

The overall impact of emotional intelligence on nursing students and nursing

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Received: December 04, 2014, Accepted: December 30, 2014

ABSTRACT

Healthcare employers often criticize the lack of emotional competency and critical thinking skills demonstrated by newly licensed nurses. The purpose of this study was to evaluate whether emotional intelligence (EI) training for nurses improves critical thinking and emotional competence enough to justify including EI in nursing curricula. A meta-analysis was conducted inclusive of EI related nursing abilities and traits such as leadership, health, reflection, ethical behavior, nursing student performance, and job retention/satisfaction. Studies of EI constructs, test instruments, and contrary viewpoints

were also examined. The analysis included 395 EI studies of approximately 65,300 participants. All the studies reported a positive correlation with EI ranging from weak to strong with a moderate cumulative effect size of $r = 0.3022$ across all studies. This study may contribute to positive social change by reducing employers time and cost for training newly licensed nurses, thereby decreasing the overall cost of health care to the public.

Key words: Emotional intelligence, nursing, nursing students, nursing school curriculum, emotional competence, critical thinking

Introduction

Despite over 30 years of research and study of the concept, there is no consensus for a single construct definition of emotional intelligence (EI). Multiple EI testing instruments exist and varying opinions of how EI is measured. There also continue to be relatively few EI studies specific to nursing. For the purposes of this study, EI was defined as the ability to control one's own emotions and to influence the emotions of others.^[2] This study utilized this definition and is based on the theory that EI is best-enhanced through the development of improved critical thinking skills (CTS) and greater emotional competency (EC).^[3-6]

A review of the literature for EI studies involving nursing students and nurses involved various EI models and utilized a variety of EI instruments. The studies focused on measurement of one or more of the following eight specific EI related traits or abilities: Leadership, health, reflection, nursing student performance, ethical behavior, caring, critical thinking, and job retention/satisfaction. Due to the paucity of EI studies that specifically focused on nursing students and nurses, several meta-analyses of three of the eight specific EI traits and abilities (leadership, health, and job performance) my research had identified in the (nursing) group of EI studies were included, a methodology validated by Martins *et al.*^[7], citing Hall and Rosenthal.^[8,9]

I chose the meta-analysis method to determine the overall impact of EI on nursing students and nurses using the assumption that if EI could significantly improve these eight basic traits and abilities measured in the EI nursing and nursing student studies, then that result might support a conclusion that EI should be an integral part of a nursing curriculum.

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Website: www.apjon.org

DOI:
10.4103/2347-5625.157596

Materials and Methods

Hall and Rosenthal stated that there is no correct way to perform a meta-analysis but accuracy, simplicity, and clarity are important goals, and the simpler the meta-analysis, the more likely it is to be accurate.^[8,9] This meta-analysis contained 395 EI studies with approximately 65,300 participants that utilized over 25 separate EI testing instruments [Table 1] These instruments measured EI traits, leadership ability, health, ethics, job satisfaction, retention, reflection, nursing student performance, caring, and critical thinking. Several of the studies were themselves meta-analyses. Among the findings from the studies existed a rich diversity of EI traits, abilities, measuring instruments, and results. The purpose of this meta-analysis was to describe the pattern of effects reported.^[10]

Table 1: The different EI testing instruments used in the 395 studies

Instrument	EI test instruments	
	Total	Percentage (x/290)
EQ-i	49	17
TMMS	49	17
MSCEIT	45	16
MLQ	39	13
SEIS	20	7
TEIQue	19	6
WLEIS	12	4
Emotions	11	4
BOEQI	8	3
ECI	8	3
LPI	7	2
SUEIT	5	2
EIQ	3	1
LIKERT	2	0.7
EQI:S	2	0.7
MEIS	2	0.7
NCTEI	1	0.3
ESS-R	1	
6-D scale	1	
SALI	1	
CAI	1	
CDI	1	
CCTST	1	
EIES	1	
AES	1	

Note: First ten instruments account for 90% of the instruments used in all studies. EI: Emotional intelligence, MSCEIT: Mayer-Salovey-Caruso Emotional Intelligence Test, MLQ: Multi-Factor Leadership Questionnaire, EQ-i: Emotional Quotient Inventory, TMMS: Trait Meta-Mood Scale, SEIS: Schutte Emotional Intelligence Scale, TEIQue: Trait Emotional Intelligence Questionnaire, WLEIS: Wong and Law Emotional Intelligence Scale, BOEQI: Bar-On Emotional Quotient Inventory, ECI: Emotional Competence Inventory, LPI: Leadership Practices Inventory, SUEIT: Swinburne University Emotional Intelligence Test, EIQ: Emotional Intelligence Questionnaire, EQI:S: Emotional Quotient Inventory: Short, MEIS: Multifactor Emotional Intelligence Scale, NCTEI: National Council of Teacher Education, CAI: Caring Ability Inventory, CCTST: California Critical Thinking Skills Test, AES: Automated Essay Scoring, ESS-R: Somatic Symptoms Scale Revised, LIKERT: Four Point LIKERT Scale, CDI: Caring Dimensions Inventory, EIES: Emotional Intelligence Evaluation Scale.

The 395 studies are comprised of 27 studies that are about nurses or nursing students totaling 3040 participants, and 368 studies from meta-analyses of the effect of EI in leadership (1), job retention (1), and health (2) totaling approximately 62,260 participants. The latter approximation is necessary because one study listed their participants as >22,800. Adding the participants from the nurse studies to the participants in the meta-analyses totals approximately 65,300. Similarly, the studies total 27 plus 368, respectively, for a total of 395 studies. Previously described is the paucity in the literature of EI studies that are solely about nurses or nursing students. However, the review identified eight different EI traits and abilities that were common to the 27 EI studies of nursing and nursing students. Three of these EI traits or abilities are health, leadership, and job retention/satisfaction. The research found four meta-analyses on these very essential and important three EI traits and abilities. Although they were not strictly meta-analyses of EI and nursing, they nevertheless provided substantial evidence that EI improves and enhances health, leadership, and job retention/satisfaction across 368 additional studies. Such evidence of the effectiveness of EI cannot be ignored, and that is why those results are included in this meta-analysis.

A criticism of meta-analyses

One criticism of meta-analysis is the argument that multiple constructs, different variables, samples, and testing instruments "...is the equivalent of taking apples and oranges and averaging their weights, sizes, flavors, and shelf-lives."^[9] A well-done meta-analysis treats these methodological differences as moderator variables (p. 68).^[9] This criticism has been applied to EI research, which involves multiple constructs, lack of uniformity in the definition, multiple testing instruments and the fundamental problems of self-testing and self-reporting.

Van Rooy *et al.* conducted a meta-analysis of EI constructs, encompassing both the ability and mixed models of EI in 47 studies (12,500 participants), and found a correlation factor of 0.34 in the EI models but with substantial deviations indicating possibly that moderators were at work.^[11] Some scholars posit that EI is nothing more than the renaming of existing constructs or merely a combination of intelligence and emotional stability. Most EI models derive from two models, an ability model and a mixed model of EI traits and abilities. The mixed model draws criticism from overlap with personality constructs are measured by self-report instruments. Despite these criticisms, significant correlations have been identified between EI scores from both models and important organizational outcomes, suggesting research in this area should continue.

The theory of EI was criticized by Waterhouse for having too many constructs, because EI is indistinguishable from IQ and personality factors, and the only EI trait that is truly measurable is the skill of regulating emotion (p. 217).^[12] Waterhouse further criticized Goleman, a major proponent of EI, for failure to properly correlate data and for erroneously deriving EI success percentages from nonreplicable studies and unsupported findings (p. 218).^[12] Waterhouse concluded that the problems with EI theory are unresolved. In rebuttal, Cherniss *et al.* challenged Waterhouse's conclusions by asserting that after 100 years even IQ theory has multiple constructs, and since EI is a young theory it should not be dismissed for having multiple constructs. In addition, stating "the evidence continues to accumulate" (p. 242), they pointed to additional EI studies that supported their claim that EI education does significantly impact leadership and workplace outcomes.^[2] However, the reliability issue of using multiple EI testing devices coupled with multiple constructs of EI was not adequately addressed. Waterhouse responded to the rebuttal with further criticisms of theories of intelligence (including EI) and took satisfaction and support for her arguments from Goleman's admission that EI lacked a unitary empirically supported construct.^[13]

Rossen and Kranzler studied the incremental validity of the Mayer-Salovey-Caruso EI Test (MSCEIT) concluding that only the overall EI score was relevant as far as socioemotional outcomes were concerned, that MSCEIT test scores in academic achievement, psychological well-being, and peer attachment did not predict a statistically significant increment of variance, and that the overall EI score predicted "only positive relations with others and alcohol use" (p. 63).^[14] Similarly, several authors argued that EI and emotional and social competency (ESC) have not yet demonstrated incremental validity greater than general intelligence and personality tests in meta-analyses.^[15,16] They argued that there is a crucial distinction between measuring EI traits and EI abilities, dismissing both EI trait measurement and ESC models in favor of the Mayer *et al.* EI ability models which has been supported by both supporters and detractors.^[17]

Petrides *et al.* in three studies comprising 732 subjects defended the incremental validity of trait EI through the use of the TEIQue instrument.^[18] The problem of different EI constructs and multiple testing instruments notwithstanding, the authors cautioned researchers to view the measures of EI traits solely for what they are and to refrain from following "the mushrooming number of models emanating from commercial test user manuals" (p. 49).^[18] They reason that something must be used to

measure things unrelated to capabilities, competencies, and skills which are measured by the EI ability tests (MSCEIT). An individual's emotions, self-perceptions, and other subjective criteria will usually influence their daily lives, decision-making, and tasks. Unfortunately, the self-assessment tests are the sole means by which a researcher can attempt to measure what that influence may or may not be. Currently, EI theory continues to change in both definition and in scope with critics extolling the virtues of the ability model of EI (vs. the trait model) as being more promising for the achievement of a sustainable EI theory. However, criticisms aside, EI should continue to use the trait scales and tests for data just as the Psychiatry and Psychology fields make use of self-reporting scales for their diagnoses. Progress in improving the test instruments and in fine-tuning EI theory should eventually follow.

In addition to the problem of multiple EI constructs, Roberts *et al.* stated that many models of EI are light on theory and heavy on laundry lists of desirable personal qualities that exclude cognitive intelligence (p. 140).^[19] These criticisms of EI, its multiple constructs, and multiple testing tools continue to be leveled at EI studies and EI theory, in general. Van Rooy *et al.* cited earlier meta-analytic work which showed only a 0.14 correlation between the EI ability model and the EI mixed model support a conclusion of independence between the two models.^[20] The EI mixed model showed an 85 of the correlation (overlap) among the measures used suggesting that researchers' fine distinctions about EI in the mixed model should be called into question. Researchers were also using self-reporting type tests as data for the EI ability model which, in conjunction with its low correlation of 0.14 to the mixed model suggests that there is a difference between actual ability and self-reported ability. The authors called for more studies and tests that use measuring instruments other than self-reports. In addition, the high correlation score of 0.71 among the trait elements of the EI mixed model indicated that EI is far from being just a mix of unrelated concepts. EI should be grouped according to its role as a predictor in organizational criteria with studies performed asking how and why these effects occurred because research cannot be driven by a single measure or test of the single construct.^[20]

The use of emotional intelligence in nursing curricula in the USA and abroad

In 2006, the National League of Nursing Accrediting Committee introduced a critical thinking learning outcome (evidenced by journaling and reflection) as a condition for nursing school accreditation.^[5] This policy has remained unchanged and virtually unimproved on for several years. The

literature review reveals the paucity of research and studies about EI and introducing it into nursing curricula in the USA. However, the literature review does reveal important initial steps in implementing EI and associated concepts into the nursing curricula and government policies of other nations.

One of the earliest proponents of introducing EI into nursing curricula were Akerjordet and Severinsson in 2004.^[21] However, despite stating a cautious optimism about the future of EI, by 2010 these authors question introducing EI into academic curricula and express doubts about the validity of EI constructs, tests, training, and a lack of rigor and control in EI studies. Akerjordet later devised an EI instrument specific to nursing, still under development at the time of this writing^[22]. Despite the misgivings of those early proponents, the literature presents successful studies of EI and its integration into academic curricula. EI is used to screen nursing applicants in the UK.^[23] EI helps UK nurses to deal with the stress associated with end-of-life care in the emergency department.^[24] In Singapore, nursing curriculum is aided in the design by determining the EI profiles and needs of their students.^[25] Graduate entry medical students take an 8 h course in personal and professional development and complete two EI testing procedures over a 2-year period in order to address the topic of professionalism, stress, stress management, and leadership.^[26]

Harrison and Fopma-Loy advocated reflective journaling should be used in many nursing courses including leadership and simulation.^[27] Humphrey *et al.* called for studies for the purpose of introducing EI into secondary and graduate school curricula.^[28] Hurley and Rankin advocated the use of experiential and cognitive learning as a direct means of introducing EI into an already crowded nursing curriculum.^[29] Hurley further argued that in the UK and Australia, the generic 3-year nursing program is inadequate for training mental health nurses and that new learning outcomes with EI at the core of nursing curricula is both needed and warranted.^[30] Both undergraduate and graduate business curricula benefit from EI for the teaching of effective collaboration, adaptability, and critical thinking.^[31-35]

Remarkable data results

Every study used in the meta-analysis (See references marked M#) reported a positive correlation between EI and the trait (s) and ability (s) tested ranging from weak to moderate to strong. This is quite a remarkable finding which makes one think of validity issues and whether such results might possibly be too good to be true. However, these are the results of 395 different studies, and with such diversity,

validity should not be an overall issue. The average effect size for all studies is $r = 0.3022$. This figure was arrived at by multiplying the effect size of each study by the number of its participants and then dividing that total by the total number of participants (30226.545/100015). It should be noted that several studies reported multiple effect sizes for multiple traits necessitating counting the same population more than once; hence, the ~65,300 participants became 100,015. Cronbach alpha coefficients range from a low of 0.62 to a high of 0.91 with most scores in the 80+ range indicating the overall reliability of the sub-scales used in the testing throughout these studies.

Remembering that an effect size of $r = 0.10$ is weak, $r = 0.30$ is moderate, and $r = 0.50$ is strong, the significance of an effect size, or its magnitude, is relative to the number of participants in the study such that the larger the number of participants, the greater the significance or magnitude of the effect size.^[36] For example, in O'Boyle *et al.*, a meta-analysis of EI and job performance, 43 effect sizes with over 22,800 participants have a medium correlation of $r = 0.28$ for the influence of EI in job performance.^[37] Contrast the former study to Heffernan *et al.* with a population of 135 with correlation effect sizes averaging $r = 0.41$.^[38] Despite the higher r value in the latter study, the magnitude or significance of that effect size is not as great as that of the former study where $n > 22,800$. Despite the multiple EI constructs and 25 different test instruments used, the 395 EI studies (approximately 65,300 participants) have a moderate cumulative effect size of $r = 0.3022$ which informs us that EI is beneficial to nursing students and nursing because EI improves emotional competence, critical thinking, leadership, caring, ethical behavior, reflection, job retention and satisfaction, and nursing/nursing student performance.^[1]

Conclusion

The 100% positive results for the impact of EI and its effectiveness in enhancing skills necessary for nurses and nursing students should not be ignored when they come from 395 different studies. The studies were collected in a systematic way and are representative of all the EI studies performed in the past several years involving those eight traits and abilities. Comparison of effect sizes is an effective way to perform a meta-analysis of EI and a single variable such as health or leadership. The findings from this article suggest that the comparison of multiple effect sizes of EI and eight traits and abilities is also an effective meta-analysis technique. Due to the diversity of the 395 EI studies which include multiple variables such as different constructs, multiple testing instruments, and the eight categories

abilities and traits measured, the simplest approach in this meta-analysis was to view the moderate cumulative effect size result, $r = 0.3022$ across all studies.

In view of the use of EI across the world both in and out of the academic setting, a reasonable conclusion from this meta-analysis is that there is statistically significant evidence that EI training and education improves the CTS and EC of nursing students and nurses in eight traits and abilities. This suggests that EI training and instruction should be considered for inclusion in nursing school curricula. The moderate effect size of $r = 0.3022$ in this meta-analysis and the apparent success of EI training and instruction in both nursing curricula and postlicensure training in other countries such as the UK, Australia, and Singapore points to the need for further study concerning the efficacy of adopting similar academic and training EI policies in the US and other countries.

References

1. Michelangelo L. Emotional intelligence, emotional competency and critical thinking in nursing and nursing education. UMI: 3601244. Ann Arbor, MI: ProQuest LLC; 2013.
2. Cherniss C, Extein M, Goleman D, Weissberg RP. Emotional intelligence: What does the research really indicate? *Educ Psychol* 2006;41:239-45.
3. Augusto Landa JM, López-Zafra E, Aguilar-Luzón Mdel C, de Ugarte MF. Predictive validity of Perceived Emotional Intelligence on nursing students' self-concept. *Nurse Educ Today* 2009;29:801-8.
4. Beauvais AM, Brady N, O'Shea ER, Griffin MT. Emotional intelligence and nursing performance among nursing students. *Nurse Educ Today* 2011;31:396-401.
5. Kaddoura MA. Effect of the essentials of critical care orientation (ECCO) program on the development of nurses' critical thinking skills. *J Contin Nurs Educ* 2010;41:424-32.
6. Por J, Barriball L, Fitzpatrick J, Roberts J. Emotional intelligence: Its relationship to stress, coping, well-being and professional performance in nursing students. *Nurse Educ Today* 2011;31:855-60.
7. Martins A, Ramalho N, Morin E. A comprehensive meta-analysis of the relationship between Emotional Intelligence and health. *Pers Individ Dif* 2010;49:554-64.
8. Hall JA, Rosenthal R. Interpreting and evaluating meta-analysis. *Eval Health Prof* 1995;18:393-407.
9. Rosenthal R, DiMatteo MR. Meta-analysis: Recent developments in quantitative methods for literature reviews. *Annu Rev Psychol* 2001;52:59-82.
10. Borenstein M, Hedges LV, Higgins JP, Rothstein HR. Introduction to Meta-Analysis. 1st ed. U.K.: John Wiley & Sons Ltd.; 2009.
11. Van Rooy D, Viswesvaran C, Pluta P. An evaluation of construct validity: What is this thing called emotional intelligence? *Hum Perf* 2005;18:445-62.
12. Waterhouse L. Inadequate evidence for multiple intelligences Mozart effect and emotional intelligence theories. *Educ Psychol* 2006;41:247-55.
13. Waterhouse L. Multiple intelligences the Mozart effect and emotional intelligence: A critical review. *Educ Psychol* 2006;41:207-25.
14. Rossen E, Kranzler JH. Incremental validity of the Mayer-Salovey-Caruso Emotional Intelligence Test version 2.0 (MSCEIT) after controlling for personality and intelligence. *J Res Pers* 2009;43:60-5.
15. Antonakis J, Dietz J. Emotional intelligence: On definitions, neuroscience, and marshmallows. *Ind Organ Psychol* 2010;3:165-70.
16. Harms PD, Crede M. Remaining issues in emotional intelligence research: Construct overlap, method artifacts, and lack of incremental validity. *Ind Organ Psychol* 2010;3:154-8.
17. Mayer JD, Salovey P, Caruso DR, Sitarenios G. Measuring emotional intelligence with the MSCEIT V2.0. *Emotion* 2003;3:97-105.
18. Petrides KV, Sevdalis N. Emotional intelligence and nursing: Comment on Bulmer-Smith, Profetto-McGrath, and Cummings (2009). *Int J Nurs Stud* 2010;47:526-8.
19. Roberts RD, Matthews G, Zeidne M. Emotional intelligence: Muddling through theory and measurement. *Ind Organ Psychol* 2010;3:140-4.
20. Van Rooy DL, Whitman DS, Viswesvaran C. Emotional intelligence: Additional questions still unanswered. *Ind Organ Psychol* 2010;3:149-53.
21. Akerjordet K, Severinsson E. Emotional intelligence in mental health nurses talking about practice. *Int J Ment Health Nurs* 2004;13:164-70.
22. Akerjordet K, Severinsson E. The state of the science of emotional intelligence related to nursing leadership: An integrative review. *J Nurs Manag* 2010;18:363-82.
23. Beauvais A. Build an instinct for feelings. *Nurs Stand* 2012 4-10;26:62-3.
24. Bailey C, Murphy R, Porock D. Professional tears: Developing emotional intelligence around death and dying in emergency work. *J Clin Nurs* 2011;20:3364-72.
25. Chan MF, Creedy DK, Chua TL, Lim CC. Exploring the psychological health related profile of nursing students in Singapore: A cluster analysis. *J Clin Nurs* 2011;20:3553-60.
26. Doherty EM, Cronin PA, Offiah G. Emotional intelligence assessment in a graduate entry medical school curriculum. *BMC Med Educ* 2013;13:38.
27. Harrison PA, Fopma-Loy JL. Reflective journal prompts: A vehicle for stimulating emotional competence in nursing. *J Nurs Educ* 2010;49:644-52.
28. Humphrey N, Curran A, Morris E, Farrell P, Woods K. Emotional intelligence and education: A critical review. *Educ Psychol* 2007;27:235-54.
29. Hurley J, Rankin R. As mental health nursing roles expand, is education expanding mental health nurses? An emotionally intelligent view towards preparation for psychological therapies and relatedness. *Nurs Inq* 2008; 15:199-205.
30. Hurley J. The necessity, barriers and ways forward to meet user-based needs for emotionally intelligent nurses. *J Psychiatr Ment Health Nurs* 2008;15:379-85.
31. Joyner FF, Mann DT. Developing emotional intelligence in MBA students: A case study of one program's success. *Am J Bus Educ* 2011;4:59-72.
32. Myers LL, Tucker ML. Increasing awareness of emotional intelligence in a business curriculum. *Bus Commun Q* 2005;68:44-51.
33. Opengart R. Emotional intelligence in the K-12 curriculum and its relationship to American workplace needs: A literature review. *Human Res Dev Rev* 2007; 6: 442-58.

34. Sigmar LS, Hynes GE, Hill KL. Strategies for teaching social and emotional intelligence in business communication. *Bus Commun Q* 2012; 75: 301-17.
35. Wang N, White SC, Wyatt J, Young T, Bloemker G. Impact of a college freshman social and emotional learning curriculum on student learning outcomes: An exploratory study. *J Univ Teach Learn Pract* 2012;9:1-22.
36. Cooper H. *Research Synthesis and Meta-Analysis*. 4th ed. Los Angeles: SAGE; 2010.
37. O'Boyle EH, Humphrey RH, Pollack JM, Hawver TH, Story PA. The relation between emotional intelligence and job performance: A meta-analysis. *J Organ Behav* 2011;32:788-818.
38. Heffernan M, Quinn-Griffin MT, McNulty S, Fitzpatrick JJ. Self-compassion and emotional intelligence in nurses. *Int J Nurs Pract* 2010;16:366-73.
- M14. Harms PD, Crede M. Remaining issues in emotional intelligence research: Construct overlap, method artifacts, and lack of incremental validity. *Ind Organ Psychol* 2010; 3:154-8.
- M15. Heffernan M, Quinn-Griffin MT, McNulty S, Fitzpatrick JJ. Self-compassion and emotional intelligence in nurses. *Int J Nurs Pract* 2010; 16:366-73.
- M16. Kaddoura MA. Effect of the essentials of critical care orientation (ECCO) program on the development of nurses' critical thinking skills. *J Cont Educ Nurs* 2010; 41:424-32.
- M17. Kaddoura MA. Critical thinking skills of nursing students in lecture-based teaching and case-based learning. *Int J Sch Teach Learn* 2011; 5:1-18.
- M18. Karim J, Weisz R. Cross-cultural research on the reliability and validity of the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT). *Cross Cul Res* 2010; 44:374-404.
- M19. Kooker BM, Shoultz J, Codier EE. Identifying emotional intelligence in professional nursing practice. *J Prof Nurs* 2007; 23:30-6.
- M20. Martins A, Ramalho N, Morin E. A comprehensive meta-analysis of the relationship between Emotional Intelligence and health. *Pers Individ Dif* 2010; 49:554-64.
- M21. Montes-Berges B, Augusto JM. Exploring the relationship between perceived emotional intelligence, coping, social support and mental health in nursing students. *J Psychiatr Mental Health Nurs* 2007; 14:163-71.
- M22. O'Boyle EH, Humphrey RH, Pollack JM, Hawver TH, Story PA. The relation between emotional intelligence and job performance: A meta-analysis. *J Organ Behav* 2011; 32:788-818.
- M23. Por J, Barriball L, Fitzpatrick J, & Roberts J. Emotional Intelligence: Its relationship to stress, coping, well-being and professional performance in nursing students. *Nurse Educ Today* 2011; 31:855-60.
- M24. Rego A, Godinho L, McQueen A, & Cunha MP. Emotional intelligence and caring behaviour in nursing. *The Serv Ind J* 2010; 30:1419-37.
- M25. Rossen E, Kranzler JH. Incremental validity of the Mayer-Salovey-Caruso Emotional Intelligence Test version 2.0 (MSCEIT) after controlling for personality and intelligence. *J Res Pers* 2009; 43:60-5.
- M26. Schutte NS, Malouff JM, Thorsteinsson EB, Bhullar N, & Rooke SE. A meta-analytic investigation of the relationship between emotional intelligence and health. *Pers Individ Dif* 2007; 42:921-33.
- M27. Sener E, Demirel O, Sarlak K. The effect of emotional intelligence on job satisfaction: Connecting health and humans. *Stud in Health Tech Infor* 2009; 146:710-1.
- M28. Smith J. Emotional intelligence and professional education: The use of narrative journaling. *Int J Learn* 2009; 16:81-92.
- M29. Smith K, Profetto-McGrath J, Cummings GG. Emotional intelligence and nursing: An integrative literature review. *Int J Nurs Stud* 2009; 46:1624-36.
- M30. Van Dusseldorp LR, Van Meijel BK, Derksen JJ. Emotional intelligence of mental health nurses. *J Clin Nurs* 2009; 20:555-62.
- M31. Vitello-Ciccio JM. Exploring emotional intelligence: Implications for nursing leaders. *JONA*, 2002; 32: 203-10.
- M32. Whitman DS, Van Rooy DL, Viswesvaran C, Alonso A. The susceptibility of a mixed model measure of emotional

Supplement Materials

Studies Used in Meta-analysis

- M1. Akerjordet K, Severinsson E. Emotional intelligence in mental health nurses talking about practice. *Int J Ment Health Nurs* 2004;13:164-70.
- M2. Akerjordet K, Severinsson E. Emotionally intelligent nurse leadership: A literature review study. *J Nurs Manag* 2008; 16:565-77.
- M3. Allen DE, Ploeg J, Kaasalainen S. Current concepts in the assessment of emotional intelligence. *J Prof Nurs* 2012; 28: 231-40.
- M4. Augusto Landa JM, Lopez-Zafra E, Aguilar-Luzon M, De Ugarte MF. Predictive validity of perceived emotional intelligence on nursing students' self-concept. *Nurse Educ Today* 2009; 29:801-8.
- M5. Augusto-Landa JM, Montes-Berges B. Perceived emotional intelligence, health and somatic symptomatology in nursing students. *Individ Dif Res* 2009; 7:197-211.
- M6. Beauvais AM, Brady N, O'Shea ER, Quinn Griffin MT. Emotional Intelligence and nursing performance among nursing students. *Nurse Educ Today* 2011; 31:396-401.
- M7. Benson G, Martin L, Ploeg J, Wessel J. Longitudinal study of emotional intelligence, leadership, and caring in undergraduate nursing students. *J Nurs Educ* 2012; 51:95-101.
- M8. Birks Y, McKendree J, Watt I. Emotional intelligence and perceived stress in healthcare students: A multi-institutional, multi-professional survey. *BMC Med Educ* 2009; 61.
- M9. Byrne JC, Dominick PG, Smither JW, Reilly RR. Examination of the discriminant, convergent, and criterion-related validity of self-ratings on the emotional competence inventory. *Int J Sel Assess* 2007; 15:341-53.
- M10. Codier E, Freel M, Kamikawa C, Morrison P. Emotional intelligence, caring, and generational differences in nurses. *Int J Hum Caring* 2011; 15:1-7.
- M11. Codier E, Kamikawa C, Kooker BM, Shoultz J. Emotional intelligence, performance, and retention in clinical staff nurses. *Nurs Adm Q* 2009; 33: 310-6.
- M12. Codier E, Muneno L, Franey K, Matsuura F. Is emotional intelligence an important concept for nursing practice? *J Psychiatr Ment Health Nurs* 2010; 17:940-48.
- M13. Deshpande SP, Joseph J. Impact of emotional intelligence, ethical climate, and behavior of peers on ethical behavior of nurses. *J Bus Ethics* 2009; 85: 403-10.

intelligence to faking: A Solomon four-group design. Psychol Sci 2008; 50: 44-63.

- M33. Yildirim B, Ozsoy SA. Nursing student: The critical thinking development of the critical thinking education. HealthMed 2011; 5: 846-56.

How to cite this article: Michelangelo L. The overall impact of emotional intelligence on nursing students and nursing. Asia Pac J Oncol Nurs 2015;2:118-24.

Source of Support: Nil, **Conflict of Interest:** None declared.