

Effectiveness of a Strength-Based Intervention into Nursing Education in South Korea

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Purpose: This study aimed to examine the effectiveness of strength-based interventions integrated into the nursing education.

Materials and Methods: The participants were 259 baccalaureate nursing students in South Korea. Over 15 weeks, strength-based intervention was integrated into the regular nursing curriculum. Stress, resilience, and well-being of the participants were measured before and after the intervention. The data were analyzed using a linear mixed model via the SPSS statistics 21.0. program.

Results: There was a negative weak association between stress and well-being and between stress and resilience ($r = -0.164$, $p = 0.009$ and $r = -0.138$, $p = 0.029$, respectively) and a positive moderate association between well-being and resilience ($r = 0.561$, $p < 0.001$). After adjusting the covariates, the interaction of group*time for stress and resilience were significant after the intervention, reflecting a higher status of stress and improved resilience. ($p = 0.046$ and 0.030 respectively).

Conclusion: Integrating strength-based interventions into the nursing curriculum was effective in improving the mental health of Korean nursing students. Future research is needed to identify various ways of applying positive psychology to the nursing education.

Keywords: strength-based intervention, nursing curriculum, nursing student, positive psychology

Introduction

Nursing science is a practice-oriented discipline that requires clinical competency to determine and solve problems in a clinical practice, based on nursing knowledge. To maintain a balance between theory and practice, nursing students must acquire the knowledge, skills, attitudes, and values of nursing through theoretical education in classes and clinical practices in hospitals.¹ In undergraduate courses, nursing students experience stress for a wide range of reasons, such as an excessive academic burden, dealing with various patients in a clinical setting, low self-esteem from lack of expertise, or discrepancies between theory and practice.²

Although it is important to manage stress and promote the mental health of nursing students, current nursing curriculums focus on knowledge and technical training. In addition, while studies on stress, depression, and well-being have continued to take place with an emphasis on the importance of nursing students' mental health, most studies have emphasized the deficit model, which focuses on exploring factors that negatively affect the mental health of nursing students.³ However, not all individuals maladapt to stress.⁴ From a positive psychological perspective, "resiliency", the psychological resources of individuals, allows humans to overcome adversity and to adapt positively to stressful situations, even under harsh conditions.⁵ Studies on resiliency have also been conducted in nursing as a protective factor to control stress.^{6,7}

Positive emotion improves resilience.^{5,8,9} According to broaden-and-build theory, negative emotions narrow individuals' sequential thinking by triggering a repertoire of behaviors that only attempt to act stereotyped, but positive emotions become important variables for the relationship between resilience and psychological recovery by expanding individual thinking and creating cognitive and social resources.⁵ From this perspective, it is emphasized that students should explore and analyze their educational behaviors with a focus on their strengths based on positive emotions in

educational settings.¹⁰ Seligman proposed a strength-based class to promote students' positive emotions in various educational settings, such as physical education, English, theology, music, as well as psychology classes.¹¹

To the best of our knowledge, there are no educational attempts to integrate the strength-based approach of positive psychology within the regular nursing curriculum. Therefore, we integrate strength-based intervention that promote positive emotions into the nursing curriculum and evaluates their effectiveness.

Materials and Methods

Study Aim and Design

This is quasi-experimental research using non-equivalent control pre-post design to determine the effectiveness of strength-based nursing education on stress, resilience, and well-being of nursing students.

Participants

The participants of this study consisted of 259 first-year nursing students from one university in South Korea. The eligibility criteria for the participants were as follows; (1) nursing students registered in the "Human Growth and Development" course, (2) nursing students with no communication problems. As this study was integrated into the regular course curriculum, 259 nursing students enrolled in the "Human Growth and Development" course in the spring 2016 semester. After approval from the researcher's Institutional Review Board, all the students taking the course were briefed about the research during course orientation in the first week by the researcher. The students who voluntarily agreed to participate in the study were asked to complete informed consent forms. It was explained that all data obtained during the study would be anonymous. They were informed that the results of the survey would not affect their grade and that non-participation would not result in any disadvantage. The first-year nursing students were divided into 6 classes. Of 6, 3 classes were randomly allocated to the control group and the other three classes to the intervention group. Each class unit included 40 to 45 students, the number of participants was 126 in the control group and 133 in the intervention group.

Data Collection

Data were collected from March 2 to July 12, 2016, at one university in Korea. Voluntary informed consent was obtained. Both the control and intervention groups took the course, using the same textbooks and taught by the same professor. However, the students in the intervention group were provided with the strength-based intervention. The strength-based intervention comprised two sessions of group activities based on character strengths, the online VIA Survey of Character Strengths, a personal assignment (writing an essay), and feedback. Three assessments were given to the participants in the intervention group: a preliminary survey, an exit survey (administered after the completion of the 15-week course), and a post-measurement survey (administered 4 weeks after the exit survey). The control group was given two assessments — a preliminary survey and an exit survey — immediately after completion of the 15-week course.

Measure

Perceived Stress Scale

The Perceived Stress Scale (PSS) developed by Cohen et al¹² and revised to Korean by Kim, Koo, and Park¹³ was used. This scale consists of a 10-item Likert scale, ranging from 1 to 5 (ie, "almost none" to "very often"). A higher score indicates a higher stress level. In the original version, the coefficient alpha was 0.74.¹² In the present study, the Cronbach's alpha was 0.56.

K-SWBS (Korean Version of the Subjective Well-Being Scale)

The subjective well-being scale (SWBS) developed by Keyes and revised to Korean by Lee et al¹⁴ was used to measure well-being of nursing student. This scale comprises 12 items and 3 factors: emotional well-being (3 items), psychological well-being (4 items), and social well-being (3 items). The response is a six-point Likert scale, with options such as "totally", "one to two times a week", "once a week", "two or three times a week", "almost every day", and "every day". The Cronbach's alpha was 0.92 in the present study.

K-CD-RISC (Korean Version of the Connor–Davidson Resilience Scale)

Resilience was measured using K-CD-RISC. The Connor–Davidson Resilience Scale (CD-RISC) developed by Connor & Davidson and revised to Korean by Baek et al¹⁵ was used. Each item is supposed to be evaluated on a five-point scale, from “not at all” to “extremely”, and a higher score indicates a higher resilience level. It consists of a total of 25 items with five subscales (strength, persistence/durability, optimism, supportiveness, spirituality). The Cronbach’s alpha was 0.89 in the present study.

Strength-Based Intervention in Nursing Education (SINE)

This strength-based intervention in nursing education (SINE) was developed based on positive psychology, which focuses on personal character strengths and positive emotions. The intervention was designed based on the four-step model by Padesky & Mooney, the details of which were revised to fit the purpose of this study (Figure 1). It consisted of two activity classes twice (week 3 and week 14) and two writing assignments. Each class hour for the course was 100 min (2 credit hours, 50 min per credit hour). Strength-based activities consisted of 50 minutes per class group activity.

Step 1. Search for One’s Strengths (Class Activity in Week 3)

The initial stage involved exploring personal character strengths and facilitating self-understanding of the participants. To improve awareness of one’s own character strengths and promote positive thought, we composed the strength-pyramid activity — developed by Strength Garden, a Korean positive psychology institute — as an introductory activity. The researcher obtained a certificate as an instructor from the Strength Garden (<http://www.strengthgarden.co.kr>).

In this activity, five to six students form a group. Each group member chooses three meaningful cards out of 25 picture cards that reflect various character strengths and takes turns explaining the reason why they chose the cards. Other members of the group provide positive feedback to the presenter. As a facilitator, the instructor circulates between groups giving appropriate positive feedback to the presenters.

After the group activity, students take the online VIA Survey at the VIA Institute on Character website (<http://www.viacharacter.org>) using their smartphones. The VIA Survey of Character Strengths is a self-reported free online testing tool, developed based on the VIA Classification of Character Strengths and Virtues. This positive classification system comprises six virtues and 24-character strengths of human nature. Each participant who completes the survey identifies their signature strengths, which represent one’s individual character.¹⁶ The online VIA Survey of Character Strengths

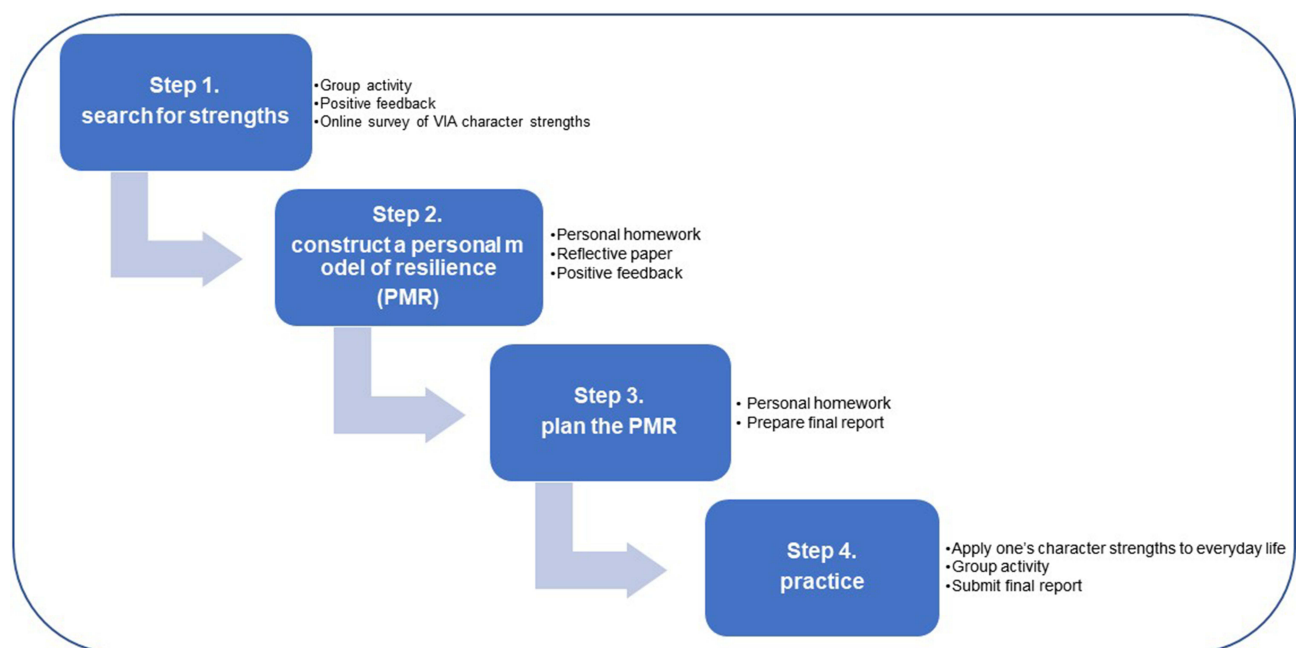


Figure 1 The steps of strength-based intervention.

includes 120 questions and takes approximately 10 min to complete. It supports multilingual access, including English and Korean.

Step 2. Construct a Personal Model of Resilience (Writing Assignment in Week 4)

The second phase reinforced positive views of oneself by assigning significance to an individual's positive experiences and then establishing a personal resilience model.¹⁷ Participants first described five signature strengths based on the VIA Survey of Character Strengths and then drafted a report through guided questions provided by the instructor. Participants were asked to identify strengths that, from their perspective, represented themselves well or not. They were also requested to present strengths that they often used. Participants were asked to provide supporting arguments for their strength classifications. Next, they recalled a specific experience where they faced problematic situations or stress and reflected on how their strengths helped them to resolve those issues. They were also asked to record any strength that they found useful for maintaining psychological resilience during problematic situations, even if it did not directly resolve the issue. Participants presented their stories as an essay, submitted it to the instructor, and then received feedback.

Step 3. Apply the PMR to Areas of Life (Writing Assignment in Week 5)

In step 3, participants contemplated methods for activating and galvanizing their resilience in daily-life stressful situations based on their list of strengths and reflections. The ability to apply the strengths identified in step 2 through a structured strategy facilitates participants to utilize their strengths, resulting in enhanced positive emotions and satisfaction.¹⁸ Participants created simple strength implementation plans to be submitted with the final report.

Step 4. Practice Resiliency (Class Activity and Writing Assignments in Week 14)

In step 4, participants verified their positive qualities through practical implementation. After the first group activity, which included the online VIA Survey of Character Strengths, participants submitted a report based on their strength utilization plan and implementation results in their daily lives to organize a second group session during week 14. Participants presented their final reports based on their practical applications, shared positive feedback, and then submitted their final reports.

Ethical Consideration

This study was approved by the Institutional Bioethics Committee of Seoul National University (IRB No. SNU 16-03-012). To protect the human rights of study participants according to the Declaration of Helsinki, all data collected from the participants, who volunteered to participate in the research, were coded immediately to ensure anonymity. To the control group, handout on positive psychological perspectives and VIA Survey website address were provided at the end of the semester.

Data Analysis

The data were analyzed using the SPSS 21.0 version program. The reliability of the measurement was calculated using Cronbach's alpha. Baseline characteristics of the two groups were depicted using descriptive statistics, including counts and percentages for dichotomized variables and means and standard deviations (SD) for continuous variables. Baseline differences over time between the two groups were identified via a chi-square test and an independent samples *t*-test, respectively, according to categorical and continuous variables. Relations among outcomes were measured via Pearson's correlation coefficient and its significance levels. The mean difference between the outcomes measured between the two groups after the intervention was assessed via an independent samples *t*-test. The data were analyzed according to intention to treat. The effects of the intervention on outcome were estimated via a linear mixed model for repeated measures, two or three times, over time with a comparison of control group, before and after adjusted the covariates, which were shown to be statistically significant.

Results

Baseline characteristics and the differences between control and intervention groups are represented in Table 1. From a total of 259 individuals, the control and intervention groups accounted for 126 and 133 individuals, respectively. The subjects tended to be female, un-religious, healthy, and have good human relationships; they chose to major in nursing due to high

employment rates and were satisfied with this choice. Regarding the differences in baseline characteristics between the control and intervention groups, only health status was found to significantly differ; those in the intervention group were more likely to be healthy. Table 2 presents the associations among outcome variables. All the variables were found to be associated. Stress and well-being and stress and resilience exhibited negative weak associations ($r = -0.164, p = 0.009, r = -0.138, p = 0.029$) and the association between well-being and resilience was positive and moderate ($r = 0.561, p < 0.001$).

Tables 3, 4 and Figure 2 presents the effects of intervention on outcomes over time after adjusting the covariates. Whereas stress worsened after intervention (mean difference -0.73 (range 10–50), where a higher score reflects a higher stress status.), well-being and resilience improved after intervention (mean difference -3.98 and -2.19 respectively, where a higher score reflects better well-being and improved resilience). After controlling for health status, which was shown to significantly differ between the two groups, the interaction of group*time for stress was significant post-intervention ($p = 0.046$) and at follow-up ($p = 0.017$) respectively. The well-being of both groups improved after intervention and continued in the follow-up after intervention (time $p < 0.001$ and 0.004 respectively). The resilience of the intervention group improved compared to the control group ($p = 0.026$) and a significant interaction was found for resilience ($p = 0.030$).

Table I Baseline Characteristics of the Study Subjects (N=259) (Unit: n (%))

		Control (n=126)	Intervention (n=133)	p-value
Grade	First	126 (100%)	130 (97.7%)	0.090
	Second	0 (0%)	3 (2.3%)	
Sex	Women	107 (84.9%)	110 (82.7%)	0.629
	Men	19 (15.1%)	23 (17.3%)	
Religion	Christian	34 (27.0%)	27 (20.3%)	0.321
	Buddhism	11 (8.7%)	6 (4.5%)	
	Catholic	8 (6.3%)	13 (9.8%)	
	Other	1 (0.8%)	2 (1.5%)	
	None	72 (57.1%)	85 (63.9%)	
Heath status	Fairly unhealthy	10 (7.9%)	1 (0.8%)	0.014
	Normal	45 (35.7%)	41 (30.8%)	
	Fairly healthy	49 (39.8%)	57 (42.9%)	
	Very healthy	22 (17.5%)	34 (25.6%)	
Human relationship	Bad	0 (0%)	4 (3.0%)	0.290
	Fairy bad	1 (0.8%)	0 (0%)	
	Normal	40 (31.7%)	43 (32.6%)	
	Fairy good	67 (53.2%)	67 (50.8%)	
	Very good	18 (14.3%)	18 (13.6%)	
Motivation for nursing major *	Due to the high employment rate	87 (69.0%)	89 (66.9%)	0.818
	In accordance with the aptitude	45 (35.7%)	60 (45.1%)	0.124
	In consideration of high school grades	15 (11.9%)	16 (12.0%)	0.975
	According to the recommendation of parents or others	51 (40.5%)	40 (30.1%)	0.080
	To have a job of care and service	31 (24.6%)	41 (30.8%)	0.264
	Due to the good impression of the nurse	41 (32.5%)	39 (29.3%)	0.576
	Other	3 (2.4%)	5 (3.8%)	0.522
Satisfaction with nursing major	Unsatisfied	2 (1.6%)	2 (1.5%)	0.118
	Just so	53 (42.1%)	37 (27.8%)	
	Satisfied	60 (47.6%)	80 (60.2%)	
	Very satisfied	11 (8.7%)	14 (10.5%)	
Stress	(Unit: Mean±S.D)	27.54±3.99	26.94±3.25	0.193
Well-being	(Unit: Mean±S.D)	86.35±11.23	87.48±11.38	0.429
Resilience	(Unit: Mean±S.D)	44.70±11.42	43.88±9.90	0.542

Note: *Multiple response.

Table 2 The Associations Between Stress, Well-Being, and Resilience

Variable	Stress	Well-Being	Resilience
Stress	1	-0.164	-0.138
p-value		0.009	0.029
Well-being	-0.164	1	0.561
p-value	0.009	0.083	<0.001
Resilience	-0.138	0.561	1
p-value	0.029	<0.001	0.078

Table 3 Mean ($\pm$ SD) and Mean Difference (95% CI) for Stress, Well-Being, and Resilience

	Control	Intervention	Mean Difference
Stress			
Baseline	27.54 $\pm$ 3.99	26.94 $\pm$ 3.25	0.60 (-0.31 to 1.51)
After	26.70 $\pm$ 3.60	27.43 $\pm$ 4.08	-0.73 (-1.80 to 0.36)
Follow-up		27.62 $\pm$ 3.57	
Well-being			
Baseline	86.35 $\pm$ 11.23	87.48 $\pm$ 11.38	-1.13 (-3.95 to 1.69)
After	87.18 $\pm$ 10.10	91.16 $\pm$ 11.21	-3.98 (-6.96 to -0.99)**
Follow-up		92.43 $\pm$ 9.90	
Resilience			
Baseline	44.70 $\pm$ 11.42	43.88 $\pm$ 9.90	0.82 (-1.83 to 3.48)
After	43.74 $\pm$ 9.26	45.93 $\pm$ 9.73	-2.19 (-4.83 to 0.45)
Follow-up		46.14 $\pm$ 10.55	

Notes: **p<0.01. Stress (10–50), higher score reflects higher status of stress. Well-being (25–150) and resilience (12–60), higher score reflects better well-being and higher ability for resilience.

Table 4 Results of Linear Mixed Model Analyses. (Unit: Means (95% CI))

Outcome and Time Point	After ^a	Follow-Up ^a
Stress		
Group (Intervention vs control) (p)	0.110	0.070
Time (p)	0.104	0.486
Group*time (p)	0.046	0.017
Well-being		
Group (Intervention vs control) (p)	0.384	0.840
Time (p)	<0.001	0.004
Group*time (p)	0.083	0.384
Resilience		
Group (Intervention vs control) (p)	0.026	0.078
Time (p)	0.334	0.836
Group*time (p)	0.030	0.116

Note: ^aLinear mixed model analyses to compare for difference scores relative to baseline after controlling for health status.

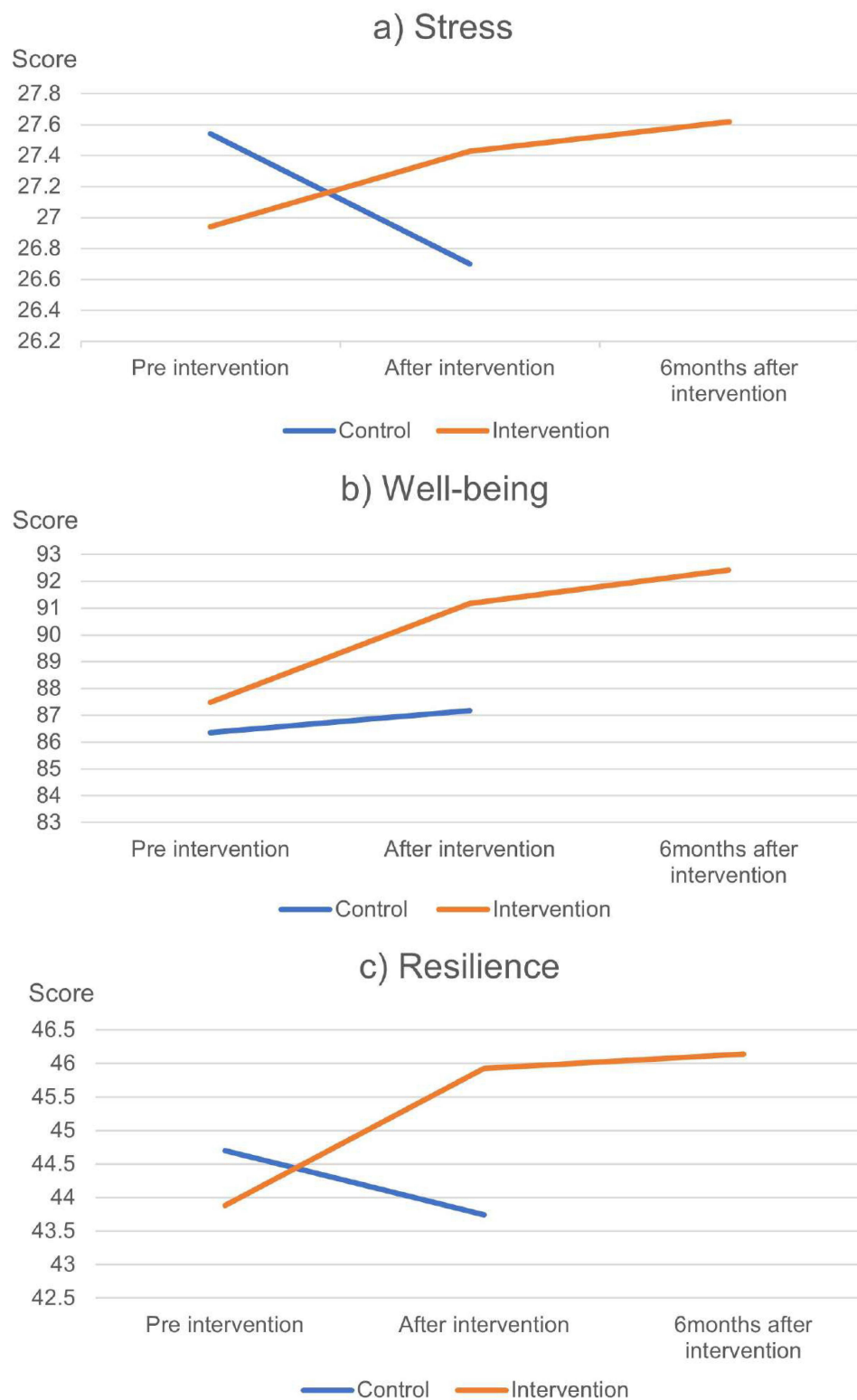


Figure 2 The effects of intervention on stress, well-being, and resilience over time.

Notes: (a) Stress (10–50), higher score reflects higher status of stress. (b) Well-being (25–150) and (c) resilience (12–60), higher score reflects better well-being and higher ability for resilience.

Discussion

The fundamental premise of positive psychology is helping individuals to enhance their psychological well-being and flourish by focusing on and making use of positive traits of the individual, rather than diagnosing and treating the individual's

weaknesses and problems.¹⁹ In this study, we developed a strength-based intervention that aligned with the perspective of positive psychology and attempted to integrate it as part of the regular nursing education course. The level of resilience and subjective well-being significantly improved in the intervention group post-intervention and a statistically significant difference was found between the intervention and control groups. These results are consistent with the findings reported by Kim & Kim²⁰ that after the 8-week positive psychology program, nursing students showed higher scores for positive thinking and resilience. These consistent results support the viewpoint of positive psychology. According to this perspective, strength-based interventions present a positive framework for people to reflect on their personal circumstances and the meaning of life events; by doing so, these interventions facilitate positive thinking and promote improved mental health.²¹

The reasons why our strength-based education, the SINE, was effective in improving the resilience and well-being of nursing students may be considered in three aspects.

First, the introduction activity of SINE would have increased participants' interest in positive traits. SINE provided an opportunity for participants to reflect on their strengths systematically and objectively through positive psychology-based strength pyramid activity and VIA personality strength survey. In particular, the VIA classification is considered a reliable tool designed to assess and develop psychological strength.^{3,22}

Second, it is thought that the experience of working in a team with positive feedback from others in the SINE implemented during regular class hours contributed to strengthening the positive qualities of nursing students and improving their resilience and well-being. Receiving positive feedback from others is an effective way to promote one's positive emotions and improve positive qualities such as resilience.¹⁷ Positive emotions not only help maximize individual function but also promote mutual positive emotions among members of the organization to improve relationships and productivity within the organization,^{23,24} so a strength-based approach can be used to activate the team in class or practical training.

Third, the SINE included retrospective and prospective reflection processes through two writing assignments which facilitated reframing of the positive traits of the nursing students. Reflective writing is often used to increase understanding and analytical ability.²⁵ The reflective writing presented in SINE may have accelerated the process of internalizing their positive traits and reconstructing resilience by improving their understanding and analytical ability about their positive traits. Through the first task, we structured the students to reflect on their past experiences and connect their strengths. Next, they designed a plan for activating their strengths in the future, implemented it in their daily life, and recorded the results. In this way, the writing task was designed so students could intentionally reconstruct their positive characteristics easily. Previous research has shown that "positive reconstruction" is an essential strategy nursing students use to withstand difficulties and build resilience during practice.²⁶

The strength of this research is that positive effects were obtained from a short intervention. In previous studies, most interventions have lasted for a long time (6–10 sessions), separate from the regular classes. SINE positively impacted the mental health of nursing students after twice group activities and two writing assignments integrated into a 15-week regular course. Notably, a follow-up evaluation of 4 weeks after the course completion in the intervention group presented a higher level of resilience and an improved sense of well-being, demonstrating the long-term effect of this SINE. This finding also aligns with previous studies, in which the positive impact of a character strength-based intervention on college students persisted during long-term follow-up measurements after 10 weeks.²⁷ Considering that resilience not only offsets the negative impact of stress⁶ but is widely accepted as an integral catalyst for preparing nursing students to take on the role of nursing professionals,⁷ an educational effort is needed to integrate the various elements of positive psychology into nursing curriculums.

Interestingly, the results show that even though the intervention group showed higher stress levels after the intervention (compared to the control group), resilience and subjective well-being rather increased significantly over time. This result suggests that strength-based intervention helped nursing students to develop resilience, even in high-stress situations, demonstrating the effectiveness of positive education with strengths as a protective factor against stress.

Recently, the COVID-19 pandemic has led to considerable confusion in nursing education by disrupting clinical practice in hospitals, leading to higher stress and anxiety among nursing students.^{1,28} The strength-based approach that focuses on positive emotions may be a more effective strategy for improving the mental health of nursing students than focusing on negative emotions and stress. Efforts to prevent negative consequences, such as depression or anxiety, by focusing on positive traits are called "positive prevention".^{21,29,30} Just as a robust immune system that is resistant to

various pathogens is an indicator of physical health, positive traits are a core aspect of sound mental health. Notably, the effectiveness of this approach has been proven in an internet-based intervention setting, as well as face-to-face.²⁸ These findings indicate that positive educational approach could be effective for improving the mental health of nursing students, even via online classes, in the post-COVID educational context.

However, follow-up studies may be necessary regarding the increase in the stress level of the intervention group from before to after measurement. As the reason for this result, it is possible to consider the possibility that stress may have increased due to the burden of end-of-semester assignments and exams. Also, the process of personal reflection and action may have made them more sensitive to negative everyday problems. Another consideration is the low reliability of the stress measurement tool. Future studies need to identify the adequacy of the tools used to measure stress in nursing students.

Limitation of this study is that a second round of follow-up was not obtained from the control group because of the academic schedule, hindering a between-group comparison regarding the long-term effects of a strength-based intervention. It is necessary to confirm the long-term effect of SINE by conducting repeated studies of well-designed experimental studies. The relatively low reliability of the stress tool was a further limitation. In future follow-up studies, it is necessary to confirm by conducting repeated studies using other stress tools.

Nevertheless, this study is meaningful in that we identified an effective educational strategy to improve the mental health of nursing students. Without drastically changing the existing curricular infrastructure, we can introduce nursing students to positive perspectives and provide opportunities to reflect on and practice their positive traits, through a short-term, cost-effective intervention.

Based on the findings, we suggest subsequent follow-up research: A nursing curriculum should be developed that integrates a strength-based intervention in contactless education in the post-COVID-19 era and the efficacy of the intervention should be confirmed. Especially we suggest various attempts to implement strength-based interventions for third-year students who experience practice stress by conducting clinical practice for the first time. A continuum of strength-based education designed to improve the mental health of nursing students should be built within the nursing curriculum.

Conclusion

This study provided the structured step-by-step intervention based on character strengths within the 15-week nursing curriculum and explored its impact on nursing students' mental health. The strength-based educational approach, focusing on personal positive traits, was confirmed to have improved the resilience of nursing students and their sense of well-being in a stressful environment. Furthermore, it was confirmed that there is a sufficient possibility to improve the mental health of nursing students just by including a few activities based on positive psychology during the nursing major course without conducting a positive psychology program every class for 15 weeks. Based on this strength-based intervention within the nursing curriculum, we present a new educational perspective for improving the mental health of nursing students who experience various stresses during the COVID-19 pandemic.

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Disclosure

The authors report no conflicts of interest in this work.

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