# A Longitudinal Study of Emotional Quotient in Nursing Students

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**Abstract**

The emotional quotient (EQ) is also known as the mental intelligence quotient. We believe that both intellectual ability and EQ are relevant to the practice of nursing. For this study, we conducted a longitudinal analysis of data to look for trends in the EQ scores of first- and third-year nursing students. Study participants consisted of 196 students who were admitted to three-year nursing school programs at five institutions, and later 186 of those same students when they were enrolled in their third year. We used Masao Ōmura's EQ instrument for this study. No significant differences were found between first- and third-year students in the dimensions of empathy, self-awareness, persistence, and optimism. However, third-year students had lower empathy scores than first-year students. There were also significant differences between first and third year students on the dimensions of self-control and adaptability. These findings intimate that on-site clinical training greatly influences student development in nursing science education. Further research will go beyond the longitudinal design of this study and determine the associative factors related to the EQ scores for each student.

**Introduction**

Professor Peter Salovey from Yale University and Professor John Mayer from the University of New Hampshire first proposed the Emotional Quotient (EQ) theory in an article published in 1989. In their article, they define EQ as the ability to recognize emotional states, draw on emotion to assist intellectual reflection, elicit emotions, understand emotion and emotional awareness, and deliberately regulate emotions in a way that stimulates emotional and intellectual development. Subsequently, in 1995, Daniel Goleman, a journalist with a degree in psychology, published a book on this theory entitled *Emotional Intelligence*, which was a best seller in Japan and subject to much attention. In Japan, EQ (emotional quotient) has been translated as *jōdō shisū or kokoro no chinō shisū*.

Nursing is an interpersonal service and considered to be a form of emotional labor given that emotion plays such an important role in its practice.[1] Nursing professionals must be able to control their own emotions and simultaneously readily listen to and sympathize with others. In addition, it is essential for them to be attuned to the emotions of others in order to establish

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relationships with their patients. Thus, in theory, the development of nursing abilities requires not only high intellectual and problem solving capacities, but also EQ. Scientifically, however, this has yet to be proven.

The present study used Ōmura's EQ instrument to compare the longitudinal change in EQ scores of first-year nursing students with no practical experience at the time of their matriculation to the scores of these same students in their third year post-clinical training prior to graduation.

**Methods**

I. Purpose

To compare the EQ scores of nursing students at two points in time (at the time of their matriculation and prior to graduation), and elucidate factors related to any changes.

II. Research Methods

1. Participants

Informed consent to participate in this study was provided in 2002 by 193 students admitted in 2002 to five three-year nursing programs in Niigata prefecture.

2. Time Frame

The first survey was conducted between the months of April and May of 2002 (within one month of matriculation). The second survey was conducted two years later in February of 2004.

3. Methods

We used a questionnaire based on Ōmura's EQ instrument and tested levels of empathy, self-awareness, self-control, persistence, adaptability, and optimism. Each of these six dimensions had 12 items on the EQ instrument for a total of 72 questions. Ten (10) of the questions for each dimension required a yes/no/neither response; the other two were A/B responses. The point allocation for each answer was as follows: yes (2), no (0), neither (1), A (1) and B (2). The highest possible score in each dimension was 24. A score above 20 points was considered high, and anything below 10 points was regarded as low.

4. Statistical Mode of Analysis

We used a t-test and variance analysis to examine the EQ scores of each dimension with a significance level less than 5%.

5. Definition of the Six Dimensions (Ōmura)

a. Empathy: the ability to understand and enter into the feelings of others.

b. Self-awareness: the awareness of one's own true feelings and mental condition.

c. Self-control: the ability to control one's own desires and impulses.

d. Persistence: one's tolerance toward unfulfilled desires.

e. Adaptability: having a creative and flexible standpoint in a given situation.

f. Optimism: the ability to expect that things will work themselves out even when faced with various setbacks and frustrations.

6. Ethical Concerns

We explained to the students in writing the purpose of this study, our research methods, that their participation was

entirely voluntary, and that the names of participants and any information obtained by this study would only be disclosed to those directly involved in the study. Information obtained by this study was completely destroyed upon the completion of the study.

## Results

Chart 1 Changes in EQ Scores According to Academic Year

| | Year One (n=193) | | Year Three (n=186) | |
|---|---|---|---|---|
| empathy | 16.1±2.7 | | 15.7±3.2 | |
| self-awareness | 13.8±2.8 | | 13.6±3.3 | |
| self-control | 14.8±3.0 | * | 15.6±3.5 | * |
| persistence | 13.1±3.7 | | 12.5±4.6 | |
| adaptability | 11.2±3.7 | * | 12.2±4.0 | * |
| optimism | 15.5±3.5 | | 16.0±3.6 | |

* $P < 0.001$

According to Chart 1:

1. None of the average scores for each dimension of the EQ instrument for first- and third-year students were above 20 or below 10 points.
2. The following are the average EQ scores of each dimension according to academic year (average±SD). Empathy: first-year students (16.1±2.7), third-year students (15.7±3.2); Self-awareness: first-year students (13.8± 2.8), third-year students (13.6±3.3); Self-control: first-year students (14.8±3.0), third-year students (15.6±3.5); Persistence: first-year students (13.1±3.7), third-year students (12.5±4.6); Adaptability: first-year students (11.2±3.7), third-year students (12.2±4.0); Optimism: first-year students (15.5±3.5), third-year students (16.0±3.6).
3. Score changes in empathy, self-awareness, persistence, and optimism showed no significant differences between first- and third-year students.
4. The average scores for self-control and adaptability of third-year students were significantly higher than first-year students.
5. The average score for empathy was lower for third-year students (15.7±3.2) than for first-year students (16.1±2.7).

## Discussion

This study consisted of a longitudinal analysis of EQ scores of nursing students in their first and third years of training. Results showed that the total empathy score of third-year students was lower than that of first-year students. This is the same result that Nashimoto found in a 2002 EQ study comparing students at different years in their academic training.[2] This change in the empathy score may be due to the improved observation, judgment, and practical nursing abilities of third-year students through repetitive clinical training, or because they had become accustomed to the responses of the patients.

Clinical training is applied to nursing practice; thus students are expected to respond to the feelings and needs of their patients, while also performing objective examinations. However, students have a tendency to give precedence to merely fulfilling the requirements of their curriculum. Goleman (1996) writes that "emotional intelligence begins from an understanding of the self through emotional self-awareness and control, which in turn develops into an understanding of the feelings of others or, namely, empathy. And empathy enables personal and social intelligence, which are ultimate forms of emotional intelligence. In short, emotional intelligence is related to personal and ethical matters."[3] For ethical reasons, the practice of nursing requires a sufficient amount of empathy when dealing with patients. Hayashi (2002) points out that while empathy scores alone cannot fully capture the empathetic development of nursing students, they do show a quantitative change in their ability to empathize during their education.[4] Albeit that our findings clearly showed that empathy scores for third-year students were lower than for first-year students, it is important to recognize the quantitative change in empathy scores and use that as a catalyst to

begin the exploration of the many dimensions of empathy.

Another interesting finding of this study was the significant difference between the high self-control score of the third-year students in comparison to first-year students. This can be explained by the greater exposure of third year students to situations that require the exercise of greater self-control. Examples of such situations include the development and maintenance of relationships with people around them during clinical training, the awareness of the difficulties encountered during training as a result of inexperience, the knowledge of when to ask for and receive assistance, and their role-playing scenarios in which they acted as both student and assistant. More practical training in nursing likely corresponds to an increased ability to respond to a given situation in an emotionally appropriate manner. In addition, through self-monitoring, students can develop the ability to set their own goals and perform their assigned duties.

The work of Nobuko Uchida helps explain the noticeably higher adaptability scores of third-year students when compared to first-year students. Uchida (2002) states that "the period of youth is a time when one integrates the self after experiencing the difficulties and confusion associated with the saturated self and false self."[5] By encountering all types of people during their clinical training, students learn to appreciate human individuality, respect themselves and others as individual human beings, and develop original methods of assistance that unlock the possibilities of universal growth and change. Nursing students understand that the recipients of their care are people, and thus they develop a greater respect and understanding for others as they rehabilitate those in their care. This ultimately leads to the establishment of a relationship of mutual trust. We would therefore like to propose that the EQ level of students would increase with the introduction of emotional education into the nursing science curriculum. In a further study, we intend to go beyond the longitudinal design of this study and determine the associative factors related to the EQ scores for each student. Discovering the influencing factors in the EQ scores of individual students may provide useful information about the development of nursing students, thus providing insight on how to better guide them through their training.

**Conclusions**

1. The EQ scores of first- and third-year students showed no significant difference in the dimensions of empathy, self-awareness, persistence, and optimism.
2. Third-year students scored significantly higher in self-control and adaptability.
3. The average empathy score for first-year students was higher than third-year students. Although clinical training in the nursing sciences provides an effective opportunity for emotional education, it has been suggested that a qualitative change occurs in the empathy scores of third-year students.

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