



## An international study of emotional intelligence in first year radiography students: The relationship to age, gender and culture



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### ABSTRACT

Emotional intelligence (EI) is an important personality trait in healthcare professionals and students. This study aims to identify gender, age or culture differences in trait EI scores between student radiographers across four countries. The short form of the trait EI questionnaire (TEIQue-SF) was used to collect data from first year radiography students in Australia, Hong Kong, Ireland and the United Kingdom. Global EI and Sociability scores of the first year radiography students were in keeping with published norm data in terms of gender differences, however, Self-Control and Emotionality scores did not follow the gender-based norms. Statistically significant differences in Global EI ( $p = 0.02$ ), Wellbeing ( $p = 0.002$ ) and Sociability ( $p = 0.003$ ) were found with Western versus Asian cultures being a key factor. This study highlights a number of EI findings of importance to health-related professional programmes and the potential impact of cultural background on this key personality trait.

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### Introduction

This study is the first part of a wider longitudinal project which will measure and track the emotional intelligence (EI) of student radiographers in four countries as they progress through their qualifying programme and into clinical practice. This paper focuses on the measurement of EI, using the trait EI model,<sup>1</sup> throughout the first year of their higher education and analyses EI scores and their relationship to the independent variables of age, gender and culture. Within this study, students are enrolled into two professional branches of radiography: diagnostic radiography and therapeutic radiography.

Two main branches of EI have emerged from the field; namely the ability model<sup>2</sup> and the trait model.<sup>1</sup> This study selected the trait model for its psychological conceptual roots and used the trait EI (also known as emotional self-efficacy) questionnaire for its high

level of validity and reliability.<sup>3,4</sup> The ability model on the other hand is a maximum-performance measure of EI as a cognitive ability rather than as a personality trait and a number of limitations related to the best established test of the ability model, namely the Mayer–Salovey–Caruso Emotional Intelligence Test (MSCEIT) have been reported.<sup>2–5</sup> The relationship between this model and age, gender and culture will now be discussed.

#### Emotional intelligence and healthcare

In a recent article we discussed the significance of EI to healthcare<sup>6</sup> where many studies have considered its relationship with application to work tasks, clinical decision making and patient compassion, however, further research was recommended.<sup>7–12</sup>

#### Emotional intelligence and gender

The relationship between gender and EI has been explored at great length without consensus. In particular, there have been a number of longitudinal and multi-institutional studies involving healthcare students<sup>13</sup> which have shown variable scores on EI and

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its sub-scales for males and females, as exemplified by Carr in medical students<sup>14</sup> and Pau et al. for student dentists.<sup>15</sup>

Tsaousis and Kazi used a trait measure of EI, the Greek Emotional Intelligence Scale (GEIS), and noted differences between males and females.<sup>16</sup> Females scored higher in expression and recognition plus caring and empathy scales, but males scored higher on control of emotions. Similarly, females scored significantly higher than males across all of the dimensions of the ability model.<sup>17</sup> This suggests some commonality across the two quite different (Trait and Ability) models. Yet in the data published by Petrides in the trait EI questionnaire's technical manual,<sup>1</sup> males scored more highly on *Global EI* and the factors of *Self-Control* (traits pertaining to the regulation of emotions and impulses) and *Sociability* (traits pertaining to the interpersonal utilisation and management of emotions) (all  $p \leq 0.01$ ), with females scoring more highly on *Emotionality* (traits pertaining to the perception and expression of emotions) ( $p \leq 0.01$ ). *Wellbeing* (traits pertaining to dispositional mood) differences were not significant, however, it was noted that the effect size of the *Global EI* was small (Cohen's  $d = 0.22$ ). There was also a caveat in the manual which stated that '*...this difference may vary as a function of the constitution of the sample.*' The EI and gender data presented in the manual is based on a sample of 1666 subjects (female  $n = 907$ , male  $n = 759$ ).

Self-report EI instruments have been reported to be biased by gender stereotypes, with females generally considering other females to be higher in EI, with similar results for male-to-male stereotypes.<sup>18</sup> This study of 260 undergraduate students rated a number of EI traits as being more typical for either men or women and while this study asked students to peer rate EI competencies, it has been suggested that the addition of self-ratings of their own EI would have provided an interesting comparison.<sup>18</sup> Overall, there is little consensus regarding the role of gender upon EI and this study further explores this issue.

#### *Emotional intelligence and age*

Two key questions require consideration when investigating the relationship between age and EI, these are the stability of the construct over time and whether at particular stages of life there are particular increases or decreases in EI.

The technical manual for the trait EI questionnaire describes the relationship between EI and age in the following way: '*Trait EI self-perceptions are likely to remain relatively stable across the life-span*' (p 20) but notes that major life events or conscious effort on the part of the individual might change a person's EI profile.<sup>1</sup> This later point is supported by changes brought about by educational intervention studies.<sup>19</sup> It has also been suggested that elements of the ability model can develop with age, can change throughout life and can be improved through training and remedial action.<sup>20</sup> However, other studies have shown there is no significant relationship between age and EI, with some even suggesting a negative relationship.<sup>17</sup>

Derksen, Kramer and Katzko, who used the trait EI concept as measured with Barr-On's EQ-I, offered data to support the notion that EI peaks between 35 and 44 years and drops off as one progresses into old age, however, further research is needed to help illuminate this relationship between EI age and time.<sup>21</sup>

#### *Emotional intelligence and culture*

Differences in cultures, beliefs and values can affect emotion perception, expression, and regulation.<sup>22</sup> These are key features of many EI models and evidence is emerging of differences in EI between cultures, with Ang et al.<sup>23</sup> suggesting a person considered emotionally intelligent in one culture may not necessarily be

considered so in an alternative culture. Both social and cultural learning may impact on EI.<sup>18</sup>

A small number of studies have attempted to measure EI within culturally diverse student groups, primarily between Western (United States of America) and Asian cohorts.<sup>24–26</sup> These studies indicate that significant differences in EI exist between US and Asian students, with Asian students scoring lower. Margavio et al.<sup>27</sup> extended these findings and determined that EI scores of graduate American students were statistically higher than for graduate Chinese students, however, the same distinct trend was not reported for undergraduate cohorts. They also compared 'non-traditional' (>23 years of age) versus 'traditional' (17–22 years of age) Chinese students and found significantly lower EI scores in the 'non-traditional' group.<sup>27</sup> Furthermore, students who were able to incorporate international studies as a mechanism for education on cultural diversity had higher EI scores than those who did not.

Lee and Kwak<sup>28</sup> discussed EI in the Korean culture and, during the development of a Korean EI scale, identified the uniquely Korean emotion of *Jeong*. This can be defined as a very deep feeling of intimacy found in interpersonal relationships,<sup>29</sup> yet can be found between Koreans who might love or hate each other, hence a good example of a unique cultural feature related to EI.

Further evidence of cultural differences impacting EI can be found in the hospitality and leisure industry.<sup>30</sup> The authors studied EI levels in hospitality management undergraduate students with Western and Eastern cultural backgrounds using a self-report measure. Significant differences existed between the EI levels of hospitality students from Western and Eastern cultures. Specifically, students from Eastern cultural backgrounds scored significantly lower than their Western counterparts in overall EI, as well as all subtest EI scores of *Emotional Insight Into Self*, *Goal Orientation and Motivation*, *Ability to Express Emotions*, *Social Insight and Empathy*.<sup>30</sup> Furnham<sup>31</sup> suggested that Asian university students tend to show greater humility in their self-estimations of overall, verbal and cultural intelligence compared to American and British students. Indeed Matsumoto and Hwang<sup>32</sup> discussed more universal emotional domains versus more culture-specific domains. With regard to the countries in the current study, a recent poll of over 140 countries ranked people in Hong Kong as being less emotional than people in Australia, Ireland and UK, but the least emotional in the entire survey were people from Singapore.<sup>33</sup>

Lopez-Zafra and Gartzia<sup>18</sup> recommended cross-cultural analyses when considering gender in EI as self-report scales may be biased by an individual's willingness to describe themselves based on cultural stereotypes and socially desirable norms. This would suggest that there are differences in EI between different cultures as measured using various EI concepts and measurement tools but further research is required to investigate this difference.

The aims of this study were to identify any gender, age or culture differences in trait EI scores across all domains (*Global EI*, *Wellbeing*, *Self-Control*, *Emotionality* and *Sociability*) between student radiographers across four countries. The specific objectives were to:

- establish whether gender influences the trait EI scores of radiography students across the four institutions;
- establish whether age influences the trait EI scores of radiography students across the four institutions;
- explore EI differences between the four institutions and countries.

## **Methods**

### *Design*

Data were collected from the start of the first academic semester across diagnostic radiography and radiation therapy programmes

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