Conception of a novel communication skill self-efficacy measurement scale for nursing students

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Research note

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Abstract

Objective: The aim of this study was to establish an evaluation index for basic communication skills in basic nursing education. Currently, there are no indicators to evaluate basic communication skills to be acquired in basic nursing education. We attempted to create a communication skills self-efficacy measurement scale based on micro-counseling skills. An anonymous self-administered questionnaire survey was conducted on 238 second-year students from three nursing universities that obtained the consent of the survey cooperation. The questionnaire is a nursing student version counseling self-efficacy / preliminary scale and a characteristic self-efficacy scale created by referring to the explanation of each unit of the micro-counseling skills. Results: The nursing student communication skill self-efficacy measurement scale included 20 items in 4 factors determined by factor analysis and item sorting. The reliability coefficient of each factor was over .80, and the correlation with the characteristic self-efficacy measurement scale was confirmed at the 1% level.

Background

The essence of nursing care is focused on the nurse–patient interpersonal communication [1]. The quality of interpersonal communication is related to health outcomes, including quality of life and patient satisfaction [2][3]. Professional nursing practices requires the ability to appropriately and effectively communicate with patients, families, and colleagues [3]. Therefore, Nursing students must learn to communicate skillfully in diverse environments [4].

Because self-efficacy influences skill acquisition [5], communication skills that are essence of the nursing care need for self-efficacy. It was mentioned that in proving nursing care to patients self-efficacy for the ability to perform patient care is vital for nurses, and a nurse who experience low self-efficacy for tasks may delay initiation or avoid them altogether [6]. The level dimension of self-efficacy judgments significantly impacted the strength and calibration dimensions of self-efficacy [7]. It is necessary to grasp a basic skill of the communication precisely, at first, to raise the communication skills of the nursing students.

Confirmed previous research, Among nursing students' communication skills, there are some measures of skills necessary for professionals such as nursing care [8][9][6][10], but the measures for measuring basic skills are not sufficient. In this study, micro-counseling skills are noted to take up communication basics techniques.

Micro-counseling was first theorized by Allen E. I. [11]. In the micro-counseling skills, basic skills in the field of counseling were extracted, subsequently subdivided and organized [12] into the hierarchical figure (Supplementary Figure1; See, Fig S1, Additional File 1) [13]. Each skill was subdivided into units to facilitate effective teaching of each item using medium such as video and audio [13]. The theory and techniques of micro-counseling were used to analyze communication in support settings such as nursing care and social welfare, and it was noted that micro-counseling skills could be beneficially applied to

many aspects of communication [14]. The current study utilized the factor “micro-counseling skills” owing to its counseling techniques being divided into detailed units and its ease of use as measurement materials.

Methods

1) Participants

A total of 238 second-year nursing students of three universities in Japan, participated in this quantitative analytical study by completing an anonymous self-administered questionnaire.

2) Measurements

(1) Basic attributes

Asked about school year, age, gender, and working experience.

(2) Communication skill self-efficacy/preliminary measurement scale for nursing students

The preliminary measurement scale included 28 items created based on the explanations provided by [13] regarding micro-counseling skills, attending behaviors, listening skills, and influencing skills (Table 1).

Each question was designed to assess a single item. In cases with two or more descriptions, the items were separated. The questionnaire used the term “patient” instead of “client.” The questions included 6 items on the topic of attending behaviors, 8 items on listening skills, and 14 items on influencing skills. The questions were reviewed by two researchers in the field of psychology and two researchers in the field of nursing to compare the micro-counseling skills. After minor adjustments such as modifications to wording, a preliminary measurement scale was prepared for testing.

(3) Typical self-efficacy measurement scales [15]

This is the Japanese version of the self-efficacy scale [16] that includes 23 items within a single factor. Its reliability and construct validity have been shown. Self-efficacy was composed of general self-efficacy and area-specific self-efficacy [17]. The trait in the self-efficacy measurement scale included situations other than those in which specific actions were selected. It was the general self-efficacy of an individual that included transformations on the generalized behavioral level [18][19]. High scores in the trait of self-efficacy indicated that self-efficacy tended to increase while performing counseling [19]. Thus, we used the trait from the self-efficacy measurement scale in this study to confirm the validity of the criteria.

3) Data collection

The survey was conducted from November to December 2014.

4) Analytical methods

We conducted an exploratory factor analysis (maximum likelihood estimation and promax rotation) and correlation analysis to verify the validity of the criteria. The appropriateness of factor analysis was determined by examining the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and the Bartlett's test of sphericity. Missing data were substituted with the mean values for the relevant items. All analyses were performed using IBM SPSS Statistics Base version 25 (IBM, JAPAN).

Results

1) Recovery rate and effective response rate

Attempted questionnaires were obtained from160 (67.2%) individuals, and the effective response rate was 98.1% (157 responses).

2) Data selection

There was a significant difference in terms of the mean male-to-female ratio; therefore, only 147 females were analyzed. In addition, after removing nine individuals who indicated that they had prior experience in the workforce and one individual who did not indicate her age, we excluded four individuals whose questionnaires contained no response to at least one-third of the items. The result of this process was an analytical population of 133 participants. The mean age of the respondents was 20.0 years (range: 19–24 years, standard deviation: 0.75).

3) Factor analysis of the self-efficacy measurement scale for nursing students

(1) Determination of factor structure

The KMO measure of sampling adequacy value was .910, and the Bartlett's test of sphericity was .000 ($p<.0001$), indicating that the dataset was suitable for factor analysis.

To confirm the mean values and distributions for all items and to eliminate ceiling and floor effects, analysis was performed using normalized distributions. In factor analysis, the factor load was found to be below 0.4, and items that spanned multiple factors and had a load of 0.3 or more were excluded. Factor analysis was repeated for the remaining 21 items to determine the composition of the four factors based on the fixed values and scree plot.

(2) Item organization

Analysis of the questions in each item indicated that 18 within 21 items could be categorized as micro-counseling skills. Three items (8,10,16) were different from the technique categories. Item 10 was excluded, but item 8 and 16 were kept because two item 8 and 16 were located next category as micro-counseling. The process of organizing the items described above was conducted by four researchers working in cooperation (two nursing researchers and two psychology researchers).

(3) Factor analysis for confirming the factor structure

We repeated factor analysis on the questions in the 20 items that remained after item organization to confirm the composition of the four factors. The four factors were named as follows: 1) The factor containing items such as “Nodding while the patient is talking to make it easier for the patient to continue talking” was named “attending skills,” 2) the factor containing items such as “focusing on the portions of what a patient is saying that are related to feelings and appropriately expressing the patient’s feelings in your words” and “repeating the key words contained in what the patient has said” was named “reflection skills,” 3) the factor containing items such as “appropriately informing the patient of his or her contradictions” and “providing the patient with specific and limited feedback (informing the patient of how he or she appears) while maintaining focus on merits and facts” was named “assertive skills (behaviors),” and 4) the factor containing items such as “Providing the patient with an explanation of a matter that is easily comprehensible” and “telling the patient what he or she should do” was named “assertive skills (instructions)” (Table 2).

(4) Reliability coefficient

The alpha coefficients for each factor were as follows: attending skills, 0.884; reflection skills, 0.929; assertive skills (behaviors), 0.861; and assertive skills (instructions), 0.886 (Table 2).

(5) Correlations

The correlation between the total scores for all factors and that for the traits on the self-efficacy measurement scale was noted at a significance level of 1% (Table 3).

Discussion

The factor composition that resulted from factor analysis was 20 items and 4 factors. The reliability coefficients for the four factors identified in this study were all at least 0.800, which indicated reliability because they met the basic requirements for reliability.

18 within 20 items were categorized according to micro-counseling theory, and the remaining two items were positioned next to micro-counseling in the hierarchical table owing to their synonymous content. As we continue to create measurement scales in the future, the content and expressions contained in these questions will require repeated and detailed review. However, the validity of the general construct concept was confirmed. In addition, this study confirmed correlation with the traits on the self-efficacy measurement scale, which indicated criteria-related validity.

When creating the measurement scale as part of this study, micro-counseling skills were utilized the basic communication skills. However, all the communication skills needed to be acquired by nursing students were not fixed. [20] as well as [21] considered communication skills as multi-faceted and systematic. They developed ENDCORE to present the hierarchical structure theory of communication skills. When

investigating relationships with micro-counseling skills, future studies should employ this as a baseline material to investigate and assess the communication skills required by nursing students and nurses.

Communication education in basic nursing education is related to the acquisition and improvement of communication skills of nursing students. Since communication education requires a theoretical framework [22], it is necessary to consider the evaluation scale of communication skills while building the framework.

The self-efficacy treated with the scale we tried in this study, identifies “self-efficacy that has an effect on specific behaviors depending upon the problem or circumstances.” Therefore, it can be considered an area-specific self-efficacy measurement scale [15].

In their review of studies of area-specific self-efficacy, [17] verified that self-efficacy can be increased by manipulation of controlled (successful) experiences, vicarious experiences, social (linguistic) persuasion, and physiological and emotional states [23][24][25]. In basic nursing education, manipulation of these information sources by adjusting the way instructors interact with students and the organization of the education provided in classes and training sessions can be expected to increase self-efficacy. Thus, there is a need to investigate methods of adjusting these elements.

Self-efficacy has a long-term effect on the continuity of behaviors [26][17]. Further, it influences the expectation that one can appropriately handle not only specific circumstances but also new circumstances that have not been previously experienced [16][17]. If one accepts that this can be applied to nursing students as well, then self-efficacy that has been increased because of studies at university can be effectively applied to clinical settings during nursing practicums outside the classroom setting when students are presented with circumstances they have not yet experienced. Ultimately, increasing self-efficacy while students are still engaged in studies can be effectively applied in hospital settings after they graduate.

We will continue to develop a scale to evaluate and measure the self-efficacy of nursing students' communication skills, leading to verification of educational effectiveness evaluation indicators and possible use as stress coping resources such as promoting adaptation to inexperienced places.

Limitations

The analysis was performed using only females because the male-to-female ratio of the survey participants was markedly unbalanced. And the survey was conducted on nursing students at three universities. As a result, care must be exercised when attempting to generalize the results. In the future, we would like to conduct a similar survey with a higher number of subjects to resolve this limitation.

Declarations

1. **Ethics approval and consent to participate**

This study had been performed in accordance with the Declaration of Helsinki and

had been approved by the Institutional Review Board of Senri Kinran University (No.186).

The survey was an anonymous, self-administered questionnaire that was conducted after finished their classes. The participants were provided with written and oral explanations of the objectives and methods of the study, and informed consent to participate in the study. Explanations also covered the fact that participation was voluntary and had no effect on the class evaluations or grades at university and that the data provided would be used for no purpose other than this study. Completion of the questionnaire was considered consent to participate in the study. To protect the anonymity of the participants, the questionnaire collection box was placed at a previously determined location for 3 days.

2. **Consent for publication**

Not applicable

3. **Availability of data and material**

All data generated or analysed during this study are included the supplementary information file in this published article.

The datasets used during the current study are available from the corresponding author on reasonable request.

4. **Competing interests**

The authors declares that they have no competing interests.

5. **Funding**

Not applicable

6. **Author's contributions**

Rie Tomizawa and Tetsuya Jibu contributed to the conception and design of this study with Junko Kondo. Junko Kondo performed the statistical analysis and drafted the manuscript. And Kei Kamide critically reviewed the manuscript and supervised the whole study process. All authors read and approved the submitted version manuscript.

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References

[1] Lopes, R. C. C., Azeredo, Z. A., Rodrigues, R. M. C., Interpersonal Communication Assessment Scale: Psychometric Study of the Portuguese Version, *Journal of Professional Nursing*, 2013; 29(1), 59-64.

[2] Coeling, H. E., Cukr, P. L., Communication Styles that Promote Perceptions of Collaboration, Quality, and Nurse Satisfaction, *Journal of Nursing Care Quality*, 2000; 14(2), 63-74.

[3] Marilyn D. K., Felicitas A. D. C., Validating the interpersonal communication assessment scale, *Journnal of*

Professional Nursing, 2006; 22(1), 60-67.

[4] Salamonson Y, Glew P, Everett B, Woodmass JM, Lynch J, Ramjan LM, Language support improves oral communication skills of undergraduate nursing students: A6-month follow-up survey, *Nurse Education Today*, 2019; 72, 54-60.

[5] Bandura, A. (Ed.), *Self-efficacy in Changing Societies*. 1995; Cambridge: University Press

[6] Stump, G. S., Husman, J., & Brem, S. K., The nursing student self-efficacy scale. *Nursing Research*, 2012; 61(3), 149–158

[7] Chen, P.P., Exploring the accuracy and predictability of the self-efficacy beliefs of seventh-grade mathematic students, *Learning and Individual Differences*, 2003; 14, 79-92.

[8] Ueno, S., Development of a communication skill assessment scale and investigation of its reliability and validity. *Journal of the Japanese Society of Nursing*, 2004; 14(1), 1–12

[9] Higa, Y., Yamada, K., & Tanaka, I., The therapeutic communication skills scale β (TCSS-β) for nursing students. *Journal of the Department of Nursing, Toyama University*, 2014; 14(1), 31–39.

[10] Manabe, E., Sasagawa, K., Matsuda, K., Kitagawa, K., Sonoda, E., Shigeike, R., & Ueno, N., Investigation of the development, reliability and validity of a clinical practice self-efficacy measurement scale for nursing students. *Journal of the Japanese Society of Nursing*, 2007; 30(2), 43–53.

[11] Allen E. I., Microcounseling innovations in interviewing training. 1971; Springfield IL: Charles C Thomas

[12] Allen E. I., The community genogram: A strategy to assess culture and community resources. Paper

presented at the American Counseling Association Convention, 1995; Denver.

[13] Fukuhara, M., Allen E. I. & Mary B. I., *The theory and practice of microcounseling*. 2004; Japan: Kazama-shobo. 41–113.

[14] Kawagoshi, H., Trends and future prospects of microcounseling practical research oriented studies in Japan. *Microcounseling Studies*, 2014; 9(1), 13–27.

[15] Narita, K., Shimooki, J., Nakasato, K., Kawai, C., Sato, M., & Nagata, Y., Investigation of trait self-efficacy measurement scales. *Educational Psychology Studies*, 1995; 43(3), 306–314

[16] Sherer, M., Maddux, J. E., Mercandante, B., Prentice-Dunn, S., Jacobs, B., & Rogers, R. W., The self-efficacy scale: Construction and validation. *Psychological Reports*, 1982; 51(2), 663–671

[17] Miyoshi, S., & Ono, H., Trends in personality trait self-efficacy studies and development theory. *Psychology Studies*, 2011; 81(6), 631–645

[18] Sakano, Y., & Tojo, M., An attempt at creating a generalized self-efficacy measurement scale. *Behavioral Therapy*, 1986; 12, 73–82

[19] Ueno, M., & Kanazawa, Y., An attempt at creating a Japanese-language version of a counseling self-efficacy measurement scale. *Japanese Journal of Applied Psychology*, 2011; 36(2), 79–87

[20] Fujimoto, M., & Daibo, I., An attempt at integrating the hierarchical structure of factors related to communication skills. *Personality Studies*, 2007; 15(3), 347–361.

[21] Fujimoto, M., ENDCORE: A hierarchical structure theory of communication skills. *Personality Studies*, 2013; 22(2), 156–167.

[22] Marians S. G., Louise S. J., Communication education for pre-licensure nursing students: Literature review 2002-2013, *Nursing Education Today*, 2014; 34, 1375-1381.

[23] Bandura, A., Self-efficacy: The exercise of control. 1997; New York W.H. Freedam and Company

[24] Maddux, J. E., *Self-efficacy: The power of believing you can*. In C. R. Snyder & S. J. Lopez (Eds.), *Handbook of positive psychology*.2001; Oxford, England: Oxford University Press. 277–287.

[25] Sakano, Y., & Maeda, M (Eds.), *The clinical theory of self-efficacy*, 2002; Japan: Kitaoji-shobo.

[26] Bandura, A., Self-efficacy: Toward a unifying theory of behavioral change, *Psychological Review*, 1977; 84(2), 191–215.

Tables

Table 1. Communication skill self-efficacy/preliminary measurement scale contents

No.	Questions	Unit	Skills
1	Looking at the patient in a way that is natural and not uncomfortable to the patient.	Gaze	Attending skills
2	Showing an attitude appropriate for listening (e.g., relaxing the body, sitting straight, and not crossing the arms or legs).	Body language (attitude)	
3	Presenting facial expression appropriate for listening (e.g., calm facial expression).	Body language (facial expression)	
4	Sitting in a way appropriate for listening.	Body language (distance)	
5	Nodding while the patient is talking to make it easier for the patient to continue talking.	Back channeling (i)	
6	Repeating the last word a patient said to make it easier for the patient to continue talking.	Back channeling (ii)	
7	Asking "what kind of" and "why" to encourage the patient's free response.	Opened questions	Listening skills
8	Asking questions that the patient can answer with "yes" or "no" or with one or two words.	Closed questions	
9	Nodding while using back channeling expressions such as "uh-huh" and "I see."	Encouragement (i)	
10	Repeating the key words contained in what the patient has said.	Encouragement (ii)	
11	Not simply repeating the words the patient used but rather appropriately expressing what the patient wanted to express using the student's words	Rephrasing	
12	Focusing on the portions of what the patient is saying related to feelings and repeating the emotion-related words the patient used.	Reflecting feelings (i)	
13	Focusing on the portions of what the patient is saying related to feelings and appropriately expressing the patient's feelings in the student's words.	Reflecting feelings (ii)	
14	Identifying the main point of what the patient said and simply expressing what the patient wanted to convey.	Summarizing	
15	Trying to find out how the patient understood his or her problem or how he or she was trying to understand this and repeating this back to the patient as accurately as possible.	Reflecting meaning	Assertive skills
16	Clearly telling the patient what he or she should do.	Directions	
17	Telling the patient your ideas to help the patient.	Advice	
18	Providing the patient with an explanation of a matter that is easily comprehensible.	Explanations	
19	Telling the patient specifically what he or she should do.	Instructions	
20	Providing the patient with a view that differs from his or her understanding of the significance of his or her behaviors, ideas, and feelings.	Interpretations	
21	Providing the patient with information about the student themselves that is related to the patient in a way that is appropriate to the situation.	Self-revelation (i)	
22	When providing information about oneself related to the patient, adjusting the quantity and quality of the information in accordance with the time and place.	Self-revelation (ii)	
23	When a patient is about to make a decision, encouraging the patient to think about the good and bad consequences accompanying the decision.	Logical consequences	
24	Providing the patient with specific and limited feedback (informing the patient of how he or she appears) while maintaining focus on merits and facts.	Feedback (i)	
25	After informing the patient about how he or she appears, confirming whether the information was significant to the patient.	Feedback (ii)	
26	Observing the verbal and non-verbal expressions and attitudes displayed by the patient and noticing discrepancies between the two.	Confrontation (i)	
27	Appropriately informing the patient of his or her contradictions.	Confrontation (ii)	
28	Checking with the patient to confirm whether the student's way of handling the patient's contradictions was effective.	Confrontation (iii)	

Table 2. Communication skill self-efficacy factor analysis results

(number of factors: 20 items)

No.	I	II	III	IV	Factor name	Cronbachα coefficient
12	1.005	−0.034	−0.118	−0.057	Reflection skills	0.929
14	0.9	0.034	0.064	−0.070		
13	0.851	0.1	0.039	−0.065		
15	0.689	−0.185	0.221	0.131		
11	0.67	0.137	−0.018	−0.111		
16	0.623	−0.037	0.121	0.244		
3	0.002	0.94	0.052	−0.196	Attending skills	0.867
2	−0.124	0.811	0.213	−0.087		
4	−0.068	0.781	−0.113	0.197		
1	0.222	0.554	−0.111	0.132		
5	0.132	0.553	0.031	0.029		
8	0.101	0.49	−0.103	0.234		
24	0.013	0.018	0.917	0.004	Assertive skills (behaviors)	0.861
25	0.02	−0.025	0.836	−0.029		
23	−0.011	0.061	0.649	0.072		
28	0.071	0.027	0.558	0.084		
20	−0.198	−0.005	0.139	0.889	Assertive skills (instructions)	0.886
19	−0.053	0.037	−0.061	0.889		
18	0.04	0.043	0.059	0.717		
17	0.195	−0.002	−0.013	0.661		
	I	II	III	IV		
I	-					
II	0.44	-				
III	0.639	0.31	-			
IV	0.623	0.46	0.6	-		

Table 3. Correlation between the communication skill self-efficacy measurement scale and the characteristic self-efficacy measurement sc

		Characteristic Self-efficacy; Total
I. Reflection skills	Pearson's correlation coefficient	0.254**
	P -value (both sides)	0.003
II. Attending skills	Pearson's correlation coefficient	0.398**
	P -value (both sides)	0
III. Assertive skills (behaviors)	Pearson's correlation coefficient	0.236**
	P -value (both sides)	0.006
IV. Assertive skills (instructions)	Pearson's correlation coefficient	0.272**
	P -value (both sides)	0.002
Communication skill Self-efficacy; Total	Pearson's correlation coefficient	0.373**
	P -value (both sides)	0

** ; $p < 0.01$

Supplementary Files

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