop their competence and confidence as well as reduce feelings of anxiety and stress.
Mentees received reassurance from senior mentors: 'I felt like I wasn't going to do anything detrimental because if I was about to do something completely wrong someone was there to say, "whoa. Don't do that."'(p395)		

Patient role in student learning: 'It was exhilarating, to be someone that could help develop a career…. Almost like a mentor. They asked questions and I gave responses, and I made my responses as an intelligent and verbose as possible, and as detailed as possible, because I understand that these guys as students need to know the right questions to ask, and how to ask the questions.' (p6)		
Personal growth and development: 'I felt good when a first year came up to me and said 'thanks I've really learned a lot today, you really did well'… it felt great to get that kind of recognition'. (p808)		
Decreased anxiety and increased confidence: 'I kind of liked working in pairs. It kind of helped me not be so scared and helped build my confidence. It's easier to ask a student for help sometimes than an instructor just because they are on the same level as you. (p4)	Increasing confidence/reducing anxiety and stress.	
Paradoxical dualism: "When the peer was our classmate, our stress got less; it was easier to talk about our problems to him/her than to the teacher. The teacher could criticize us why we hadn't learned such cases yet. Naturally answering our friends was much easier." (p4)		
Improved self-confidence: 'I was nervous to have someone follow me at first. But I ended up feeling more confident knowing that I have someone experienced by my side.'(p.201)		
Improved self-confidence: 'It was good to work with a freshman because I felt like I have come a long way and it		

was a good confidence booster for me.'(p249)		
Positive support from peers: 'The first day I was really nervous and even though I had been working with patients for a long time I was still really nervous. It was a new experience and you're a nursing student now it was just good to have someone there, right with you, going through the same thing.' (p4)		
Reduced anxiety: 'The other student was really nice and made me feel more at ease.'(p249)		
The teaching role provided a positive change: 'So often in the programme, we've always put into something new. We're always the new student. We're always the nervous student and there's always someone that knows so much more than us…For once, we got to be the one, the person that knows more.''(p396)		
Developing clinical skills: 'She asked about the BP/TPR [blood pressure/temperature, pulse and respiration] chart which I subsequently described and introduced her to. I found this really useful because it made me re-examine how I had been introduced to the chart on the ward and the way in which it had been explained to me. Describing to another student the basics of blood pressure and pulse, and also the importance of respiratory obs [observations] made me more aware of how important it is to get a sound initial grasp of a subject before feeling able to embark on attempting to understand it further.' (p40)	Complimentary learning aids Clinical skill development	

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Increased efficiency with tasks: ''It's very convenient because they help each other, they help me… it takes two to lift me up, to move me around and that makes it that I don't hurt so bad. Also one leaving gets something that they need, and the other one stays with me, so I thought of that was a convenience…. When they gave me a wipe, a bath, and shampoo, we were able to do it better because one was giving me the shampoo and the other one was scrubbing my feet and, massaging with a cream. I felt very pampered, very pampered and it was a very good experience.''(p5)			
Overwhelming the patient: Well, they wanted to offer me a bath, they wanted to offer to do anything that had to be done and they just really wanted to help, and when you're feeling kind of, well I had the hiccups, and I kind of liked to just not have to do much.' (p5)			
Survival skills: ''I Don't think it's just technical things - it's not like that, it's just survival skills. It's things I could cope with…you…on a ward.'(p38)			
Teaching how to care: "She was really nervous to do blood pressures, so we just worked on teaching her how to do that.…She was really scared that she had the wrong numbers, so I had to do it behind her.…I proved it to her by looking in the chart. I noted she has low blood pressure, she is an older lady." (p396)			
Team working and collaboration: 'I also improved my communication skills and remembered not to make assumptions about other students' abilities and skills.'(p201)			

924 **Appendix VII: JBI Grades of recommendation**

JBI Grades of Recommendation	
Grade A	A 'strong' recommendation for a certain health management strategy where (1) it is clear that desirable effects outweigh undesirable effects of the strategy; (2) where there is evidence of adequate quality supporting its use; (3) there is a benefit or no impact on resource use, and (4) values, preferences and the patient experience have been taken into account.
Grade B	A 'weak' recommendation for a certain health management strategy where (1) desirable effects appear to outweigh undesirable effects of the strategy, although this is not as clear; (2) where there is evidence supporting its use, although this may not be of high quality; (3) there is a benefit, no impact or minimal impact on resource use, and (4) values, preferences and the patient experience may or may not have been taken into account.

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Table 1 assessment of methodological quality

Table 1: Assessment of methodological quality

Citation	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Ravanipour; M., Bahreini;m., Ravanapour; M., 2015[32]	Y	Y	Y	Y	Y	N	N	Y	Y	Y
Austria; M.J, Baraki; K., Doig; A.K., 2013[33]	Y	U	Y	Y	Y	N	N	Y	Y	Y
Harmer; B.M., Huffman; J., Johnson; B., 2011[34]	Y	Y	Y	Y	Y	N	Y	Y	Y	Y
Giordana; S., Wedin; B., 2010[12]	Y	U	Y	Y	Y	N	U	Y	N	Y
Christiansen; A., Bell; A., 2010[35]	Y	U	Y	Y	Y	N	N	N	Y	Y
Roberts; D., 2009[36]	Y	Y	Y	Y	Y	N	N	Y	Y	Y
Roberts; D., 2008[21]	Y	Y	Y	Y	Y	N	N	Y	Y	Y
Sprengel; A.D., Job; L., 2004[37]	Y	U	Y	Y	Y	N	N	Y	N	U

Figure 1 PRISMA flow diagram
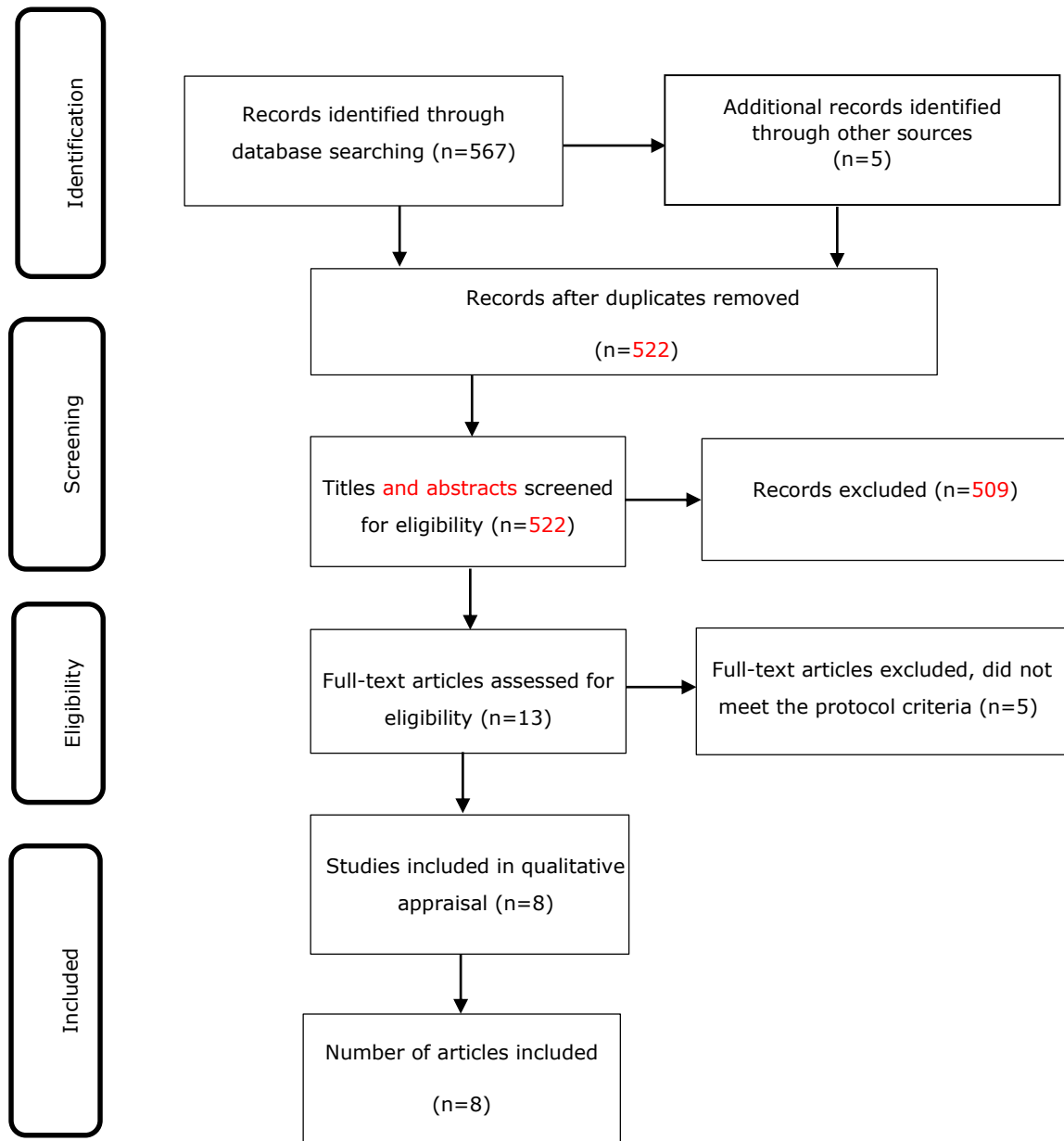
**Figure 1: PRISMA flow diagram of search and study selection process
PAL (Peer-Assisted Learning)**