〔Original Paper〕

Ego states of nursing students assessed by egograms : with special reference to the level of anxiety during a nursing practice course

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Abstract

The present study analyzes the egograms of nursing college students with special reference to their level of anxiety during nursing practice. We analyzed the responses of 149 nursing college students to two questionnaires, i. e. the STAI (State-Trait Anxiety Scale) and TEG (Tokyo University Egogram).

The TEG results indicated that the high anxiety group had significantly lower in the A (Adult) scores and FC (Free Child) scores but higher AC (Adapted Child) scores than the low anxiety group. We concluded that nursing students with a low FC score and a high AC score should be encouraged toward more logical thinking as a nurse, and to receive training in coping with stressful situations, in addition to the academic component of their education.

Key words : nursing practice, anxiety, ego state, egogram, stress management

Introduction

The practice component of a nurse's training is an important part of their education where they try to integrate their knowledge of nursing and nursing art via direct experiences. However, as the nursing practice is for seven months long, students are subjected to strong stress. Other studies have suggested that stress reactions, such as anxiety and tension, tend to increase during the nursing practices (Shinoda, 1991, Tsuchiya, 1991, Yamamoto, 1992).

Recently, the importance of stress management has been widely recognized in the science of nursing. Saeki (1996) created a program for stress management to lower the level of anxiety in nursing students. From the viewpoint of nursing education, Hashimoto (1996) measured the level of anxiety of students before and after nursing practices, and demonstrated the necessity for teachers to understand the characteristics of students who tend to have high levels of anxiety while they are under stress. Otsu (1999) administered an egogram questionnaire to nursing students before and after nursing practice, and analyzed the egogram patterns during the nursing practice. Using the same questionnaire, Adachi (1999) found that nursing students displayed a strong personality during their nursing practice and that they tried their best during the course. To date, there are a few studies reporting nursing students'

ego states before and after nursing practice, but no studies have been carried out on the egogram of nursing students with high levels of anxiety during nursing practice. Therefore, our analysis of anxiety may provide new insights into stress management. In addition, we analyzed the ego states of students who tended to show an increased level of anxiety during the practice in comparison with the ego states of the students before this period. We also describe how to lower the anxiety level of nursing students.

Methods

1. Subjects

A questionnaire was given twice to 158 students in Aino Gakuin college; once in October (before the nursing practice) and once in July (during the nursing practice). Among the 158 students, we analyzed the responses of 149 (all females, average age : 20.8 ± 1.5 years), excluding 4 male and 5 female students whose results were not reliable for various reasons.

2. Questionnaire

Anxiety was measured by the STAI (State-Trait Anxiety Inventory; Spielberger, 1970, Japanese Edition, Shimizu, 1981). Ego states were measured with TEG (Tokyo University Egogram, second edition, 1995).

a. STAI

The STAI classifies anxiety into two distinct types-state anxiety and trait anxiety. State anxiety refers to a transitional state, whereas trait anxiety is a relatively stable state; this type of anxiety tends to be induced under very high levels of stress. This questionnaire has a high reliability, and its validity has been established. Seto (1983) reported that the anxiety of nursing students was higher during nursing practices than before or after the course. We decided to measure state anxiety with the assumption that anxiety during nursing practice is influenced more by the situation than by the traits.

This questionnaire consists of 20 items and uses a 4-point Likert scale, ranging from low anxiety (20 points) to high anxiety (80 points).

b. TEG

Egograms show ego states as a bar or line graph, and a number of logical egogram questionnaires have been developed in Japan. Among them, TEG has been considered to be a parameter with a relatively high reliability, and its validity is supported by multivariate analysis. Its clinical utility is high, as it can be used to assess not only patients but also healthy individuals. We therefore selected the TEG as an objective measurement of the nursing students' ego states. The TEG-derived ego states were based on Transactional Analysis (Berne, E., 1964) and were comprised of five scales : CP (Critical Parent), NP (Nurturing Parent), A (Adult), FC (Free Child), and AC (Adapted Child).

This questionnaire consists of 60 items and uses a 3-point Likert scale, ranging from a low ego state (0 point) to a high ego state (20 points).

3. Statistical analysis

We identified two groups of subjects based on their STAI scores during the nursing practice, namely a High Anxiety Group (HAG) and a Low Anxiety Group (LAG). The HAG included students whose STAI scores were greater than 63 (over $+1$ SD), and the LAG included those whose scores were 39 points or less (less -1 SD). First, in order to identify the mean difference in the 5 TEG scales between the two groups, we performed t tests between the two groups. Next, to identify changes in the means of the 5 TEG scales before and during the nursing practice,

Table 1 Frequency distribution of STAI scores

(n＝149)

class	class mark	frequency	relative frequency	cumulative frequency	cumulative relative frequency
21～30	25	17	11.4	17	11.4
31～40	35	41	27.5	58	38.9
41～50	45	52	34.9	110	73.8
51～60	55	27	18.1	137	91.9
61～70	65	9	6.1	146	98.0
71～80	75	3	2.0	149	100.0

Table 2 STAI scores with HAG and LAG

	mean±SD
HAG (n＝27)	
before nursing practice	50.2± 9.4 ⎤***
during nursing practice	67.8± 4.1 ⎦
LAG (n＝24)	
before nursing practice	37.0±11.8
during nursing practice	33.8± 4.4

*** $p < 0.001$

we performed a paired-sample t test. Table 1 shows the frequency distribution of STAI scores for all subjects, while Table 2 shows the means and SD of STAI scores with the HAG and LAG.

Results

1. Five TEG scales (All subjects)

Table 3 shows the mean±SD scores of the 5 TEG scales before the nursing practice, 7.5±4.1 (CP), 14.2±3.6 (NP), 9.9±3.7 (A), 13.1±3.8 (FC), and 10.3±4.5 (AC) and shows the mean±SD scores of the 5 TEG scales during the nursing practice, 7.4±4.4 (CP), 14.4±3.8 (NP), 8.8±4.5 (A), 13.3±4.5 (FC), and 10.5±4.9 (AC).

Table 3 Five scales with TEG

(n＝149)

	CP	NP	A	FC	AC
before nursing practice	7.5±4.1	14.2±3.6	9.9±3.7	13.1±3.8	10.3±4.5
during nursing practice	7.4±4.4	14.4±3.8	8.8±4.5	13.3±4.5	10.5±4.9

2. Five TEG scales in the HAG and LAG

Table 4 shows the mean±SD scores of the 5 TEG scales in the HAG (n＝27) and LAG (n＝24) before the nursing practice. The results show that the FC score for the HAG was significantly lower than that for the LAG (p ＜0.05), whereas the AC score with the HAG was higher than that with the LAG (p＜0.05). Table 5 shows that the mean±SD scores of the 5 TEG scales in the HAG and LAG during the nursing practice. The results show that the A score (p＜0.05) and FC score (p＜0.001) were lower for the HAG than the LAG while the AC score was higher for the HAG (p＜0.001).

Table 4 Comparison with mean score of five scales with TEG (before nursing practice)

	CP	NP	A	FC	AC
HAG (n＝27)	9.1±4.0	13.4±2.7	9.0±3.7	11.6±3.8 ⎤*	12.6±4.3 ⎤*
LAG (n＝24)	7.7±3.9	14.9±3.0	11.2±3.3	14.6±3.9 ⎦	8.2±4.1 ⎦

*$p < 0.05$

Table 5 Comparison with mean score of five scales with TEG (during nursing practice)

	CP	NP	A	FC	AC
HAG (n＝27)	8.5±4.6	13.3±4.2	7.5±4.7 ⎤*	10.2±4.9 ⎤***	13.3±5.4 ⎤***
LAG (n＝24)	8.3±3.8	14.3±4.3	10.4±5.0 ⎦	15.6±3.3 ⎦	7.7±4.3 ⎦

3. Comparison of the mean scores for the 5 TEG scales according to investigation period

Table 6 gives the mean±SD scores of the 5 TEG scales in the HAG according to the investigation period. The results show that the ego states during the nursing practice were significantly lower in terms of the A score and FC

Table 6   Comparison with means of five scales of TEG in HAG

	CP	NP	A	FC	AC
before nursing practice	9.1±4.0	13.4±2.7	9.0±3.7 ⎤*	11.6±3.8 ⎤*	12.6±4.3
during nursing practice	8.5±4.6	13.3±4.2	7.5±4.7 ⎦	10.2±4.9 ⎦	13.3±5.4

*p<0.05

score (p<0.05) than those before the nursing practice, whereas no significant differences were observed in the LAG on any of the TEG scales.

Discussion

1. Characteristics of the egograms of nursing students

We discuss the characteristics of the total egograms of nursing students in the present study in comparison with the results of Toyoda (1996) (Table 7). Since the investigation period and the students of our study differed from those of Toyoda, it is difficult to directly compare the individual egogram scores. The egograms in the present study before the nursing practice showed a slightly lower average AC score than Toyoda's, whereas those during the nursing practice had slightly lower average A and AC scores. However, both egogram profiles were similar to those of Toyoda's with an M pattern (NP : high score, CP : low score). This pattern has also been reported by Toyoda and others (Sugita, 1996).

Table 7   Nursing students' egogram (TEG)

	subjects	investigation period	CP	NP	A	FC	AC
Toyoda	college students second grade (n=79)	before nursing practice	7.3±3.3	14.0±3.3	10.0±4.0	13.3±3.2	12.0±4.3
Present study	college students second grade (n=149)	before nursing practice (October)	7.5±4.1	14.2±3.6	9.9±3.7	13.1±3.8	10.3±4.5
Present study	college students third grade (n=149)	during nursing practice (July)	7.4±4.4	14.4±3.8	8.8±4.5	13.3±4.5	10.5±4.9

2. Ego states assessed by the egograms in HAG during the nursing practice

In the present investigation, the ego states differed at some point between HAG and LAG. Although there was no significant difference in the P score between HAG and LAG during the nursing practice, HAG showed a higher A score than LAG. Therefore, students with a high level of anxiety appear to think rationally during the nursing practice. Furthermore, HAG showed a lower FC score and a higher AC score than LAG, suggesting that the students tend to suppress their emotions, and to over-adapt to a new environment. In general, persons with a low FC and high AC on their egogram tend to retain stresses. Accordingly, students with a high level of anxiety during the nursing practice appear to experience strong stress and frustration.

Next, in terms of changes in the level of anxiety according to the investigation period, high anxiety students tended to show a greater increase in anxiety during the nursing practice than before it, whereas low anxiety students did not show any significant increase in anxiety during the nursing practice. Our results agreed with those of past studies (Shinoda 1991, Tsuchiya 1991, Yamamoto 1992).

High anxiety students tended to show a decrease in their A score during the nursing practice. Nursing students focus on the theoretical aspects of nursing in their first two years of college, and the nursing practice is their first chance to care for patients in an actual health-care setting. They occasionally experience difficulty in adequately integrating the theories they have learned to the practice due to a number of stress factors, including unsatisfactory relationships with patients, practice instructors or other staff members. Thus, they experience an increase in their level of anxiety and tension, and a temporary decrease in their A score. According to Nakahira (1995) weak anxiety and perplexity, if they have any effect, are among the factors that accelerate learning. These findings are supported

by the observed decrease in the A score during the nursing practice. On the other hand, HAG already had a low FC score and a high AC score before the nursing practice, and students with a high level of anxiety tend to suppress their emotions during the nursing practice. Students either tend to suppress their emotions or to over-adapt to a new environment and experience anxiety during the nursing practice, as they live in a college dormitory which is a confined environment. We found that over-adapting students (low FC score, high AC score) tended to show stress responses during the nursing practice, although the results also suggested that easily excited students (high FC) do not readily adapt to stress during the nursing practice.

3. Stress management for high anxiety students

In the present study, we analyzed the ego states of students who tended to show an increased level of anxiety during the nursing practice. We propose a strategy for reducing the anxiety level of these students based on our findings. Acording to Transactional Analysis, the balance of the ego states is more important than the high-low score of the scales. Namely, it is more important to increase a low ego state than to decrease a high ego state. As previously stated, students who tended to show increased anxiety during the nursing practice had shown a low FC score and high AC score prior to the nursing practice. Such students should be made to relax at an early stage before the nursing practice.

Finally, in comparison with results before the nursing practice, we analyzed the results of high anxiety students who tended to show increased anxiety during the nursing practice and a decrease in the A score and FC score. Hence, it is important for students with a high AC and low FC before the nursing practice to undergo training to help increase their A score. According to Toyoda et al. (1996), the high practice assessment group showed significantly higher A scores than the low practice assessment group, demonstrating the necessity of training to increase the A score. Consequently, our findings indicate that students with a low FC score and high AC score should be encouraged to take a more logical thinking approach as a nurse for stress management. The results also indicate that students should receive training in coping with stressful situations, in addition to the academic component of their education, as early as when they are juniors in college.

Conclusion

The present study focused on students with a high level of anxiety who, according to their TEG, tended to show increased anxiety during a nursing practice course. In future studies, we will attempt to clarify the ego states of high anxiety students during nursing practice by analyzing their TEG patterns.

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〔原　著〕

実習中に高い不安を有する看護学生の
エゴグラムからみた自我状態

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