

Article	Year	Journal	Total Sources	Appraisal Tool(s)	Quotes	Notes
Integrative Review of Factors That Affect the Use of Postpartum Care Services in Developing Countries Adams, Y. J., & Smith, B. A.	2018	JOGNN: Journal of Obstetric, Gynecologic & Neonatal Nursing	13 (8 Quantitative; 3 Qualitative; 2 Mixed Methods)	Fowkes & Fulton (1991); Critical Appraisal Skills Programmes (CASP)		No explicit statement of how mixed methods articles were appraised.
Managing and mitigating conflict in healthcare teams: an integrative review Almost, J., Wolff, A. C., Stewart-Pyne, A., McCormick, L. G., Strachan, D., & D'Souza, C.	2016	Journal of Advanced Nursing	44 papers from 41 studies (31 Quantitative; 8 Qualitative; 2 Mixed Methods)	Effective Public Health Practice Project Quality Assessment Tool for Quantitative Studies (Effective Public Health Project 2007); Critical Appraisal Skills Programme (CASP) Tool for Qualitative Studies (CASP 2013); The Evaluation Tool for Mixed Method Studies (University of Salford 2005) Long, Godfrey, Randall, Brettle, and Grant (2002)	"Given the diversity of research designs, a variety of quality appraisal instruments were used: Effective Public Health Practice Project Quality Assessment Tool for Quantitative Studies (Effective Public Health Project 2007), Critical Appraisal Skills Programme (CASP) Tool for Descriptive/Cross-Sectional Studies (CASP 2002), CASP Tool for Qualitative Studies (CASP 2013) and Evaluative Tool for Mixed Methods Studies (Long 2005). Using the method used in the Effective Public Health Practice Project (2007), quality scores were based on the number of weak ratings identified in each of the domains of the selected quality appraisal instrument. A strong score was assigned if no weak ratings were identified. A moderate score was assigned if one weak rating was identified and a weak score was assigned if two or more weak ratings were identified. No paper was excluded based on methodological quality." pp. 1493-4	
Paediatric pain management: knowledge,	2018	International Nursing Review	27 (18 Quantitative;	McMaster University checklist for quantitative research	"The quality of the 33 studies was assessed using criteria from the Critical Appraisal Skills Programme (CASP 2013) for	

attitudes, barriers and facilitators among nurses – integrative review Alotaibi, K., Higgins, I., Day, J., & Chan, S.			5 Qualitative; 4 Mixed Methods)	studies (Law et al. 1998); Critical Appraisal Skills Programme (CASP) Tool for Qualitative Studies (CASP 2013)	qualitative research studies and the McMaster University checklist for quantitative research studies (Law et al. 1998). Mixed-methods studies were assessed using both criteria." p. 3	
An integrative review: Understanding driving retirement decisions for individuals living with a dementia Andrew, C., Traynor, V., & Iverson, D.	2015	Journal of Advanced Nursing	43 (35 Quantitative; 7 Qualitative; 1 Mixed Methods)	Critical Appraisal Skills Programmes (CASP)		No explicit statement of how mixed methods articles were appraised.
Just between Us: An Integrative Review of Confidential Care for Adolescents Baldrige, S., & Symes, L.	2018	Journal of Pediatric Healthcare	26 (18 Quantitative; 6 Qualitative; 2 Mixed Methods)	Johns Hopkins Nursing Evidence-Based Practice Research Evidence Appraisal (Newhouse, Dearholt, Poe, Pugh, & White, 2007)		
Hypertension among adults living in Haiti: An integrative review	2018	Journal of Clinical Nursing	8 (5 Quantitative; 1 Mixed Methods; 2 Other)	Johns Hopkins Nursing Evidence-based Practice (JHNEBP) Model (Dang & Dearholt, 2017)		No explicit statement of how mixed methods articles were appraised.

<p>Baptiste, D. L., Hamilton, J. B., Foronda, C., Sloand, E., Fahlberg, B., Pfaff, T., Delva, S., & Davidson, P. M.</p>						
<p>Patient perspectives on answering questions about sexual orientation and gender identity: an integrative review</p> <p>Bjarnadottir, R. I., Bockting, W., & Dowding, D. W.</p>	<p>2017</p>	<p>Journal of Clinical Nursing</p>	<p>21 (11 Quantitative; 9 Qualitative; 1 Mixed Methods)</p>	<p>Gyuatt, Sackett and Cook (1994); Critical Appraisal Skills Programme (CASP) Qualitative Research Checklist (Critical Appraisal Skills Programme 2014); Mixed Methods Appraisal Tool (MMAT) (Pluye et al., 2009)</p>		
<p>Mixed method integrative review exploring nurses' recognition and response to unsafe practice</p> <p>Blair, W., Kable, A., Courtney-Pratt, H., & Doran, E.</p>	<p>2016</p>	<p>Journal of Advanced Nursing</p>	<p>19 papers from 15 studies (7 Quantitative; 9 Qualitative; 1 Mixed Methods; 2 Other)</p>	<p>McMaster University checklist for quantitative research studies (Law et al. 1998); Critical Review Form-Qualitative Studies Version 2 (Letts et al., 2007)</p>	<p>"A comprehensive quality appraisal of the 19 articles was undertaken using McMaster qualitative (Letts et al. 2007) and quantitative (Law et al. 1998) critical review forms. Mixed method studies were appraised using both critical review forms and both types of data were included in the review." p. 492</p>	
<p>An integrative review of the theory of unpleasant</p>	<p>2019</p>	<p>Journal of Advanced Nursing</p>	<p>64 (59 Qualitative; 3</p>	<p>Johns Hopkins Nursing Evidence-based Practice (JHNEBP) Model (Dang & Dearholt, 2017)</p>	<p>"Given the diverse types of evidence used in these reviews, there is not a clear method for evaluating the quality of the entire body of evidence included</p>	

symptoms Blakeman, J. R.			Mixed Methods; 2 Other)		(Whittemore, 2005). As a result, the general approach of assessing the validity and reliability of each individual record was undertaken, based on the study design, questions asked, methods applied, and results/conclusions reported." pg. 949	
An integrative review of fatigue experienced by women before and during myocardial infarction Blakeman, J. R., & Stapleton, S. J.	2018	Journal of Clinical Nursing	21 (9 Quantitative; 6 Qualitative; 6 Mixed Methods)	Johns Hopkins Nursing Evidence-Based Practice Research Evidence Appraisal Tool (Dearholt & Dang, 2012)		
Exploring outcomes and evaluation in narrative pedagogy: An integrative review Brady, D. R., & Asselin, M. E.	2016	Nurse Education Today	26 (4 Quantitative; 13 Qualitative; 2 Mixed Methods; 7 Other)	Hawker, Payne, Kerr, Hardey, & Powell (2002)	"Each text was read and evaluated for quality. An article's quality was assessed in terms of its methodological rigor according to a tool developed by Hawker et al. (2002) chosen for its applicability to both qualitative and quantitative studies." pg. 2	No explicit statement of how mixed methods articles were appraised.
An Integrative Review of Clinical Reasoning Teaching Strategies and Outcome Evaluation in Nursing Education Brown Tyo, M.	2019	Nursing Education Perspectives (Wolters Kluwer Health)	37 (25 Quantitative; 5 Qualitative; 7 Mixed Methods)	Robbin and Asselin (2015), a revised version of the Hawker, Payne, Kerr, Hardy, and Powell (2002) instrument		

<p>How nurses restore and maintain mobility in hospitalised older people: An integrative literature review</p> <p>Constantin, S., & Dahlke, S.</p>	<p>2018</p>	<p>International Journal of Older People Nursing</p>	<p>13 (5 Quantitative; 6 Qualitative; 2 Mixed Methods)</p>	<p>Critical Appraisal Skills Programmes (CASP); Critical Appraisal Skills Programmes (CASP); Mixed Methods Appraisal Tool (MMAT) Pluye et al. (2011)</p>	<p>"To account for rigour and ensure trustworthy and quality research, two appraisal tools were implemented; the Critical Appraisal Skills Programme for Qualitative Studies (CASP, 2013) and the McGill Mixed Methods Appraisal Tool (MMAT) (Pluye et al., 2011). Critical appraisal through the use of CASP (2013) and MMAT (Pluye et al., 2011) checklists allowed for a systematic process to identify the research article's strengths and weaknesses to judge for trustworthiness, value and relevancy to the research question of how nurses restore and maintain mobility in hospitalised older patients. Data from the manuscripts that met the inclusion criteria were compared and analysed using content analysis to identify patterns, themes or relationships among the literature." p. 7</p>	<p>Based on the evidence table provided in the article, it appears that both appraisal tools were applied to select articles.</p>
<p>An integrative review of how families are prepared for, and supported during withdrawal of life-sustaining treatment in intensive care</p> <p>Coombs, M. A., Parker, R., Ranse, K., Endacott, R., & Bloomer, M. J.</p>	<p>2017</p>	<p>Journal of Advanced Nursing</p>	<p>24 (4 Quantitative; 15 Qualitative; 2 Mixed Methods; 3 Other)</p>	<p>Caldwell, Henshaw, & Taylor (2011)</p>	<p>"An assessment of quality was conducted using a framework developed by Caldwell et al. (2011) and used by others (e.g. Stelfox et al. 2013). This framework assists in the quality assessment of the papers based on methodological strengths and weaknesses of the studies. The framework uses generic questions, for example, on ethical practice in the study and specific criteria for review of qualitative and quantitative studies. This enables comparison of papers to occur while acknowledging different theoretical and paradigmatic positions. Use of this framework addressed a recognized challenge of conducting quality appraisals in integrative reviews (Whittemore & Knafik 2005)." pg. 41</p>	<p>No specific mention by authors of how appraisal tool was used with mixed methods studies. Article provides details about how appraisal was conducted but does not report scoring criteria for retrieved sources.</p>

<p>Reducing Nursing Student Anxiety in the Clinical Setting: An Integrative Review</p> <p>Cornine, A.</p>	<p>2020</p>	<p>Nurs Educ Perspect</p>	<p>17 (7 Quantitative; 3 Qualitative; 7 Mixed Methods)</p>	<p>Hawker, Payne, Kerr, Hardey, & Powell (2002)</p>	<p>"Studies deemed eligible for inclusion in the review were graded for quality using a scale created by Hawker, Payne, Kerr, Hardey, and Powell (2002). Possible scores ranged from 9 to 36, with higher scores indicating more methodological rigor." p. 230</p>	<p>Article does not include data matrix/scoring criteria for retrieved sources.</p>
<p>Investigation of blended learning video resources to teach health students clinical skills: An integrative review</p> <p>Coyne, E., Rands, H., Frommolt, V., Kain, V., Plugge, M., & Mitchell, M.</p>	<p>2018</p>	<p>Nurse Education Today</p>	<p>10 (5 Quantitative; 1 Qualitative; 4 Mixed Methods)</p>	<p>Mixed Methods Appraisal Tool (MMAT-Version 2011) Pluye et al. (2011)</p>	<p>"Quality assessment was undertaken using the Mixed Methods Appraisal Tool (MMAT) – Version 2011, a critical appraisal tool that was chosen due to the heterogeneity of included studies (Pluye et al., 2011). The benefit of this appraisal tool is that it can be used to assess all research designs, through the use of a quality scoring system of zero, 25%, 50%, 75% or 100%, with a higher score indicating higher quality (Pluye et al., 2009; Pluye and Hong, 2014). Previous researchers support the content validity, reliability and efficiency of the MMAT tool (Pace et al., 2012)." p. 102</p>	
<p>Surrogates' end-of-life decision-making process in nursing homes for residents with a neurocognitive disorder: An integrative review</p> <p>Daneau, S., Bourbonnais, A., & Legault, A.</p>	<p>2019</p>	<p>International Journal of Older People Nursing</p>	<p>18 (5 Quantitative; 11 Qualitative; 1 Mixed Methods; 1 Other)</p>	<p>Crowe Critical Appraisal Tool (CCAT), version 1.4 (Crowe & Sheppard, 2011)</p>	<p>"To consider the quality of included articles, the Crow[sic] Critical Appraisal Tool (CCAT), version 1.4 (Crowe & Sheppard, 2011b), was used. This tool assesses articles that report results from different research designs. Its validity and reliability have been established (Crowe & Sheppard, 2011a; Crowe, Sheppard, & Campbell, 2012). Overall, all included articles met the critical criteria to be considered rigorous (see Appendix 2). One non-empirical article was included in the review. This article was not formally assessed, but presents a rigorous ethical argument written by an expert in the field." p. 4</p>	

<p>Use of the Geriatric Institutional Assessment Profile</p> <p>de Almeida Tavares, J. P., & da Silva, A. L.</p>	<p>2013</p>	<p>Research in Gerontological Nursing</p>	<p>15 (14 Quantitative; 1 Mixed Methods)</p>	<p>Strengthening the Reporting of Observational Studies in Epidemiology checklist (Malta, Cardoso, Bastos, Magnanini, & Silva, 2010)</p>		<p>No explicit statement of how mixed methods articles were appraised.</p>
<p>Nurses' resilience and the emotional labour of nursing work: An integrative review of empirical literature</p> <p>Delgado, C., Upton, D., Ranse, K., Furness, T., & Foster, K.</p>	<p>2017</p>	<p>International Journal of Nursing Studies</p>	<p>27 (4 Quantitative; 22 Qualitative; 1 Mixed Methods)</p>	<p>Mixed Methods Appraisal Tool (MMAT-Version 2011) Pluye et al. (2011)</p>	<p>"Methodological quality of included studies was evaluated using the Mixed Methods Appraisal Tool (MMAT) (Table 1). The Mixed Methods Appraisal Tool has established validity and reliability for summarizing overall quality across a range of study designs, including quantitative, qualitative, or mixed methods studies (Pace et al., 2010, 2012; Pluye et al., 2011; Pluye and Hong, 2014). This is consistent with integrative review methodology which allows for the inclusion of a range of study designs (Whittemore and Knaf, 2005). Given that this integrative review included quantitative, qualitative and mixed methods studies, the Mixed Methods Appraisal Tool was the most appropriate tool to appraise the quality of included studies." pp.81-2</p>	
<p>Nurses' attitudes, beliefs, and emotions toward caring for adults with intellectual disabilities: An integrative review</p>	<p>2020</p>	<p>Nurs Forum</p>	<p>20 (6 Quantitative; 13 Qualitative; 1 Mixed Methods)</p>	<p>Hawker, Payne, Kerr, Hardey, & Powell (2002)</p>	<p>"One study mixed- open incorporated a methods approach by adding an -ended question to a quantitative survey to address the relevant research question, thus it was reported as a quantitative study for the purposes of this review." p. 213</p>	

Desroches, M.						
Religious Values and Biobanking Decisions: An Integrative Review Eisenhauer, E. R., & Arslanian-Engoren, C.	2016	Research & Theory for Nursing Practice	8 (5 Qualitative; 3 Mixed Methods)	Johns Hopkins Nursing Evidence-Based Practice Research Evidence Appraisal Tool (Dearholt & Dang, 2012)		
A Review of Clinical Informatics Competencies in Nursing to Inform Best Practices in Education and Nurse Faculty Development Forman, T. M., Armor, D. A., & Miller, A. S.	2019	Nursing Education Perspectives	69	Melnyk and Fineout-Overholt (2015)	"Mixed-methods research was scored using the quantitative appraisal rubric." pg. E4	
Use of Simulation to Develop Teamwork Skills in Prelicensure Nursing Students: An Integrative Review Foster, M., Gilbert, M., Hanson, D.,	2019	Nurse Educator	21 (16 Quantitative; 3 Qualitative; 2 Mixed Methods)	Hawker, Payne, Kerr, Hardey, & Powell (2002)	"The authors used a published qualitative and quantitative guideline to appraise the methodological quality of the studies.14" p. E8	

Whitcomb, K., & Graham, C.						
Nurses' role in medical error recovery: An integrative review Gaffney, T. A., Hatcher, B. J., & Milligan, R.	2016	Journal of Clinical Nursing	12 (8 Quantitative; 3 Qualitative; 1 Mixed Methods)	Johns Hopkins Nursing Evidence-Based Practice Research Evidence Appraisal Tool (Dearholt & Dang, 2012)		
What is known about the spirituality in older adults living in residential care facilities? An Integrative review Gautam, S., Neville, S., & Montayre, J.	2019	International Journal of Older People Nursing	7 (3 Quantitative; 3 Qualitative; 1 Mixed Methods)	Mixed Methods Appraisal Tool (Hong et al., 2018)		
Structures, processes and outcomes of specialist critical care nurse education: An integrative review Gullick, J., Lin, F., Massey, D., Wilson, L., Greenwood, M., Skylas, K.,	2019	Australian Critical Care	21 (5 Quantitative; 2 Qualitative; 6 Mixed Methods; 8 Other)	Mixed Methods Appraisal Tool (Pluye et al., 2011; Academy of Nutrition & Dietetics. Narrative Review Checklist.; Joanna Briggs Institute. JBI critical appraisal checklist for narrative. Expert Opinion & Text (2014)		

Woodard, M., Tembo, A. C., Mitchell, M., & Gill, F. J.						
<p>Factors influencing adequate and effective clinical supervision for inpatient mental health nurses' personal and professional development: An integrative review</p> <p>Howard, V., & Eddy-Imishue, G. K.</p>	2020	J Psychiatr Ment Health Nurs	14 (5 Quantitative; 3 Qualitative; 2 Mixed Methods; 4 Other)	Mixed Methods Appraisal Tool (MMAT) Hong et al. (2018)	"The methodological features and quality of the primary studies were evaluated using the Mixed Method Assessment Tool (MMAT) which was developed by Pluye, Gagnon, Griffiths, and Johnson-Lafleur (2009). This quality appraisal tool was selected as it has been designed to examine qualitative, quantitative and mixed-methods research. This tool could only be used for the research studies and not the theoretical papers as indicated by the guidance of the MMAT (Hong et al., 2018)." pg. 642	
<p>An integrative review of supports, facilitators and barriers to patient-centred nursing in the intensive care unit</p> <p>Jakimowicz, S., Perry, L., & Lewis, J.</p>	2017	Journal of Clinical Nursing	23	Critical Appraisal Skills Programmes (CASP); Mixed Methods Appraisal Tool (MMAT) (Pluye et al., 2011)		Authors discuss challenges of synthesizing mixed methods studies and provide rationale for treating mixed methods studies in their synthesis as qualitative research; however, there is no rationale or explicit statement of how quality

						appraisal was handled
<p>The use of robots and other automated devices in nurses' work: An integrative review</p> <p>Kangasniemi, M., Karki, S., Colley, N., & Voutilainen, A.</p>	2019	International Journal of Nursing Practice	25 (21 Quantitative; 2 Qualitative; 2 Mixed Methods)	Caldwell, Henshaw, & Taylor (2011); Gifford, Davies, Edwards, Griffin, & Lybanon, 2007; Greenhalgh et al. 2004	"The third phase was quality appraisal, and this was carried out using method-specific evaluation criteria (Table 1). We used a three-stage scale for evaluation, with one point for yes, zero point for no, and a third category of not stated or not relevant. The maximum number of points was 22 for the qualitative studies, 21 for the quantitative studies, and 30 for the mixed methods studies. Our aim was to describe what quality actually meant, instead of just selecting papers on the basis of quality. As a result, the total points that were existing were 15 and 19 for the qualitative studies, 13 to 19 for the quantitative studies, and 18 for the mixed methods studies." p. 2	The authors thoroughly describe the scoring process used for all article types; however, two of the three citations for the appraisal tools are from other expert literature reviews and not validated tools. The analysis of the two included mixed methods st
<p>Transitioning into new clinical areas of practice: An integrative review of the literature</p> <p>Kinghorn, G. R., Halcomb, E. J., Froggatt, T., & Thomas, S. D. M.</p>	2017	Journal of Clinical Nursing	10 (9 Qualitative; 1 Mixed Methods)	Critical Appraisal Skills Programmes (CASP) 2014	"Methodological rigour in each article was assessed using the Critical Appraisal Skills Program checklists (2014). Based on a scoring system developed by Pluye, Gagnon, Griffiths, and Johnson-Lafleur (2009), an allocated score of 1 for "present" and 0 for "not present" was used." p. 4225	While there is no explicit statement of how the included mixed methods study was appraised, the authors do site the use of Pluye et al.'s 2009 scoring system; however, the stated appraisal tool is the Critical Appraisal Skills

						Programme checklist from 201
Experiences of giving and receiving care in traumatic brain injury: An integrative review Kivunja, S., River, J., & Gullick, J.	2018	Journal of Clinical Nursing	31 (3 Quantitative; 26 Qualitative; 2 Mixed Methods)	Mixed Methods Appraisal Tool (MMAT-Version 2011) Pluye et al. (2011)	"Each paper was independently assessed and systematically appraised for methodological rigour using the McGill Mixed Methods Appraisal Tool (MMAT-Version 2011) (Pluye et al., 2011). This tool guided assessment with specific criteria for qualitative studies, descriptive quantitative surveys and mixed methods studies included in this review. The quality appraisal items included clarity of the research question and aims, appropriateness of methodology and analysis, relationship between the findings and the research setting and relationship between researchers and participants. For quantitative surveys, it included the validity of the measurement instrument and response rates. For mixed methods, it considered the integration of qualitative and quantitative components. Studies with a qualitative appraisal measurement of <50% were excluded. Quality appraisal details appear in Table 5." pg. 1306	
Nursing care providers' perceptions on their role contributions in patient care: An integrative review Kusi-Appiah, E.,	2018	Journal of Clinical Nursing	14 (6 Quantitative; 6 Qualitative; 2 Mixed Methods)	Mixed Methods Appraisal Tool (MMAT-Version 2011) Pluye et al. (2011)	"[Whittemore and Knafl] advise reviewers to focus on the methodological quality, which in most cases accounts for discrepancies among study findings (Whittemore & Knafl, 2005). For this reason, the Mixed Method Assessment Tool (MMAT) developed by Pluye, Gagnon, Griffiths and Johnson-Lafleur (2009) was adapted to assess the methodological quality of the included primary studies. The MMAT tool can be used for appraising	

<p>Dahlke, S., & Stahlke, S.</p>					<p>qualitative, quantitative and mixed-methods research. It was chosen due to its demonstrated reliability and flexibility for assessing quality in mixed method reviews (Pluye et al., 2011). Although the authors do not provide a cut-off point for rating the studies as low or high quality, we used the mid-score as a cut of point to grade the studies as low or high." pp. 3832-3 "Likewise, one mixed method study was rated as poor because there was no evidence of qualitative and quantitative data integration and the associated limitations were not addressed (Oelke et al., 2008)." p. 3833</p>	
<p>Emotional Expression of Persons with Dementia: An Integrative Review with Implications for Evidence-Based Practice</p> <p>Lee, K. H., Lee, J. Y., Boltz, M., & McConnell, E. S.</p>	<p>2019</p>	<p>Worldviews on Evidence-Based Nursing</p>	<p>40 (34 Quantitative; 4 Qualitative; 2 Mixed Methods)</p>	<p>Mixed Methods Appraisal Tool (MMAT) Pace et al. (2012)</p>	<p>"The Mixed Methods Appraisal Tool (MMAT) was used to evaluate the methodological quality of each study. The MMAT is a useful tool, which can be applied to diverse study designs (i.e., qualitative, quantitative randomized controlled, quantitative non-randomized, quantitative descriptive, and mixed methods design; Pace et al., 2012). Based on the study design, each methodological criterion, except mixed methods design, consisted of four questions. Once the primary study design was identified, a rating could be given using descriptors based on which of the four is "Yes." If three of four met, three asterisks (***) could be given. Since there were four questions in each category, quality scores were given range from zero asterisk to four asterisks (****). In the case of a mixed method study, evaluation should be done in all of three areas including qualitative,</p>	

					quantitative, and mixed method study. The quality score was determined by the lower score of the study components." pg. 346	
Family presence during paediatric resuscitation and invasive procedures: the parental experience: An integrative review: An integrative review Mark, K.	2021	Scand J Caring Sci	18 (11 Quantitative; 4 Qualitative; 3 Mixed Methods)	Caldwell, Henshaw, & Taylor (2011)	"Firstly, a quality assessment according to Caldwell et al. (34) was applied. Secondly, due to the fact that data collection resulted in studies of both qualitative and quantitative as well as mixed media methods, the integrative review method allowing the inclusion of diverse methodologies was applied according to Whittemore & Knafel (31)." pp. 23-4	
The role and outcomes of music listening for women in childbirth: An integrative review McCaffrey, T., Cheung, P. S., Barry, M., Punch, P., & Dore, L.	2020	Midwifery	24 (21 Quantitative; 2 Qualitative)	Joanna Briggs Institute Critical Appraisal Tool; Critical Appraisal Skills Programmes (CASP)	"Table 3a displays the findings of the critical appraisal process of the two qualitative studies (Browning, 2000 ; Tabarro et al., 2010) and the qualitative aspect of a mixed method study (Browning, 2001)." p. 2	Qualitative portion of mixed methods study was appraised separately with qualitative tool.
Nursing and midwifery students' stress and coping during their undergraduate education	2018	Nurse Education Today	25 (23 Qualitative; 2 Mixed Methods)	Bowling (2002)	"Two reviewers (BMcC, AT), together, assessed the methodologically quality of the 25 publications using a critical appraisal tool devised by Bowling (2002). This resulted in all 25 articles being of sufficient quality for inclusion in this review (Table 1). The appraisal tool encompasses six quality	No explicit statement of how mixed methods articles were appraised.

<p>programmes: An integrative review</p> <p>McCarthy, B., Trace, A., O'Donovan, M., Brady-Nevin, C., Murphy, M., O'Shea, M., & O'Regan, P.</p>					<p>domains concerning methodological structure and reports these on a three-point scale 'yes', 'poor', and 'not reported' to illustrate the quality of the selected articles. This appraisal tool was chosen as it is particularly suited when systematically and simultaneously appraising the quality of both quantitative and qualitative methodologies (Bowling, 2002)." p. 199</p>	
<p>An integrative review of facilitators and barriers influencing collaboration and teamwork between general practitioners and nurses working in general practice</p> <p>McInnes, S., Peters, K., Bonney, A., & Halcomb, E.</p>	<p>2015</p>	<p>Journal of Advanced Nursing</p>	<p>11 papers from 9 studies (7 Qualitative; 2 Mixed Methods)</p>	<p>Critical Review Form- Qualitative Studies Version 2 (Letts et al., 2007); Mixed Methods Appraisal Tool (MMAT) (Pluye et al., 2011)</p>	<p>"Mixed methods studies which did not describe the sampling, variables, methods to combine data or analysis were considered to be of low methodological quality (Pluye et al. 2009)." pg. 1976</p>	<p>The authors comment on Pluye et al.'s (2009) assertion on "a lack of valid criteria for the concomitant appraisal of methodological quality." yet use two separate tools for appraisal of mixed methods and qualitative articles.</p>
<p>Sexual minority men and the experience of undergoing treatment for prostate cancer: An integrative review</p>	<p>2019</p>	<p>European Journal of Cancer Care</p>	<p>18 (7 Quantitative; 7 Qualitative; 4 Mixed Methods)</p>	<p>Whittemore & Knaf (2005)</p>		

Moore, M. A., Batten, J., & Lazenby, M.						
Characteristics of the bereavement experience of older persons after spousal loss: An integrative review Naef, R., Ward, R., Mahrer-Imhof, R., & Grande, G.	2013	International Journal of Nursing Studies	39 (20 Quantitative; 17 Qualitative; 2 Mixed Methods)	McMaster University checklist for quantitative research studies (Law et al. 1998); Critical Review Form-Qualitative Studies Version 2 (Letts et al., 2007)	"These guidelines were chosen because they provide separate appraisal tools for qualitative and quantitative studies in a comparable format yet with distinctive and appropriate criteria for each research approach." pg. 1110	No explicit statement of how mixed methods articles were appraised.
Factors affecting undergraduate nurse educators' knowledge, skills or attitudes about older persons and their care: An integrative review Negrin, K. A., Slaughter, S. E., Dahlke, S., & Olson, J.	2019	Int J Older People Nurs	44 (11 Qualitative; 3 Mixed Methods; 30 Other)	Mixed Methods Appraisal Tool (MMAT) Hong et al. (2018) AACODS checklist (Tyndall, 2010)	"In view of the discrepant nature of the papers in this review, two different critical appraisal tools were used, the MMAT (Hong et al., 2018) for empirical papers and the AACODS checklist (Tyndall, 2010) for discussion papers. The MMAT tool has separate quality criteria for quantitative, qualitative and mixed-methods studies. Meanwhile, the AACODS checklist is suitable for appraising expert opinion type papers and grey literature (Tyndall, 2010)." pg. 4	Authors identified two articles using both quantitative and qualitative methods that were not explicitly identified as mixed methods research, but these were also appraised with the Mixed Methods Appraisal Tool.
Experiences of registered nurses who	2016	Journal of Clinical Nursing	10	Critical Appraisal Skills Programmes (CASP); The Evaluation Tool for	"The qualitative studies were appraised using questions adapted from the Critical Appraisal Skills Programme (CASP) quality	Authors used criteria from tools to establish

<p>supervise international nursing students in the clinical and classroom setting: An integrative literature review</p> <p>Newton, L., Pront, L., & Giles, T. M.</p>			<p>(9 Qualitative; 1 Mixed Methods)</p>	<p>Mixed Method Studies (University of Salford 2005) Long, Godfrey, Randall, Brettle, and Grant (2002)</p>	<p>appraisal tool for qualitative studies (National Health Service 2006). The Evaluation Tool for Mixed Method Studies (University of Salford 2005) was used to appraise the mixed method study. Rigour was determined as follows: high rigour was awarded to studies that met 8–11 criteria, moderate rigour was awarded to studies that met 4–7 criteria and low rigour awarded to studies that met less than four criteria (University of Salford 2005, National Health Service 2006)." pg. 1493</p>	<p>levels of rigor in combining scores from appraisal.</p>
<p>AN INTEGRATIVE REVIEW OF FLIPPED CLASSROOM TEACHING MODELS IN NURSING EDUCATION</p> <p>Njie-Carr, V. P. S., Ludeman, E., Mei Ching, L. E. E., Dordunoo, D., Trocky, N. M., & Jenkins, L. S.</p>	<p>2017</p>	<p>Journal of Professional Nursing</p>	<p>13 (7 Quantitative; 2 Qualitative; 4 Mixed Methods)</p>	<p>Health Evidence Quality Assessment Tool (HEQAT) (2013)</p>	<p>"Studies were evaluated for quality and rigor by using two items (#1 and #6) from the Health Evidence Quality Assessment Tool (HEQAT) for review articles (Health Evidence Assessment Tool, 2013). The HEQAT is short and easy to use. It is designed for evaluation of systematic review articles, so for this reason, it was modified by removing the items that were not appropriate for individual studies (#2–5 and #7–10)." pg. 135</p>	
<p>Midwives' perceptions and experiences of caring for women who experience perinatal mental health problems: An</p>	<p>2017</p>	<p>Midwifery</p>	<p>22 (15 Quantitative; 6 Qualitative; 1 Mixed Methods)</p>	<p>Critical Appraisal Skills Programmes (CASP); Critical Appraisal Skills Programme (CASP) Tool for Qualitative Studies (CASP 2013)</p>	<p>"Table 4a displays the findings of the critical appraisal process including the qualitative aspect of the mixed method study.... Table 4b displays the methodological quality of the quantitative studies including the quantitative element of the mixed method study." p. 58</p>	

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integrative review Noonan, M., Doody, O., Jomeen, J., & Galvin, R.						
Integrative Review of Admission Factors Related to Associate Degree Nursing Program Success Olsen, J. M.	2017	Journal of Nursing Education	26 (22 Quantitative; 3 Qualitative; 1 Mixed Methods)	Author-Devised Criteria	"Each study was also evaluated for methodological quality based on five criteria and a summed scoring system." p. 87	The author devised a scoring system in which mixed methods studies we're scored with a four on a scale of 1 to 5 if the study included both qualitative and quantitative descriptive designs. No other elements specific to mixed methods research were identif
An Integrative Review of Literature on the Determinants of Physical Activity Among Rural Women Olsen, J. M.	2013	Public Health Nursing	21 (11 Quantitative; 7 Qualitative; 2 Mixed Methods; 1 Other)	American Association of Critical-Care Nurses (AACN) revised evidence leveling system (Armola et al., 2009)		
Parent and Family Processes Related to ADHD	2017	Journal of the American Psychiatric	32 (24 Quantitative;	Tong, Sainsbury, and Craig (2007); Long, Godfrey, Randall,	"Qualitative studies were evaluated based on the consolidated criteria for reporting qualitative research by Tong, Sainsbury,	No explicit statement of how mixed

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<p>Management in Ethnically Diverse Youth</p> <p>Paidipati, C. P., Brawner, B., Eiraldi, R., & Deatrick, J. A.</p>		<p>Nurses Association</p>	<p>6 Qualitative; 2 Mixed Methods)</p>	<p>Brettle, and Grant (2002)</p>	<p>and Craig (2007). Quantitative research was evaluated using guidelines from Long, Godfrey, Randall, Brettle, and Grant (2002) in evaluating quantitative research. Quantitative scores were not used because qualitative and quantitative studies were included." p. 6</p>	<p>methods articles were appraised.</p>
<p>Healthcare students' perceptions and experiences of making errors in simulation: An integrative review</p> <p>Palominos, E., Levett-Jones, T., Power, T., & Martinez-Maldonado, R.</p>	<p>2019</p>	<p>Nurse Education Today</p>	<p>11 (7 Qualitative; 4 Mixed Methods)</p>	<p>Critical Appraisal Skills Programmes (CASP)</p>	<p>"The included studies were appraised using the Critical Appraisal Skills Program (CASP) checklist (Critical Appraisal Skills Program, 2017). The items included in this checklist include aim, methodology, research design, recruitment strategy, data collection, the relationship between the researcher and the participants, ethical issues, data analysis, findings, and overall value." p. 34</p>	<p>No explicit statement of how mixed methods articles were appraised.</p>
<p>Knowledge and perceptions about aging and frailty: An integrative review of the literature</p> <p>Parish, A., Kim, J., Lewallen, K. M., Miller, S., Myers, J., Panepinto, R., & Maxwell, C. A.</p>	<p>2019</p>	<p>Geriatric Nursing</p>	<p>23 (6 Quantitative; 11 Qualitative; 6 Mixed Methods)</p>	<p>Joanna Briggs Institute Critical Appraisal Tool</p>	<p>"Quality appraisal of the studies in this review was conducted with the Joanna Briggs Institute (JBI) Critical Appraisal Tools for cross-sectional and qualitative studies, 11 JBI methods include comprehensive tools for diverse study designs." p. 14</p>	<p>Table 1 shows that mixed methods studies were appraised with the JBI Critical Appraisal Checklist for Qualitative Research.</p>

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<p>The behaviours of nurses that increase student accountability for learning in clinical practice: An integrative review</p> <p>Perry, C., Henderson, A., & Grealish, L.</p>	<p>2018</p>	<p>Nurse Education Today</p>	<p>9 (1 Quantitative; 7 Qualitative; 1 Mixed Methods)</p>	<p>Mixed Methods Appraisal Tool (MMAT) Pluye et al. (2011)</p>	<p>"Of the nine empirical research studies included in the review, eight provided qualitative evidence (see Table 2). Included in these eight studies was a mixed methods article design, where only qualitative data was applicable (Levett-Jones and Lathlean, 2008)." p. 180 "Two articles included in the review reported a mixed method approach to their research design. Of these articles, Levett-Jones and Lathlean (2008) only reports on qualitative data. The second article, by Jansson and Ene (2016), reported both qualitative and quantitative data, however, only qualitative data was appropriate to address the research question posed in this review, therefore, only qualitative data was appraised." pp. 179-80</p>	
<p>An integrative review of the factors influencing new graduate nurse engagement in interprofessional collaboration</p> <p>Pfaff, K., Baxter, P., Jack, S., & Ploeg, J.</p>	<p>2014</p>	<p>Journal of Advanced Nursing</p>	<p>26 (2 Quantitative; 17 Qualitative; 5 Mixed Methods; 2 Other)</p>	<p>Polit & Beck (2004); Critical Review Form- Qualitative Studies Version 2 (Letts et al., 2007)</p>	<p>"Prior to data reduction, all reports were coded for methodological rigour using a 3-point scale (1 = low, 2 = moderate, 3 = high), based on the qualitative and quantitative criteria of Letts et al. (2007) and Polit and Beck (2004) respectively." pg. 7</p>	<p>No explicit statement of how mixed methods articles were appraised.</p>
<p>Nurses' clinical reasoning practices that support safe medication administration: An integrative</p>	<p>2018</p>	<p>Journal of Clinical Nursing</p>	<p>11 (8 Qualitative; 1 Mixed Methods; 2 Other)</p>	<p>Johns Hopkins Nursing Evidence-Based Practice Rating Scale (Newhouse, Dearholt, Poe, Pugh, and White, 2007)</p>		

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review of the literature Rohde, E., & Domm, E.						
Interventions against bullying of prelicensure students and nursing professionals: An integrative review Rutherford, D. E., Gillespie, G. L., & Smith, C. R.	2019	Nursing Forum	22	Johns Hopkins Nursing Evidence-based Practice (JHNEBP) Model (Dang & Dearholt, 2017)		
Prenatal paradox: an integrative review of women's experiences with prenatal screening for fetal aneuploidy and neural tube defects Shea, T. L.	2017	Contemporary Nurse: A Journal for the Australian Nursing Profession	39 (21 Quantitative; 17 Qualitative; 1 Mixed Methods)	Bowling (2009); Whittemore, Chase, and Mandle (2001)	"Due to the diversity of primary sources, the need to systematically critique the rigor of the studies was recognized. Reports were scored according to a critique tool based on Bowling's (2009) checklist for quantitative research and Whittemore, Chase, and Mandle's (2001) guidelines for qualitative research." p. 6	No explicit statement of how mixed methods articles were appraised.
Educational Characteristics of Virtual Simulation in Nursing: An Integrative Review	2019	Clinical Simulation in Nursing	40 (18 Quantitative; 4 Qualitative; 18 Mixed Methods)	Mixed Methods Appraisal Tool (MMAT) Pace et al. (2012)	"Whittemore and Knafl (2005) recommend that, for studies that do not have the same research design, one should apply the inclusion and exclusion criteria in a sampling frame based on rational evidence, given that there would be no standard for analyzing and evaluating the quality of the	

<p>Shin, H., Rim, D., Kim, H., Park, S., & Shon, S.</p>					<p>studies. However, we performed a qualitative evaluation of the 59 studies using the Mixed Methods Appraisal Tool (MMAT; Pace et al., 2012), which allows a researcher to reasonably evaluate the quality of various study designs (qualitative, quantitative, and mixed methods) included in a systematic review. The MMAT has been confirmed to be an effective and reliable tool (Souto et al., 2015). We evaluated the quality of the studies according to their research design. We also verified the inter-rater reliability of the MMAT in this study. We excluded all methodological studies that did not specify the effects of the virtual simulation on learning outcomes and those with MMAT scores below 50%. Overall, 40 studies were deemed to be of sufficient quality and were thus included in the review (Figure 1, Appendix A)." pg. 21</p>	
<p>An Integrative Review of the Influences on Decision-Making of Young People About Human Papillomavirus Vaccine</p> <p>Sisson, H., & Wilkinson, Y.</p>	<p>2019</p>	<p>Journal of School Nursing</p>	<p>25 (14 Quantitative; 8 Qualitative; 3 Mixed Methods)</p>	<p>Coughlan, Cronin, & Ryan (2007); Ryan, Coughlan, & Cronin (2007)</p>	<p>"Elements of both frameworks were applied to the studies using mixed methods." pg. 41</p>	
<p>Systems Perspective for Incivility in Academia: An Integrative</p>	<p>2019</p>	<p>Nursing Education Perspectives</p>	<p>49 (19 Quantitative; 8 Qualitative; 6</p>	<p>Mixed-Methods Assessment Tool (Chu, Ploeg, Wong, Blain, & McGilton, 2016)</p>	<p>"Quality criteria for mixed-method studies included three questions related to a description of a combination of qualitative and quantitative data collection techniques and data analysis procedures, justification</p>	

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Review Stalter, A. M., Phillips, J. M., Ruggiero, J. S., Wiggs, C. M., Brodhead, J., & Swanson, K.			Mixed Methods; 16 Other)		for design, and the integration of qualitative findings and quantitative results (Chu et al., 2016)." p. 145	
The feasibility and acceptability of nurse-led chronic disease management interventions in primary care: An integrative review Stephen, C., McInnes, S., & Halcomb, E.	2018	Journal of Advanced Nursing	11 (1 Quantitative; 9 Qualitative; 1 Mixed Methods)	Mixed Methods Appraisal Tool (MMAT) Pluye et al. (2009)	"The first step in appraisal was to determine if each study clearly articulated their research objectives and data collection methods. Studies were then assessed against criteria specific to each methodology... Research design and data integration were appraised in mixed methods studies (Pluye et al., 2009)." p. 281	
Presence in the Nurse--Client Relationship: An Integrative Review Stockmann, C.	2018	International Journal for Human Caring	26 (8 Quantitative; 17 Qualitative; 1 Mixed Methods)	Smith (2001)		
What is the impact of shift work on the psychological functioning and resilience of nurses? An integrative	2017	Journal of Advanced Nursing	37 (32 Quantitative; 4 Qualitative; 1 Mixed Methods)	Mixed Methods Appraisal Tool (MMAT) Pluye et al. (2009)	"Two authors (M.T., C.R.) independently reviewed the quality of the 37 studies using an assessing system for mixedmethods research and mixed studies reviews (SMSR) (Pluye et al. 2009)... The mixed method study was assessed for justification of the mixed-methods design, combination of qualitative and quantitative data collection	

<p>review</p> <p>Tahghighi, M., Rees, C. S., Brown, J. A., Breen, L. J., & Hegney, D.</p>					<p>analysis techniques and integration of qualitative and quantitative results." p. 2068</p>	
<p>Integrative review of benefit levers' characteristics for system-wide spread of best healthcare practices</p> <p>ten Ham, W., Minnie, K., & van der Walt, C.</p>	2016	Journal of Advanced Nursing	<p>35</p> <p>(4 Quantitative; 9 Qualitative; 6 Mixed Methods; 16 Other)</p>	<p>Critical Appraisal Tool for use with Allied Health Research (Burnett et al. 2005); Critical Appraisal Skills Programme's instrument for qualitative research studies (Critical Appraisal Skills Programme 2006); Johns Hopkins Nursing Evidence-based Practice Research Evidence Appraisal tool for Non-research Documents (Newhouse et al. 2007)</p>		<p>No explicit statement of how mixed methods articles were appraised.</p>
<p>Innovations aimed at improving the physical health of the seriously mentally ill: An integrative review</p> <p>Tranter, S., Irvine, F., & Collins, E.</p>	2012	Journal of Clinical Nursing	22	Shaw et al. (2009)	<p>"We assessed the rigour of the papers using adapted versions of the quality appraisal tools developed by Shaw et al. (2009) for qualitative and quantitative studies." p. 1201</p>	<p>The article cited as an appraisal tool appears to be a systematic review conducted by other authors, not a validated appraisal tool.</p>

<p>Exploring the impacts of mindfulness and yoga upon childbirth outcomes and maternal health: an integrative review</p> <p>Van der Riet, P., Francis, L., & Rees, A.</p>	<p>2020</p>	<p>Scand J Caring Sci</p>	<p>12 (6 Quantitative; 1 Qualitative; 5 Mixed Methods)</p>	<p>McMaster University checklist for quantitative research studies (Law et al. 1998); Critical Appraisal Skills Programmes (CASP)</p>	<p>"To address the issue of evaluating research papers with diverse methodologies, two types of analysis tools have been used. The Critical Appraisal Skills Programme (CASP) tool was used to evaluate and analyse qualitative research (18); and the McMaster critical review form was used to critique quantitative research (19)." pg. 3</p>	<p>Authors provide extensive description of the quantitative and qualitative tools used. Evidence table shows that quan and qual tools were used seperately to appraise mixed methods studies.</p>
<p>The effectiveness of mindfulness meditation for nurses and nursing students: An integrated literature review</p> <p>van der Riet, P., Levett-Jones, T., & Aquino-Russell, C.</p>	<p>2018</p>	<p>Nurse Education Today</p>	<p>16 (12 Quantitative; 1 Qualitative; 3 Mixed Methods)</p>	<p>McMaster University checklist for quantitative research studies (Law et al. 1998); Critical Appraisal Skills Program (2017) checklist for qualitative studies (Critical Appraisal Skills Program, 2017)</p>	<p>"Quantitative papers were critically appraised using the McMaster critical review form (Law et al., 1998a, 1998b) for quantitative studies and the Critical Appraisal Skills Program (2017) checklist for qualitative studies (Critical Appraisal Skills Program, 2017). The McMaster critical review form includes the following elements: study purpose, literature, design, sample, outcomes, intervention, results, conclusions, and implications; five of the fields also involve sub-questions. We used a modified approach to CASP and McMaster's appraisal in that we scored the papers. For each element we allocated one point and the maximum score was 15. The CASP tool addresses ten components including: aim, methodology, research design, recruitment strategy, data collection, consideration of the relationship between the researcher and the participants, ethical issues, data analysis, findings; and overall value. The ten questions in the CASP tool are displayed in</p>	<p>Table 1 shows that the author-devised scores from both the CASP and McMaster tools were applied to mixed methods studies, but this process is not formally described.</p>

					a 'yes' or 'no' format. We allocated one point per question, providing a maximum rating score of 10." p. 202	
Cancer, Cognitive Impairment, and Work-Related Outcomes: An Integrative Review Von Ah, D.	2016	Oncology Nursing Forum	26 (15 Quantitative; 11 Mixed Methods)	Melynk and Fineout-Overholt (2010)		No explicit statement of how mixed methods articles were appraised.
The Gene Pool Whitt, K. J., Hughes, M., Hopkins, E. S., & Maradiegue, A.	2016	Annual Review of Nursing Research	26 (16 Quantitative; 9 Qualitative; 1 Mixed Methods)	Quality Assessment Tool for Quantitative Studies' (National Collaborating Centre for Methods and Tools, 2008); Critical Review Form- Qualitative Studies Version 2 (Letts et al., 2007)		No explicit statement of how mixed methods articles were appraised.
Transitional experience of men with breast cancer from diagnosis to survivorship: An integrative review Younas, A., Sundus, A., & Inayat, S.	2019	European Journal of Oncology Nursing	17 (5 Quantitative; 11 Mixed Methods; 1 Other)	Mixed Methods Appraisal Tool (Hong et al., 2018)	"Joint matrices were developed to compare qualitative, quantitative and mixed findings and then the findings were collated into themes." p. 143	