

Factors Associated with Campus Life Satisfaction among Undergraduate Nursing Students in Japan

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ABSTRACT

Aim : The purpose of this study was to determine the factors associated with campus life satisfaction among undergraduate nursing students.

Methods : Documents requesting participation in this research were sent to 50 universities that were selected with stratified, random sampling from the membership list of the Japan Association of Nursing Programs in Universities. At 13 universities that agreed to participate in this study, anonymous self-administered questionnaires were distributed and collected from nursing students. The survey period was October through December 2019. The content of the survey was as follows : (1) participant demographic characteristics, (2) degree of campus life satisfaction measured with the visual analog scale method, and (3) a scale for independent learning behaviors of undergraduate nursing students. For the analysis method, the visual analog scale measurement value of campus life satisfaction was converted to represent the degree of satisfaction. Then, the *t*-test, one-way analysis of variance, and Bonferroni method were used to analyze the relationship between campus life satisfaction and demographic characteristics. Finally, with campus life satisfaction set as the dependent variable and with demographic characteristics set as the explanatory variables, a multiple regression analysis was performed with the forced entry method.

Results : The number of participants who made valid responses was 321, and the mean degree of campus life satisfaction was 58.5% (SD = 21.4%). The degree of satisfaction differed significantly depending on student year (between second-year and fourth-year students and between third-year and fourth-year students), the type of university, and the presence or absence of a career vision (i.e., serious thoughts about their career 10 years in the future). Multiple regression analysis showed that campus life satisfaction was affected by the demographic characteristics of student year (second-year and fourth-year students), type of university, and career vision (adjusted $R^2 = 0.083$). The degree of campus life satisfaction was weakly correlated with the daily life behaviors of learning to understand patients who receive nursing care ($r = 0.216$).

Conclusion : Undergraduate nursing students who are highly satisfied with their campus life tend to perform independent learning behaviors in their daily lives. The degree of satisfaction with

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campus life among these students is related to student year, type of university, and the presence or absence of a career vision.

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Key words : campus life satisfaction, related factors, undergraduate nursing students

INTRODUCTION

Owing to the declining birthrate and the fewer children in Japan, universities are entering a “winter era” of declining enrollment, when positions for students outnumber applicants. In particular, private universities are reconsidering their class systems to secure students and are conducting educational reforms, such as revising classes and curriculums¹. In the field of nursing, nursing universities rapidly increased from 11 in 1991 to 287 in 2020^{2,3} and provided many students the opportunity to study nursing. However, in nursing science, where one’s career path is directly linked to a medical profession, such as becoming a registered nurse or a public health nurse after graduating from a nursing university, many students worry because they have lost the required motivation to learn³. Although the greater number of nursing universities might improve the standards of nursing education, the greater number of undergraduate nursing students, with more diverse academic abilities and purposes for attending school, has increased the difficulty of maintaining and improving the quality of education. As a result, educational reform, similar to that in general universities, is underway⁴.

To evaluate educational reform at general universities, such as Chubu University⁵, Nagoya Bunri University⁶, Osaka International University for Women⁷, and Osaka Shoin Women’s University⁸, coursework has been evaluated and surveys of students have examined such topics as campus life satisfaction, learning efforts, daily life conditions, mental health status, and the learning environment. Similarly, surveys at Saku University⁹, Meio University¹⁰, Ashikaga University¹¹, and Jichi Medical University³ have examined student’s learning motivation, learning behaviors, career paths, and relationships and the learning environment at nursing universities. Therefore, in previous studies, campus life satisfaction has become an important indicator of learning motivation, learning behaviors, and mental health and is a comprehensive indicator of the quality of student life³. In addition, previous research on nursing universities

has been limited to surveys of individual universities and did not examine students from multiple universities. Therefore, a study that uses a single questionnaire to investigate the campus life satisfaction of students of multiple nursing universities would be meaningful. In addition, previous studies have suggested that campus life satisfaction, learning motivation, and future careers are related³. Factors that are related to campus life satisfaction, such as learning motivation/behavior, future career, and demographic characteristics, would also be important knowledge for informing future education reform and student support. Therefore, the purpose of the present study was to determine the factors related to campus life satisfaction among undergraduate nursing students at multiple universities.

METHODS

1. *Participants*

Participants were first-year through fourth-year nursing students, including students with full-time work experience, who attended a public (including national) or private university.

2. *Method*

A stratified random sampling was conducted from the membership list of the Japan Association of Nursing Programs in Universities. For stratification, 50 schools were selected by equal proportions of the number of universities in 5 regional groups (Hokkaido/Tohoku, Kanto, Chubu, Kansai, Chugoku/Shikoku, and Kyushu/Okinawa) and the type of university (national, public, and private). Random sampling was selected with a random number table. Documents requesting participation in this study were sent to 50 universities ; 13 of them agreed to participate, and their enrolled students underwent a survey. Faculty members of the 13 universities were assigned to serve as contact points for the survey, and anonymous self-administered questionnaires were distributed and collected for each student year. At the time of survey collection, a collection box was set up

at each university so that students could freely submit their completed surveys without the assistance or influence of faculty members. The survey period was October through December 2019.

3. Survey content

1) Participants' demographic characteristics

The participants' demographic characteristics that were identified were sex, student year, type of university (national public university or private university), prefecture where the university is located, whether they had work experience, whether their first choice was to attend a nursing university after high school, and whether, at that moment, they had a "career vision," meaning they were seriously thinking about their career in 10 years.

2) Campus life satisfaction

Current campus life satisfaction of the participants was surveyed with a 100-mm-long visual analog scale (VAS). The participants were asked to indicate their degree of satisfaction by making a mark between 0% for being dissatisfied (0 mm) and 100% for being satisfied (100 mm), and the measured mark length indicated their degree of satisfaction in numerical form. The VAS method was originally used to evaluate pain¹² but has recently been used by many studies to investigate satisfaction^{13,15}; therefore, the validity of this evaluation method has been verified¹⁶.

3) Self-Motivated Learning Behaviors scale for undergraduate nursing students

The scale used in this study was a 24-item scale, developed by Kubo, et al¹⁷, which consists of the following 5 subscales: factor 1, "utilization and preparation of resources for national examinations"; factor 2, "diverse learning methods during training for the purpose of providing good care"; factor 3, "fostering self-learning for building knowledge and skills during lectures and practicums"; factor 4, "utilization and preparation of resources for periodic examinations"; and factor 5, "daily consumption of media and books in order to understand those who receive nursing care." The Cronbach's α coefficient for the overall scale was 0.867, and the coefficients for factors 1 through 5, respectively, were 0.855, 0.770, 0.757, 0.715, and 0.684. The contribution of the 5 factors before promax rotation was 50.83%. The rating scale was measured in 5 stages: "1,

never done"; "2, rarely done"; "3, sometimes done"; "4, often done"; and "5, always done."

4. Data analysis

Campus life satisfaction, the dependent variable in this study, was not normally distributed. However, the *t*-test and one-way analysis of variance confirmed robustness with the Mann-Whitney U test and the Kruskal-Wallis test. Multiple regression analysis confirmed the normality of residuals in P-P plots. To examine the relationship between campus life satisfaction and other variables, such as demographic variables, an unpaired *t*-test was used to make comparisons between the 2 groups in each of the following variables: sex, type of university, whether they had work experience, whether their first choice was to attend a nursing university after high school, and whether they had at that moment career vision (Fig. 1). Also, for student year and type of university, one-way analysis of variance tests were performed and the Bonferroni method was used as a substest. Next, because participants with high campus life satisfaction were assumed to have actively engaged in independent learning behaviors, a Pearson correlation coefficient was calculated by scoring both the degree of campus life satisfaction and the independent learning behavior scale results for undergraduate nursing students. The demographic characteristics, or other factors, that affect campus life satisfaction were examined with multiple regression analysis that used forced input. Before multiple regression analysis was performed, the correlation coefficients between the variables that were candidates for being explanatory variables were calculated with the Pearson method. The result of this calculation showed that no variable had a correlation coefficient of 0.2 or more. Furthermore, among the demographic variables, the nominal variables were converted to a dummy variable of either 0 or 1. Variance inflation factor values of demographic variables were calculated at the time of analysis and were found to be approximately 1 to 2; because no variable had a value greater than 10, the problem of multicollinearity was not thought to have occurred. Statistical analysis was performed with the computer program SPSS Statistics Version 26.0J for Windows (IBM, NY, USA).

5. Ethical Considerations

This study was approved by of the Ethics Committee of The Jikei University of School of Medicine for Biomed-

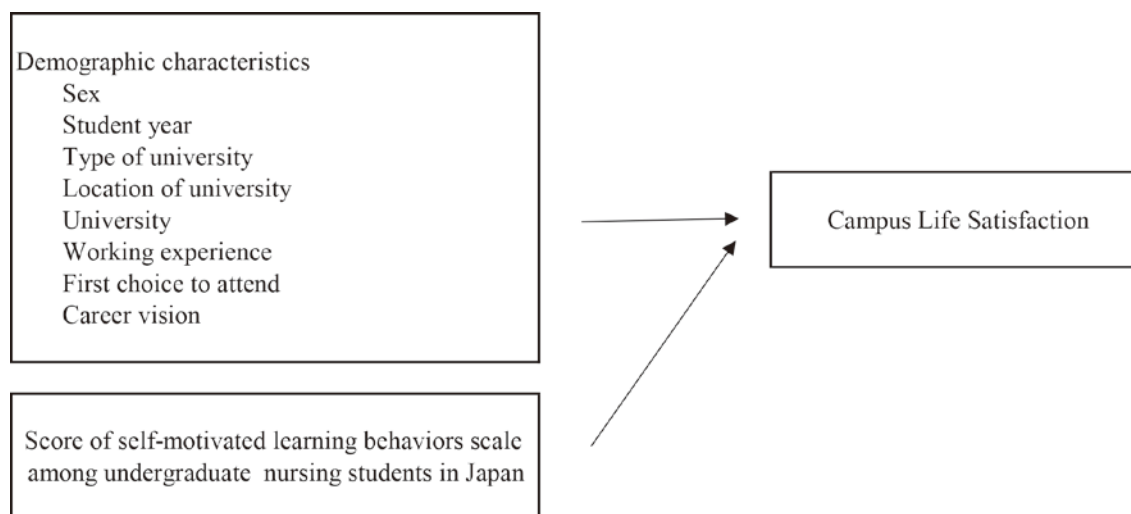


Fig. 1. Conceptual framework of the study

cal Research (31-107 (9606)). The approval of the ethics review committee for the 2 purposes of scale development and examination of related factors. To examine related factors, data from previous research on scale development was used and an analysis that was different from that of previous research was then performed¹⁷. In addition, the self-administered survey used in the present study was conducted with the consent of university officials (such as department director and dean of students) of the Japan Association of Nursing Programs. Moreover, topics, including the following, were explained to the participants in writing: the purpose, significance, and methods of this research and that participation was voluntary; personal information would be strictly protected; data would not be used for any purpose other than this research; participation in the study would not affect grades; and the content of the survey would not be communicated to university faculty members. Answering the survey questions was regarded as consent to participate in this research.

RESULTS

1. Questionnaire collection and demographic and related information about participants

The questionnaire that university faculty members were requested to administer was distributed to 768 students, and responses were obtained from 429 (recovery rate: 55.9%). The responses from 321 students (valid response rate: 74.8%) who responded to all the items of the

survey were analyzed in this study.

The participants of the study were most often female, in their second through fourth years of university, were attending a private university, had made a first choice of attending a nursing university after high school, and did not have a career vision (Table 1).

2. Campus life satisfaction and distribution by stage

The mean degree of campus life satisfaction among all participants was 58.5% (SD = 21.4%). The campus life satisfaction was 0% in 3 students and 100% in 6 students. The distribution of campus life satisfaction was classified into a 5-point and 10-point scale (Table 2). When classified on a 10-point scale, the most common distribution of campus life satisfaction was 60% to 69% and included 76 students (23.7%).

3. The relationship of campus life satisfaction with demographic characteristics and other variables

Campus life satisfaction did not differ statistically according to a participant's sex, experience with full-time work, and whether attending a nursing university after high school was a first choice (Table 3). However, campus life satisfaction was lowest for second-year students (53.7%; SD = 25.0%), and highest for fourth-year students (66.9%; SD = 18.2%) and differed significantly between second-year and fourth-year students ($p = 0.000$) and between third-year and fourth-year students ($p = 0.004$). In addition, campus life satisfaction was higher if

Table 1. Demographic characteristics of participants (N=321)

Demographic data		N	(%)
Gender			
	Female	292	(91.0)
	Male	29	(9.0)
Student year			
	First	29	(9.0)
	Second	100	(31.2)
	Third	114	(35.5)
	Fourth	78	(24.3)
Type of university			
	National/public university	32	(10.0)
	Private university	289	(90.0)
Location of university			
	Hokkaido	21	(6.5)
	Kanto	210	(65.4)
	Tokai	8	(2.5)
	Chugoku · Shikoku	24	(7.5)
	Kyushu	58	(18.1)
University			
	A University	21	(6.5)
	B University	17	(5.3)
	C University	8	(2.5)
	D University	4	(1.2)
	E University	20	(6.2)
	F University	18	(5.6)
	G University	16	(5.0)
	H University	11	(3.4)
	I University	13	(4.0)
	J University	9	(2.8)
	K University	30	(9.3)
	L University	82	(25.2)
	M University	72	(22.4)
Working experience			
	Yes	7	(2.2)
	No	314	(97.8)
First choice to attend			
	Yes	264	(82.2)
	No	57	(17.8)
Career vision			
	Yes	149	(46.4)
	No	172	(53.6)

students attended national and public universities rather than a private universities ($p = 0.004$). Campus life satisfaction was significantly lower at University F than at University K ($p = 0.016$) or University L ($p = 0.007$). Finally, cam-

Table 2. Population distribution of campus life satisfaction (N=321)

Category	Campus life satisfaction degree	Students	
		N	(%)
5 categories	80-100	49	15.3
	60-79	128	39.9
	40-59	86	26.8
	20-39	36	11.2
	0-19	22	6.9
10 categories	90-100	13	4.0
	80-89	36	11.2
	70-79	52	16.2
	60-69	76	23.7
	50-59	52	16.2
	40-49	34	10.6
	30-39	22	6.9
	20-29	14	4.4
	10-19	12	3.7
	0-9	10	3.1

pus life satisfaction scores were significantly higher for students who had “career vision” than for students who did not ($p = 0.018$).

3. The relationship of campus life satisfaction and scores of the Self-Motivated Learning Behavior scale

The overall Cronbach's α coefficient for the Self-Motivated Learning Behavior scale among nursing students was 0.847 for the subscales in turn were 0.869, 0.732, 0.736, 0.694, and 0.691. The correlation coefficients between the degree of satisfaction with campus life and the independent learning behavior scale scores of students showed no overall correlation and no correlation between most individual factors (factors 1 through 4) (Table 4). However, the degree of satisfaction with campus life was found to be weakly correlated with factor 5, which was using books and television to better understand patients ($r = 0.216$, $p < 0.01$).

4. Multiple regression analysis of campus life satisfaction

Multiple regression analysis showed that the demographic characteristics that explained campus life satisfaction included student year (being a fourth-year student) ($\beta = 0.271$, $p = 0.000$), university type ($\beta = 0.189$, $p = 0.001$), and the presence or absence of a career vision ($\beta = 0.110$, $p = 0.047$) (adjusted $R^2 = 0.083$) (Table 5).

Table 3. Relationship between campus life satisfaction and factors

(N=321)

Demographic cracteristics	Students		Campus life satisfaction		
	N	(%)	Mean	SD	p
Overall	321	(100.0)	58.5	21.4	
Sex ^{A)}					
Female	292	(91.0)	58.2	21.2	0.968
Male	29	(9.0)	58.3	25.3	
Student year ^{B)}					
First	29	(9.0)	58.2	22.6	0.000
Second	100	(31.2)	53.7	25.0	
Third	114	(35.5)	56.2	18.6	
Fourth	78	(24.3)	66.9	18.2	
Type of University ^{A)}					
National/public	32	(10.0)	68.5	16.9	0.004
Private	289	(90.0)	57.1	21.8	
University					
A University	21	(6.5)	60.6	14.2	0.000
B University	17	(5.3)	68.2	17.0	
C University	8	(2.5)	55.8	18.9	
D University	4	(1.2)	74.0	22.2	
E University	20	(6.2)	59.5	23.5	
F University	18	(5.6)	71.4	16.1	
G University	16	(5.0)	69.4	14.6	
H University	11	(3.4)	66.6	18.3	
I University	13	(4.0)	63.1	24.2	
J University	9	(2.8)	60.0	23.1	
K University	30	(9.3)	48.3	19.9	
L University	82	(25.2)	50.0	23.5	
M University	72	(22.4)	60.0	20.5	
Working experience ^{A)}					
Yes	7	(2.2)	74.2	19.0	0.095
No	314	(97.8)	57.9	21.6	
First choice to attend ^{A)}					
Yes	264	(82.2)	58.3	21.9	0.882
No	57	(17.8)	57.8	19.9	
Career vision ^{A)}					
Yes	149	(46.4)	61.6	20.5	0.018
No	172	(5.6)	55.9	21.8	

^{A)}Non-paired *t* test^{B)}One-way analysis of variance, hypostasis Bonferroni test

DISCUSSION

1. Campus life satisfaction

In the present study, the degree of campus life satisfac-

tion measured with a VAS among undergraduate nursing students was 58.5% (SD = 21.4%). Several earlier studies have evaluated campus life satisfaction in nursing students without a VAS. For example, a study at Ashikaga University

Table 4. Analysis of correlation with VAS : Self-Motivated Learning Behaviors Scale among Undergraduate Nursing Students in Japan (n=321)

	Pearson correlation coefficient					
	Overall	Factor1	Factor2	Factor3	Factor4	Factor5
External Variables		Utilization of resources and preparation for national examination	Variety of types of learning to provide good care for practice training	Support for health improvement in groups and organizations	Utilization of resources and preparation for regular examinations	Watching television shows and reading books for a deeper understanding of patients in their daily lives
VAS	0.078	0.081	0.185**	0.101	0.129*	0.216**

**P<0.01, *P<0.05 (both sided).

Table 5. Multiple regression analyses of campus life satisfaction

(n=321)

Dependent variables	Selected independent variables ^{A)}	Standardized partial regression coefficient β	p	Adjusted R ²	F of regression equation	Significance of F
Campus life satisfaction	Gender	0.021	0.705	0.083	4.551	0.000
	School year : 1	0.024	0.685			
	School year : 3	0.066	0.316			
	School year : 4	0.271	0.000			
	Type of University	0.189	0.001			
	Working experience	0.051	0.361			
	First Choice	0.032	0.560			
	Career vision	0.110	0.047			

Entry method multiple regression analyses

^{A)}Qualitative variable (Nominal scale) ; Gender (1 : Female, 0 : Male), School year : 1 (1 : 1, 0 : 2), School year : 3 (1 : 3, 0 : 2), School year : 4 (1 : 4, 0 : 2), Type of University (1 : National/Public university, 0 : Private university), Working experience (1 : Yes, 0 : No), First choice (1 : Yes, 0 : No), Career vision (1 : Yes, 0 : No)

Nominal scale was introduced a dummy variable. School year was classified using 2 as a reference category

used a 4-point scale¹¹ and found that 83.9% of nursing students were “satisfied or satisfied to some extent” and 16.1% were “not that satisfied or not satisfied at all.” In a study at Jichi Medical University³, 91.0% of students were “very satisfied or moderately satisfied” and 9.0% were “not that satisfied or not satisfied at all.” A study at Meio University used a 5-point scale¹⁰ and found that 36.9% of students were “satisfied or mostly satisfied” and that 17.9% were “somewhat dissatisfied or dissatisfied.” In a survey of 2 general universities which used a 5-point scale, 30% of students were “very satisfied or somewhat satisfied,” 24% were “neither satisfied nor dissatisfied,” and 46% were “not that satisfied or very dissatisfied.” Although no previous study has used a VAS to investigate campus life satisfaction levels of undergraduate nursing student, a study at the International University of Health and Welfare used a VAS to survey students in a physical therapist training course^{12,13}.

That study found that campus satisfaction was 72% (SD = 20%) 4 months into the first year, 68% (SD = 17%) after the first half of the second year, 66% (SD = 19%) at the end of the second year, 68% (SD = 19%) in January of the third year, and 73.5% (SD = 18%) in February of the fourth year^{13,14}.

If the results of the present study are evaluated on a 4-point scale in which campus life satisfaction would correspond with a score of 50% to 100%, the mean rate would be 71.4% and be lower than in previous studies of nursing students at Jichi Medical University and Ashikaga University^{3,11}. However, if the results are evaluated on a 5-point scale in which being satisfied would correspond with a score of 60% to 100%, the rate would be 55.2% and be higher than in a study at Meio University¹⁰. Although this difference in results might be due to large differences in campus life satisfaction at individual universities, the re-

sults might have also been affected by forms of bias, such as measurement bias due to the settings of the Likert scale or selection bias due to how participants were chosen. In addition, although the VAS survey has been used to determine the campus life satisfaction rate in only 1 previous study at the International University of Health and Welfare, the satisfaction level of the present study was lower^{13,14}. However, because satisfaction levels also differed significantly between universities in this study, an appropriate comparative study based on the results of a single university was difficult to perform.

When campus life satisfaction levels in the present study were divided according to student year, the rate was lowest for second-year students and highest for fourth-year students; similar results have been found by the study at the International University of Health and Welfare^{13,14}. A study at Jichi Medical University³ similarly found that the rate of being “very satisfied or moderately satisfied” was highest for fourth-year students and lowest for second-year students. Second-year students have a free period until practical training during which applying any knowledge or experience they have gained from their specialized lectures is difficult. Moreover, second-year students have lower attitudes towards their lifestyle and are less motivated to learn, resulting in what is called the “midway slump”¹⁸. In short, the observed tendencies of the present study were similar to those of previous studies.

Regarding whether a students’ first choice after high school was or was not to attend a nursing university, the present study found that campus life satisfaction did not differ significantly. This finding differed from those of studies at Jichi Medical University³ and at Mejo University study¹⁰ which found that campus life satisfaction was higher for students whose first choice was to attend a nursing university. However, the present study found that campus life was more satisfying for students who had seriously thought about their future career. These results are new findings that suggest that campus life satisfaction is related to a students’ affinity to nursing at the time of admission and also to their having a clear career vision after admission.

We had speculated that nursing students who were highly satisfied with campus life are active in independent learning behaviors. Therefore, in the present study the degree of campus life satisfaction and the self-motivated learning behaviors of students were scored and the correla-

tion coefficients were calculated. Although we found no association of campus life satisfaction with learning behaviors overall or learning behavior factors 1 through 4, we did find a weak correlation of satisfaction with only learning behavior factor 5 (“daily consumption of media and books in order to understand those who receive nursing care”). Instead of being asked about learning motivation, participants were asked about the frequency of actual learning behaviors; because the surveys of previous studies had different contents (1 survey item, 4-point scale), the same results were not obtained. Also, factor 5 is a subscale that is an action related to how nursing students come in contact with information about the experiences of people who receive nursing care in their daily lives. Therefore, because self-motivated learning behaviors were directly linked to future career vision, this data suggests that only factor 5 is related.

Another finding of the present study was that campus life satisfaction differed between nursing students at national/public universities and those at private universities. In general, private universities are considered to have better educational facilities and faculty assignments. Although no previous study had focused on campus life satisfaction at national/public universities, a previous study of academic motivation¹⁹ has found that student satisfaction is higher at private universities than at national/public universities. Therefore, we presume that campus life satisfaction is related to academic motivation.

2. Study limitations

Although 13 of 50 universities that were requested to participate in this research agreed to do so, limitations of the present study were that these universities showed bias, such as the university’s type and location, and that the number of students who participated in the study, 429, was small. The valid response rate was 74.8%; incomplete responses were not reflected in the results. Therefore, the participants of this study were appropriate sample sampling and survey methodology.

Because many studies have used the VAS method to investigate satisfaction with¹²⁻¹⁵, the validity of this method has also been verified¹⁶. However, the VAS method of evaluating satisfaction has problems of the reliability of the validity of the scale, and because satisfaction is an abstract concept, a limitation of this study was that the details of the satisfaction of undergraduate nursing students could not be

elucidated. Another limitation was that the Self-Motivated Learning Behaviors scale for nursing students had low explanatory power because the contribution of the 5 factors before promax rotation was 50.83%. This scale is missing approximately 50% of the items that could be explained. The reliability of this scale was at the acceptable/reserved level with Cronbach's α coefficients of 0.694 and 0.691 for factors 4 and 5²⁰. An additional limitation of this study was that the results of multiple regression analysis showed that the R^2 value was low. How researchers can adopt more reliable and valid scales for campus life satisfaction and related factors should be reexamined. Additionally, after survey items are carefully selected, this new scale should be further verified. Moreover, because this study was a cross-sectional survey, a final limitation was that the possibility of a causal relationship could not be stated.

3. Future research

We plan to conduct a cohort study to consider the order of time and an intervention study to examine causal relationships of campus life satisfaction and related factors. Additionally, we would like to examine survey methods and related factors regarding campus life satisfaction among nursing students. We hope to conduct a cohort study and consider the order of time and to conduct an intervention study to test for causality. We would like to examine the survey method and related factors regarding the satisfaction level of campus life of nursing students and then verify it longitudinally.

CONCLUSION

In the present study we found that undergraduate nursing students had a mean rate of university campus life satisfaction, as measured with the VAS method, of 58.5% (SD = 21.4%). We also found that students with a high level of campus life satisfaction tended to engage in independent learning behaviors in their daily lives. We believe that campus life satisfaction of nursing students is related to student year, type of university, and the presence or absence of a career vision. This campus life satisfaction is related to a student's affinity to nursing at the time of admission and to the acquisition of a clear career vision after admission. To examine campus life satisfaction, we should consider such items as demographic characteristics, future career vision,

and multifaceted factors, including survey methods used to measure campus life satisfaction.

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AUTHOR CONTRIBUTIONS

Y.K., F.K., K.T., S.S., J.I., R.M., J.S., and M.K. contributed to the conception and design of the study, as well as the statistical analysis and drafting of the manuscript. All authors read and approved the final manuscript.

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