

A Study of the Process of Reducing Depression in Undergraduate Nursing Students

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Abstract

Purpose: The purpose of this study is to examine the process and impact of factors leading to depression reduction among undergraduate nursing students. **Method:** We developed a conceptual model with reference to previous studies that have examined the factors involved in reducing depression among undergraduate nursing students. Covariance structure analysis was conducted using data from 131 participants who agreed to participate in the study. **Results:** The results validated the causal model with 'Goodness of Fit Index'=.997, 'Adjusted Goodness of Fit Index'=.949, 'Comparative Fit Index'=1.00, and 'Root Mean Square Error of Approximation'=.029, indicating a good degree of fit. In the processes and influences leading to depression reduction among undergraduate nursing students, the direct effects were found that self-esteem (-.44) and self-compassion response (-.22) had a strong influence on the reduction of depression, with self-esteem improvement having the greatest influence on depression reduction. On the other hand, the indirect effect, from self-efficacy to self-esteem, was found to be the most important in reducing depression (-.53). The direct and indirect effects suggest that the improvement of self-esteem is important for the reduction of depression, and among these, those with high self-efficacy and self-esteem are most likely to reduce their depression. **Conclusions:** Self-esteem can develop from negative evaluations to negative cognitions, which may lead to increased depression. The results suggest that in order to reduce depression in undergraduate nursing students, it is necessary to construct supportive measures to improve self-efficacy through self-compassion, which will subsequently lead to increased self-esteem.

Keywords: Undergraduate Nursing Students, Self-esteem, Self-efficacy, Self-compassion, Depression

1. Introduction

In recent years, the demand for healthcare workers, especially nurses, has increased worldwide against the backdrop of infectious situations such as the new coronavirus disease 2019 (COVID-19). In Japan, the number of nurses has continued to increase even before the COVID-19 outbreak, but at the same time, a high nurse turnover rate has been reported [1]. One factor contributing to the high turnover rate among nurses is the emotional labor involved in the interpersonal support profession. In addition to the personal distress, they experience in their own lives, nurses experience empathy fatigue, such as perceiving patients' distress as their own; this can result in excessive distress, which is expected to lead to burnout. Nurses spend the most time with patients of all healthcare professionals and form close relationships with them. The "image of a nurse (how to be a nurse)" that nurses seek and that others seek from them, such as being close to patients, may develop into a nurse's sense of mission. It is undeniable that this may further enhance empathy fatigue. The "image of a nurse" and other concepts held by each nurse may be based on the thought formation cultivated from undergraduate education. Hence, it is important to provide support for maintaining one's mental health from the stage of undergraduate nursing students.

Against this backdrop, the importance of self-compassion—the ability to be compassionate toward oneself—has been regarded as a skill for maintaining one's mental health. Self-compassion refers to "self-kindness," which is to treat oneself with compassion and kindness, "a sense of common humanity," which is not something that occurs only in oneself but is considered an experience in mutual relationships with others,

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And "a sense of self-compassion," which is the ability to be compassionate and kind to oneself. Neff, a leading researcher on self-compassion, pointed out the importance of turning to self-kindness and replacing self-kindness with gentler ways of coping [2] [3]. It has also been discussed that those with higher self-compassion are less likely to experience negative emotions, less likely to experience catastrophic cognitions [4], and less likely to experience depression, anxiety, and stress [5].

A previous study examining the effects of self-compassion in college students [6] reported that higher self-compassion increased psychological well-being and mental health and reduced the effects of academic burnout. Furthermore, a previous study examining factors leading to lower depression among undergraduate nursing students [7] found that higher self-compassion was associated with lower depression, anxiety, and stress.

Another study [7] on the factors leading to reduced depression in undergraduate nursing students found that increased self-esteem was strongly related to reduced depression but also noted the importance of increased self-compassion. Self-esteem and self-compassion are different concepts, although they show a strong positive correlation [3] [8]. Therefore, it is important to improve self-compassion to prevent negative cognitions from developing into depression and catastrophic behaviors. However, although previous studies have identified the factors that lead to the reduction of depression among undergraduate nursing students [7], to the best of our knowledge, there are no previous studies that have examined the process and impact of the factors that lead to the reduction of depression among undergraduate nursing students.

Therefore, this study aimed to examine the process and influence of factors leading to depression reduction among undergraduate nursing students. A conceptual model was created based on previous studies that examined the factors related to depression reduction among undergraduate nursing students. The results of this study may serve as the basis for the development of an academic support program for undergraduate nursing students to help them exercise self-compassion and to be kind to themselves when suffering and confronted with empathy fatigue and secondary stress while working as post-graduation nurses.

Note that this is a new finding, using data used in a previously published paper [7], but with a modified analytical method.

2. Materials and Methods

2.1. Study participants

Forty-two undergraduate nursing students from the School of Nursing at University A participated in the study. The purpose of the study, survey content, and ethical considerations were explained orally and in writing to the participants, and questionnaires were distributed after their consent was obtained. Questionnaires were collected using the retention method, and consent was deemed to have been obtained when the questionnaires were deposited in the collection box. All the questionnaires were distributed and collected by the researchers.

2.2. Survey period

The study was conducted between September 1, 2018 and January 11, 2019.

2.3. Conceptual framework

The conceptual framework of the study was to identify the process and level of influence of the factors that lead to depression reduction among undergraduate nursing students, with reference to previous studies that examined the related factors that lead to depression reduction among undergraduate nursing students [Figure 1]. The conceptual framework was developed based on previous studies [7]. Undergraduate nursing students can reduce their depression via self-compassion, self-efficacy, and self-esteem during their college life.

2.4. Survey items

2.4.1. Background of undergraduate nursing students

Only gender, age, and grade of undergraduate nursing students were surveyed.

2.4.2. Scales

Based on the conceptual framework created in this study, the Japanese version of the Self-Compassion Response Scale and the Japanese version of the Self-Compassion Scale were used to assess self-compassion; the Japanese version of the General Self-Efficacy Scale was used for self-efficacy; the Japanese version of the Rosenberg Self-Esteem Scale was used for self-esteem; and the Japanese version of the Self-Rating Depression Scale was used for depression.

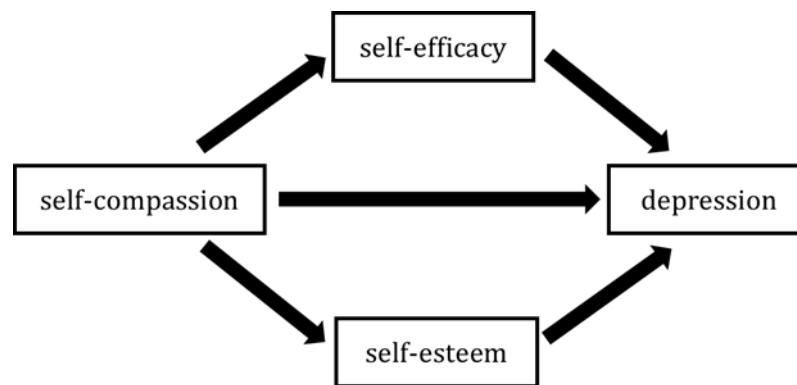


Figure 1. Conceptual framework

2.4.2.1. Self-Compassion Response Inventory Scale

The Self-Compassion Response Inventory Scale (hereinafter referred to as "Self-Compassion (response)") is a questionnaire developed by Leary et al. that measures the degree of response (e.g., compassion) when presented with certain situations [4]. Four specific responses were presented per situation, and the participants were asked to choose two of the four responses. Of the four responses, two were self-compassion items (e.g., "I will act nicely toward myself"), and the remaining responses are filler items (e.g., "I will remember all the other mistakes I have made"). Only gender, age, and grade of undergraduate nursing students were surveyed.

2.4.2.2. Self-Compassion Scale

The Self-Compassion Scale (hereafter referred to as "Self-Compassion (degree)") consists of 26 items proposed by Neff [2] [3]. It is a questionnaire that measures the current degree of kindness and compassion toward oneself. It uses a five-point scale ranging from "almost never (not at all)" to "almost always (always)."

2.4.2.3. Self-efficacy Scale (General Self-Efficacy Scale: GSES)

The General Self-Efficacy Scale (hereafter referred to as "GSES") is a questionnaire designed to measure an individual's general perception of self-efficacy and was created in response to Bandura's proposal of the concept of self-efficacy [9] [10]. Self-efficacy refers to the expectation of being able to perform some behavior well and is rated on a two-case "yes" or "no" scale. Self-efficacy is defined as "the judgment of how well one can perform the set of actions required to handle a future situation. The four factors that enhance self-efficacy are "successful experiences," "vicarious experiences," "verbal persuasion," and "emotional arousal."

2.4.2.4. Self-esteem Scale (Rosenberg Self-esteem Scale: RSES)

The Rosenberg Self-Esteem Scale (hereafter referred to as "RSES") was proposed as a comprehensive measure of self-esteem [11] [12]. Rosenberg does not refer to self-esteem as a feeling of confidence or superiority over others but as a feeling of self-acceptance. It consists of 10 items: five for positive expressions of self-esteem and five for negative expressions in the opposite direction. The two factors are "acceptance" and "evaluation," which are rated on a 4-point scale of "not applicable at all," "not applicable," "applicable," and "very applicable."

2.4.2.5. Depression measurement scale (Self-rating Depression Scale: SRDS)

The Self-Rating Depression Scale (hereafter referred to as "SRDS") is a validated test of depression that is useful for adults and the elderly who are capable of self-assessment, with scores below 40 indicating "little or no depression," scores in the 40s indicating "mild depression," and scores above 50 indicating "moderate depression," with scores above 50 indicating a tendency toward depression in general [13].

2.5. Analysis method

A path diagram was created based on the conceptual framework, and covariance structure analysis was conducted. Paths were added and subtracted with reference to the correlation coefficients between the measures and goodness-of-fit indices of the models, and the model with the best fit was searched. 'Goodness of Fit Index (GFI)', 'Adjusted Goodness of Fit Index (AGFI)', 'Comparative Fit Index (CFI)', and 'Root Mean Square Error of Approximation (RMSEA)' were used as goodness-of-fit indices for the models. The adoption criteria for GFI, AGFI, and CFI were all 0.90 or higher, and RMSEA was 0.05 or lower. The SPSS (for Windows, ver. 22.0) and AMOS (for Windows ver. 23.0) were used for data tabulation and analysis. A significance level of less than 5% was used for both results.

2.6. Ethical considerations

The participants were informed orally and in writing of the research theme, research objectives, survey content, and privacy protection. Moreover, there would be no disadvantage if they did not participate or did not continue the survey because it was expected to be time-consuming (approximately 30 min), leading to fatigue and

a sense of burden in terms of data handling and the publication of research results. The survey contents were explained to the participants. The questionnaires were collected using the retention method, and consent was deemed to have been obtained when the questionnaires were deposited in the collection box. Two researchers managed the data by using the retention method. This study was conducted after obtaining approval from the Ethics Review Committee of the International University of Health and Welfare (approval number:18-Ijh-050).

3. Results

3.1. Participants summary

Of the 150 participants surveyed (37.3% response rate), 131 responses (87.3% valid response rate), excluding missing data, were included in this study. A total of 122 (93.1%) were female students and nine (6.9%) were male students. By grade, 23 (17.6%) were first-year students, 44 (33.6%) were second-year students, 45 (34.4%) were third-year students, and 19 (14.5%) were fourth-year students [7].

3.2. Scale scores

There were no significant differences between grades in the five scales of self-compassion (response), self-compassion (degree), self-efficacy, self-esteem, and depression. The mean SDS score was 40 or higher in all grades, indicating that the subjects in this study were mildly depressed [7].

3.3. The influence of factors reducing depression in undergraduate nursing students - Structural analysis of covariance

To examine the causal model, a path diagram is created based on the conceptual framework. Because of the strong correlation between self-compassion (response) and self-compassion (degree), as well as between self-efficacy and self-esteem, covariance was drawn, and structural analysis of covariance was conducted, which did not yield a good fit for the model. Therefore, the model was modified by adding and subtracting paths with reference to the model's goodness-of-fit index to obtain the final result [Figure 2].

After examining the goodness of fit of the model, GFI=.997, AGFI=.949, and CFI=1.00, all of which were above 0.90; RMSEA=.029, which was below 0.05; and RMSEA=.029, which was above 0.05. The path coefficients from the observed variable to the observed variable showed no significance for the path coefficients from self-compassion (response) to self-efficacy, self-compassion (degree) to depression, and self-efficacy to depression but were significant among all other observed variables.

The direct effect of self-esteem on depression was the largest (-.44), followed by self-compassion (response) (-.22), self-efficacy (-.10), and self-compassion (degree) (-.07). On the other hand, in terms of indirect effects on depression [Table 1], the indirect effect of self-efficacy on depression via self-esteem (.53) was greater than the indirect effect of self-compassion (degree) on depression via self-efficacy and self-esteem (.23), the indirect effect of self-compassion (degree) on depression via self-efficacy (-.04), and similar results were obtained when compared to the other indirect effects.

In the structural analysis of covariance conducted in this study, the direct effect of self-efficacy on self-esteem (1.21) showed a path coefficient above 1, but there were no problems with multicollinearity among the scales (VIF < 10.0).

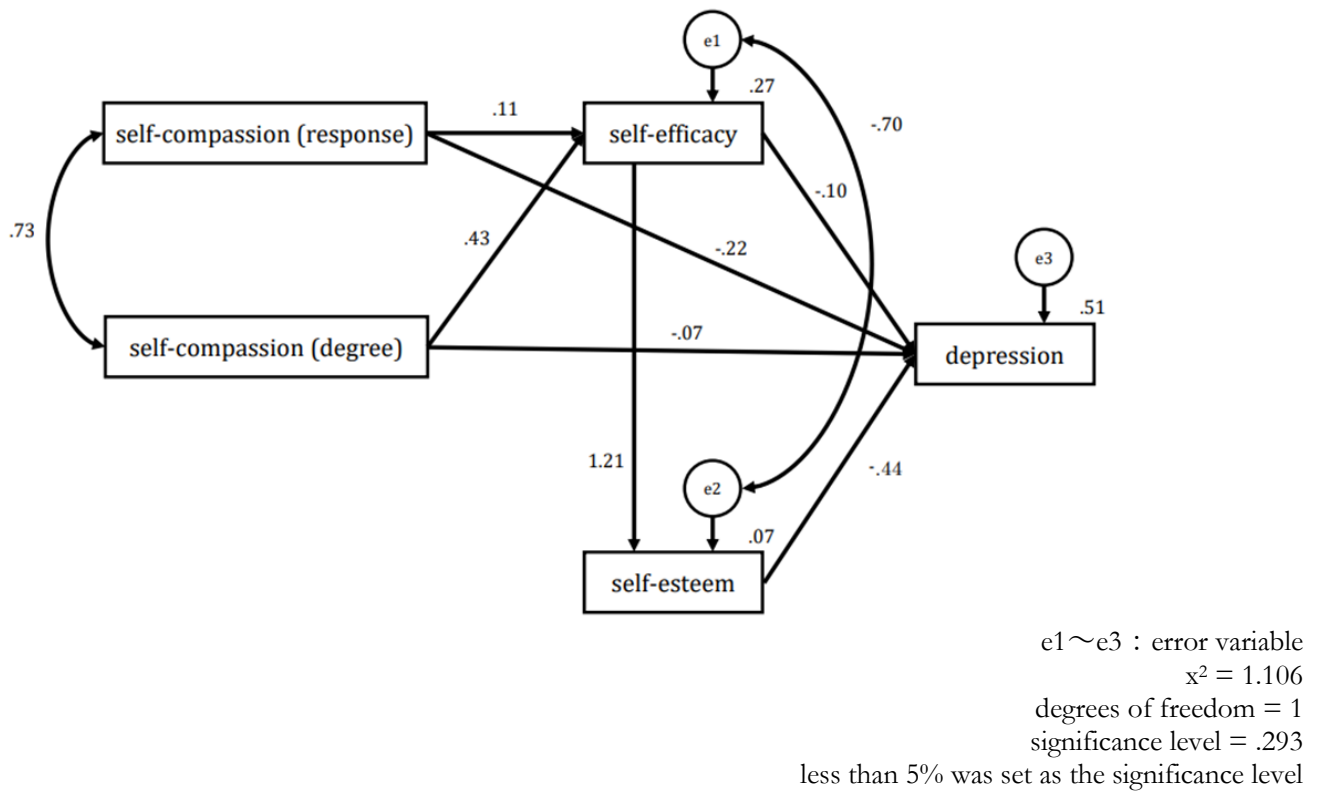


Figure2.The process and impact of factors leading to depression reduction in undergraduate nursing students

4. Discussion

4.1. Background of participants

There was a difference in the response rates among the grades. Although it is difficult to determine the reason for the low response rate among fourth-year students, it is thought that the three most important tasks in the final year are employment, graduation thesis, and national examinations, considering the psychological aspects of the students. It is possible that the students felt burdened by the new assignment after completing one of the three tasks. Although it is expected that differences in the learning environment at each grade level, including clinical practice, have no small impact on mental health such as depression, the small number of participants at each grade level made it necessary to consider the study, rather than by grade level. The possibility of a biased group of undergraduate nursing students before studying this issue was considered.

Table1. Path coefficients between observed variables for all caregivers

effect	observed variable	observed variable	observed variable	observed variable	coefficien			
Direct effect	self-esteem	→	depression		-.44			
	self-efficacy	→	depression		-.10			
	self-compassion(response)	→	depression		-.22			
	self-compassion(degree)	→	depression		-.07			
Indirect effect	self-efficacy	→	self-esteem	→	depression	-.53		
	self-compassion(response)	→	self-efficacy	→	depression	-.01		
	self-compassion(degree)	→	self-efficacy	→	depression	-.04		
	self-compassion(response)	→	self-efficacy	→	self-esteem	→	depression	-.06
	self-compassion(degree)	→	self-efficacy	→	self-esteem	→	depression	-.23

4.2. Scale scores

Data obtained from 131 undergraduate nursing students yielded scale scores for self-compassion (response), self-compassion (degree), self-efficacy, self-esteem, and depression, each of which was calculated; the undergraduate nursing students in this study, regardless of grade level, were mildly depressed [7]. It has been reported that nurses may experience empathy fatigue due to the perception of patient distress as their own distress, which may lead to burnout [14]. In a survey on stress among undergraduate nursing students, clinical

practice was the greatest stressor [15], and stressors such as the relationship with the practice supervisor [16] varied widely; however, it is expected that third-year students, who have a long clinical practice period, are under the most stressful situation. However, the burnout rate was higher among second-year students than among third-year students because of the number of academic assignments [17], and it has been pointed out [7] that differences in the learning environment between grades, including clinical practice, may not have a significant impact on the mental health of undergraduate nursing students. Despite differences in learning environments, all grades are expected to be under some kind of stressful situation. Although there were differences in questionnaire collection rates among grades in this study, it is possible that the undergraduate nursing students targeted in this study were not a highly skewed group that followed the trends of a particular grade. This is conceivable. However, the undergraduate nursing students targeted in this study were mildly depressed, indicating an urgent need for support to maintain their mental health.

4.3. Influence of factors that reduce depression among undergraduate nursing students: A structural analysis of covariance

Referring to previous studies that examined factors related to the reduction of depression among undergraduate nursing students [7], the causal model of depression developed in this study was examined using structural analysis of covariance. The goodness of fit of the model could not be met. Therefore, the model with the best fit was searched by adding and subtracting paths with reference to the correlation coefficients between the scales and the goodness-of-fit index of the model. Although the direct coefficients were low, the results showed that self-compassion (response) and self-compassion (degree) increased self-efficacy, self-efficacy increased self-esteem, and self-compassion (response) and high self-esteem significantly work in a relationship reduced depression, and a good fit was obtained. Therefore, the causal model was considered to have validity as a model to explain the process and impact of reducing depression in undergraduate nursing students. The standardized coefficients (direct effects) for self-efficacy and self-esteem showed path coefficients that exceeded 1; however, there was no multicollinearity among the scales. The absolute value of the standardized coefficients exceeded 1 despite the lack of multicollinearity, which could be due to the presence of indirect effects with opposite signs to the coefficients, which are direct effects.

This study, which examined the process and impact of factors leading to the reduction of depression in undergraduate nursing students, provided new insight into the process and impact of factors leading to the reduction of depression in undergraduate nursing students. However, while this study provided important insights into the reduction of depression among undergraduate nursing students, it was not able to fully examine the factors leading to the indirect effects. It is possible that the background factors of undergraduate nursing students may be related to these findings, and further research is needed.

In this study, self-esteem had the strongest direct effect on depression, followed by self-compassion (response), indicating that improving self-esteem and self-compassion (response) are effective in reducing depression among undergraduate nursing students. In addition, the indirect effect, from self-efficacy through self-esteem, was the most effective in reducing depression, indicating that not only self-esteem but also self-efficacy is important in reducing depression in nursing students, a result similar to previous studies [18]. When both direct and indirect effects were examined, self-esteem was linked to the reduction of depression in both cases. However, self-esteem is influenced by evaluations of the self and others, and negative emotions arise from negative evaluations, while self-compassion is not influenced by evaluations of the self and others. It has been reported that positive feelings arise when faced with negative evaluations when one is kind to oneself and balances the experience as shared with others [4]. In this study, a path diagram was created based on the conceptual framework, but a good fit of the model could not be obtained, and a causal relationship from self-compassion to self-esteem could not be established. This suggests that improved self-compassion does not directly lead to improved self-esteem, which reflects previous research. Self-esteem and self-acceptance of self-esteem are only subjective evaluations, and the undergraduate nursing students in this study, whose self-esteem had a higher impact on depression and other mental health issues than self-compassion, were at risk for enhanced negative cognitions when faced with objective evaluations that included negative evaluations from others. It cannot be denied that the thoughts formed during undergraduate education are likely to continue in the process of working as nurses and may lead to burnout when faced with challenges and negative evaluations. Although the ability to self-analyze for self-evaluation and self-acceptance is a strength of undergraduate nursing students, it has also been shown that undergraduate nursing students, in an educational program that is predominantly problem-solving oriented from basic nursing education [19], pay more attention to understanding external problems than to internal experiences such as looking at themselves. Undergraduate nursing students are expected to focus more on external negative evaluations than on internal mental health when negative evaluations occur.

It is necessary to provide support that will lead to the development of thinking and coping behaviors that will enable them to objectify and care for themselves, rather than being caught up with overly negative perceptions when faced with negative evaluations when they work as nurses.

In addition, the direct effects in this study suggested that Self-Compassion (response) was more influential than Self-Compassion (degree) in reducing depression among undergraduate nursing students. The Self-Compassion (degree) is a questionnaire that measures the degree of kindness or "compassion" toward the present self, whereas the Self-Compassion (response) is a questionnaire that measures "compassion and other responses" when confronted with difficult situations. Although it is difficult to generalize, it is thought that for the undergraduate nursing students in this study, whether or not they were able to immediately turn their compassion toward themselves in response to the situation was a more important factor in reducing depression than the degree of compassion. However, indirect effects showed that self-efficacy and self-esteem via self-efficacy and self-esteem from the degree of self-compassion led to a reduction in depression compared to self-compassion (response). The degree of self-compassion, which indicates the degree of kindness or "compassion" toward the present self, is expected to deepen over time, suggesting the need for ongoing support. Considering that self-esteem and self-compassion (response) were highly influential in reducing depression in undergraduate nursing students as direct effects, that self-compassion(degree) needs to be deepened, and that self-esteem is at risk of enhancing negative cognitions when faced with negative evaluations degree, it was suggested that in order to prevent depression from being augmented by degree, it is necessary to construct ongoing supportive measures to improve self-efficacy through self-compassion, which would subsequently lead to an increase in self-esteem.

5. Limitations of the study

Due to the small number of participants and the fact that the study included only undergraduate nursing students from University A, it cannot be said that the study was able to fully examine the process and impact of factors that lead to the reduction of depression among undergraduate nursing students. Furthermore, in the causal model that yielded a good fit in this study, self-efficacy and self-esteem had path coefficients with standardized coefficients greater than 1. Although no multicollinearity was found among the scales, the factors leading to the results of this study could not be verified. One limitation of this study is that the background factors of undergraduate nursing students were not adequately examined, and this could not have been considered when the questionnaire was designed.

6. Conclusion

In this study, the process and influence of factors leading to depression reduction among undergraduate nursing students were identified, suggesting that self-esteem and increased self-compassion have a strong influence on depression reduction. However, since self-esteem can develop from negative evaluations to negative cognitions, which may lead to increased depression, the study suggested that it is necessary to construct ongoing support measures to reduce depression in undergraduate nursing students to improve their self-efficacy through self-compassion, which will subsequently lead to improved self-esteem. The results of the study suggest that it is necessary to establish ongoing support measures to improve self-efficacy through self-compassion and subsequently improve self-esteem.

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