

Turkish Version of the Sense of Belonging in Nursing School Scale: Validity and Reliability for Nursing Students

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Background: While a sense of belonging may be necessary for human motivation, the disruption of this sense of belonging among nurses can have implications for patient care and safety. **Aim:** This article was aimed at assessing the sense of belonging experienced by nursing students in three different settings (clinic, classroom, and student group) by conducting the validity and reliability of the Sense of Belonging in Nursing School (SBNS) scale, adapting it to the Turkish language and culture, and reporting the results. **Methods:** The study was conducted in a nursing faculty between March and July 2023. The study sample comprised 193 nursing students. We performed the content validity assessment of the 19-item SBNS scale after conducting a structural validity analysis using exploratory factor analysis and confirmatory factor analysis (CFA). The Cronbach's alpha and item-total score correlations were examined to assess the scale's internal consistency. **Results:** The Kaiser–Meyer–Olkin measure of sampling adequacy for the SBNS instrument was 0.903, and the result of Bartlett's test of sphericity was significant ($\chi^2 = 3182.764$, $p = 0.000$), indicating that the scale was suitable for factor analysis. The eigenvalue analysis identified a four-factor structure explaining 76.74% of the total variance. These four factors were subsequently named as follows: (1) clinical compliance, (2) social belonging, (3) school support, and (4) clinical support. The goodness-of-fit values for the model obtained from the CFA were $\chi^2/SD = 2.15$, comparative fit index = 0.947, goodness-of-fit index = 0.852, normed fit index = 0.906, incremental fit index = 0.948, and root mean square error of approximation = 0.077, suggesting that the model fit was acceptable, and the four-factor structure was well distributed. The scale exhibited high internal consistency ($\alpha = 0.933$). **Discussion:** The SBNS scale is a reliable and valid instrument for measuring the sense of belonging experienced by nursing students in three different environments. Further research is needed to establish its predictive validity. **Conclusions and Implications for Nursing:** This study was conducted, and there was no scale used in the Turkish literature to measure nursing students' sense of school belonging; thus, it is the first in this sense.

Keywords: belonging; nursing school; nursing student; validity; reliability

Belonging is a universal human need and means that people are accepted, recognized, and appreciated by the other members of a certain group (Baumeister & Leary, 1995; Levett-Jones et al., 2009). The sense of belonging is a personal experience that develops in response to feeling included, valued, and accepted by a group and reflects a harmonious personal or professional relationship between oneself and the group (Levett-Jones & Lathlean, 2008). The concept of belonging was comprehensively included in Maslow's "Hierarchy of Needs," which contributes to human motivation and personality. According to this hierarchy, belonging and love needs are placed after physiological and security needs and before esteem and

self-actualization needs. It is stated that unless each level of the hierarchy of needs is met, people cannot successfully focus on the needs of the next level. According to Maslow, unless belonging, acceptance, and appreciation are experienced, progress toward self-esteem and self-actualization will be hindered (Maslow, 1981). If the concept of belonging is from an evolutionary psychology and anthropological perspective, the fact that excluded individuals are less likely to survive may explain why people tend to avoid being excluded from groups and develop a strong need to belong (Lakin, 2003; Lewin, 2009).

The need to belong and feel like you belong to the institution where you study are also important for university students. The sense of belonging should be closely examined, especially in applied sciences such as nursing, where there is a shortage of personnel, and teaching is carried out both in academic and clinical environments (Ashktorab et al., 2015; Dunbar & Carter, 2017; Levett-Jones et al., 2007a). It has also been found that nursing students' decisions to drop out of school are related to their sense of belonging (Brady et al., 2019; Kruse et al., 2020; Levett-Jones et al., 2007b). Determining students' sense of belonging to the school is an important strategy to prevent them from leaving the department and profession. Additionally, a relationship was found between nursing students' sense of belonging and their motivation to learn (Brown et al., 2008; Grobecker, 2016; Levett-Jones & Lathlean, 2008, Levett-Jones & Lathlean, 2009; Levett-Jones et al., 2008). Feeling a sense of belonging increases nursing students' motivation to learn, as well as their self-confidence, self-esteem, and job satisfaction (Begen & Turner-Cobb, 2012; Gailliot & Baumeister, 2007; Leary et al., 2001; Patel et al., 2022). Nursing students who feel like they belong to the profession can increase the quality of patient care both in their clinical internships and in their professional working lives after graduation (Jan & Popescu, 2014; Mohamed et al., 2014; Patel et al., 2022). Nursing students who do not feel like they belong to a group may experience depression, low self-esteem, anxiety, stress, and a decrease in learning motivation and critical thinking, and thus they may drop out of school (Choenarom et al., 2005; Cockshaw et al., 2013; Grobecker, 2016; Kruse et al., 2020; Lasiter et al., 2012; Leary et al., 2001; Levett-Jones & Lathlean, 2008; Pym et al., 2011). Students who do not feel like they belong to a group may hesitate to ask questions and ask for help (Levett-Jones & Lathlean, 2008) and may tend to exhibit submissive behaviors (Levett-Jones & Lathlean, 2009). These may decrease the general happiness level of students, increase the risk of contracting physiological and psychological diseases, and decrease the quality of patient care (Albloushi et al., 2019).

Since the teaching of nursing students is carried out in academic and clinical environments, it differs from the conditions of students in many other departments (Dunbar & Carter, 2017). While students' relationships with academics and peers play a decisive role in developing a sense of belonging in the academic environment, many other factors can affect the sense of belonging in clinical placements (Kruse et al., 2020; Morrow & Ackermann, 2012). Clinical environment experiences are of particular importance for students to develop a sense of belonging, as their internship in a clinical environment shapes their perceptions of the profession (Brady et al., 2019). Students may experience feelings of anxiety, stress, and uncertainty, especially when they do internship for the first time (Brady et al., 2019; James & Chapman, 2010). Communication between nurses and students during the students' stay in the clinic can affect their belonging (Ahn & Choi, 2019; Courtney-Pratt et al., 2018; Sedgwick & Kellett, 2015; Sedgwick et al., 2014). Because the clinics are crowded and the nurses' workload is high, nurses may sometimes behave discourteously toward the students in the clinic, which makes it difficult for the students to adapt (Grobecker, 2016; Patel et al., 2022). It has been found that students' sense of belonging improved when they are supported by nurses in clinical placements (Wieland et al., 2007). The longer the student stays in the clinic, the more he or she develops a sense of belonging (Bradbury-Jones et al., 2007; Levett-Jones et al., 2008).

These findings indicate that belonging is an important phenomenon as it will affect students' motivation to learn and continue their career, clinical commitment, and career choices. Therefore, it is thought that measuring students' sense of belonging continuously as early as possible may be important in determining the variables that will increase this feeling. Our search for a valid and reliable tool to measure this feeling revealed a gap in our country, Turkey. Thus, it is thought that adapting the "Sense of Belonging in Nursing School (SBNS)" measurement tool to Turkish culture and conducting its validity and reliability studies may guide future studies.

METHOD

Study Design

This study is a methodological study-type scale adaptation validity and reliability study.

Setting and Participants

The study was conducted between March and July 2023 at a nursing faculty in Turkey. The population of the study consisted of 1,187 nursing students studying at a university's nursing faculty. The sample of the study

consisted of 193 nursing students. The inclusion criteria were as follows: being ≥ 18 years old, being registered as an undergraduate student in the faculty of nursing, and volunteering to fill out the survey.

Instruments

In the study, the personal information form and SBNS scale were used as data collection tools.

Personal Information Form. The form is administered to obtain data on the participants' descriptive characteristics such as age, sex, year at school, income status, the place of nursing in the preference list (in Turkey, a student to start university makes a list of schools he/she wants to go by giving priority to the one(s) he/she prefers most), and reasons for the preference.

SBNS Scale. The development, validity, and reliability study of the 36-item SBNS scale was conducted by Patel et al. with 110 nursing students in 2023. Then they reduced the number of the items to 19, and the scale took its final form. Responses given to the items are rated on a 5-point Likert scale ranging from 1 to 5 (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree; Patel et al., 2023). The higher the score is, the higher the level of sense of belonging to the nursing school is. The scale measures the sense of belonging in nursing students' experiences in four domains: (1) clinical staff, (2) clinical instructor, (3) classroom, and (4) classmates/cohort. In the validity study, the instrument had high internal consistency ($\alpha = .91$), and all four subscales had good internal reliability. The Cronbach's alpha of the subdimensions of the scale were as follows: clinical staff ($\alpha = .904$), clinical instructor ($\alpha = .926$), classroom ($\alpha = .902$), and classmates/cohort ($\alpha = .952$).

Translation and Cultural Adaptation

First, permission was obtained from the developer of the SBNS scale to conduct the validity and reliability of the SBNS scale in the Turkish population. The SBNS scale was translated into Turkish by three people who are native Turkish speakers and have a good command of English. A common version was created by synthesizing three translations. Two independent native English speakers who had a good command of Turkish and who had not worked on the initial translation process carried out the back translation (from Turkish to English). The original and back-translated versions of the SBNS scale were compared and examined by an expert committee consisting of nine nurses, and a preliminary final version was created. Twenty undergraduate nursing students who met the criteria for participation in the study evaluated the clarity of the scale and gave their feedback. After the pilot group evaluations were completed, the SBNS scale took its final form.

Collection of Data

Data were collected using the pen-and-paper technique through face-to-face interviews with students at the faculty of nursing. After explaining the purpose of the research and general information to the students, surveys were distributed. Students were told that they could withdraw from the research at any time and that their identities would remain confidential. However, students were informed that participating in the research was optional and that there would be no negative consequences if they refused. It took approximately 10–15 minutes to administer the surveys.

Statistical Analysis

Statistical analysis was performed using the Statistical Package for the Social Sciences (SPSS) for Windows (Version 23.0, IBM Inc., Armonk, NY, USA) and SPSS AMOS 26 Graphics. Data were expressed as mean \pm standard deviation (*SD*) and minimum–maximum for quantitative variables and as percentage (%) for categorical variables. Language validity was established by the translation–back-translation method, and content validity was established by expert opinions and content validity index. Exploratory factor analysis (EFA) was conducted to test the validity of the structure of the scale in Turkish culture. The principal component analysis and the direct oblimin factor rotation method were used to identify appropriate factors. The suitability of the sample was tested with the Kaiser–Meyer–Olkin (KMO) coefficient. The suitability of the data for factor analysis was evaluated with Bartlett's test of sphericity. The compatibility between the created subfactors and the original variables was measured by confirmatory factor analysis (CFA). KR 20/21 Cronbach's alpha measurements were used to measure internal consistency. Additionally, independent samples *t* test was applied between the upper 27% and lower 27% groups to measure the item discrimination power.

Ethical Considerations

The ethical principles stated in the Declaration of Helsinki were complied at all the stages of the study. Written ethical approval for the study procedures was obtained from the Ege University Scientific Research Publication Ethics Board (decision date: February 24, 2023; decision no: 02/01; protocol no: 1838). Research permission (date: March 14, 2023; no: 1179011) was obtained from the institution where the research was to be conducted.

Written permission to adapt the scale was obtained from the developers of the scale. Written informed consent of the students participating in the study was obtained before filling out the survey form. The data obtained from the study were stored securely on a computer that only the principal investigator could access.

RESULTS

Demographic Characteristics of the Participants

Of the nursing students participating in the study, 61.7% were ≥ 22 years old, 87% were women, 43% were in the third year, 58.5% had middle income, 51.8% lived at home, and 42% were interested in the brand identity of the university, which was the factor affecting their school preferences. The mean score the participants obtained from the SBNS scale was 75.52 ± 11.60 (Table 1).

Psychometric Testing of the SBNS Scale

The EFA of the SBNS tool was significant and in accordance with the hypothesis, according to the KMO coefficient of 0.903 and the Bartlett's test with $\chi^2 = 3182.764$ and $p = .000$. After the assumptions were completed, a four-factor structure emerged in the direct oblimin rotation, explaining 76.74% of the total variance with an eigenvalue above one. The four factors were as follows: factor 1 (clinical compliance), factor 2 (social belonging), factor 3 (school support), and factor 4 (clinical support), which are presented in Table 2.

The first of the subdimensions obtained through the EFA is clinical compliance. This subscale, consisting of four items, explains 46.80% of the total variance, and factor loadings vary between 0.54 and 0.69. The second subdimension, social belonging, consists of seven items and accounts for 15.01% of the total variance. The factor loadings of this subdimension range between -0.96 and -0.80 . The third subdimension, school support, consists of four items and accounts for 8.41% of the total variance. The factor loadings of this subdimension range between -0.95 and -0.65 . The fourth subdimension, clinical support, consists of a total of four items and accounts for 6.51% of the total variance. The factor loadings of this subdimension range between 0.86 and 0.69 (Table 2).

The analysis of the relationships between the subdimensions of the SBNS scale demonstrated that there was a low level and statistically significant correlation between all the subdimensions, ranging between -0.295 and -0.424 ($p < .01$).

The subscales obtained through the EFA of the SBNS tool were tested with the CFA. The goodness-of-fit values for the obtained model are $\chi^2/df = 2.15$, comparative fit index (CFI) = .947, goodness-of-fit index (GFI) = .852, normed fit index (NFI) = .906, incremental fit index (IFI) = .948, and root mean square error of approximation (RMSEA) = .077, which indicates that the model has a good fit and that the four-factor structure was distributed harmoniously. The four-dimensional structure of the scale was confirmed, and the factor loadings of the items ranged between 0.58 and 0.94 (Figure 1).

Reliability of the SBNS Scale and Its Subscales

Cronbach's alpha internal consistency coefficients of the SBNS scale were 0.85 for the clinical compliance subdimension, 0.94 for the social belonging subdimension, 0.90 for the school support subdimension, and 0.87 for the clinical support subdimension. The scale had a high level of internal consistency, with a total Cronbach's alpha internal consistency coefficient of 0.93. It was observed that when each item was subtracted from the total Cronbach's alpha value of the scale, the item-total correlations varied between 0.73 and 0.55, and there was no need to remove any items. To determine the item discrimination power of the SBNS scale, the data were sorted according to their total scores; the average of the first 27% was calculated as 61.69 ± 10.29 , and the average of the last 27% was calculated as 88.44 ± 4.16 . The first and last 27% were calculated as 61.69 ± 10.29 . The difference between the sections was statistically significant ($t = -17.322$, $p < .001$) and reliable.

DISCUSSION

In accordance with the purpose of the present study, in the first stage, the scale, which was originally in English, was adapted to Turkish. In the second stage, the construct validity of the SBNS scale was tested. In this sense, first, EFA was applied to the scale using SPSS 22.0 program. The results of the analysis demonstrated that the SBNS scale had 19 items, as did the original scale, and the items were grouped under four factors. In the second step of the construct validity, the CFA was applied to the SBNS scale, which demonstrated that the fit index values in the CFA were within acceptable limits. After the validity analysis of the SBNS scale, a reliability test was applied to the scale. In this context, the Cronbach's alpha was used. The results of the analysis demonstrated that the 19-item and four-factor scale was highly reliable. The results of the validity and reliability analysis demonstrated that the SBNS scale was a valid and reliable tool.

TABLE 1. Demographic Characteristics of the Participants

| SOCIODEMOGRAPHIC FACTOR | X + SD | MIN-MAX |
|--|---------------|---------|
| The mean place of nursing in the preference list | 3.78 + 4.16 | 1–22 |
| SBNS | 75.52 + 11.60 | 21–95 |
| | <i>N</i> | % |
| Age | | |
| Between 19 and 21 | 74 | 38.3 |
| 22 and over | 119 | 61.7 |
| Sex | | |
| Men | 25 | 13.0 |
| Women | 168 | 87.0 |
| Year at school | | |
| 1st | 27 | 14.0 |
| 2nd | 48 | 24.9 |
| 3rd | 83 | 43.0 |
| 4th | 35 | 18.1 |
| Perceived income level | | |
| Insufficient | 46 | 23.8 |
| Medium | 113 | 58.5 |
| Enough | 34 | 17.6 |
| Place of residence | | |
| Home | 100 | 51.8 |
| Dormitory | 93 | 48.2 |
| Reasons for preferring nursing | | |
| Because of the name of the university | 81 | 42.0 |
| Due to profession | 62 | 32.1 |
| Because of the city | 50 | 25.9 |
| Total | 193 | 100 |

SBNS = Sense of Belonging in Nursing School; SD = standard deviation.

Analysis of the EFA Data

Whether the data obtained from the study group are suitable for EFA can be explained by KMO and Bartlett's tests. A high KMO value means that each variable in the scale can be perfectly predicted by other variables (Çokluk et al., 2012). A KMO value of 0.60 is considered as fair, 0.70 as good, 0.80 as very good, and 0.90 as excellent (Özcan & Uzun, 2017). In our study, the KMO value (0.903) showed that the sampling adequacy was at an "excellent" level to obtain different and reliable factors. In the original scale, the KMO measurement result was 0.871 (Patel et al., 2023).

Bartlett's test of sphericity indicates whether there is a sufficient level of relationship between the variables, and the presence of a *p* value less than the 0.05 significance level reveals that there is a sufficient relationship between the variables for factor analysis (Yanık & Çamlıyer, 2013). In our study, Bartlett's test of sphericity chi-square value was $\chi^2 = 3182.764$ and *p* = .000, which suggests that there was a sufficient relationship in our data to perform the factor analysis. Principal component analysis as a factorization method: maximum

TABLE 2. Distribution of Item Factor Loadings of the Exploratory Factor Analysis of the Sense of Belonging in Nursing School Scale

| ITEMS | FACTOR NAME AND FACTOR LOADINGS | | | |
|---|---|--|--|--|
| | FACTOR 1 (CLINICAL COMPLIANCE) ^a | FACTOR 2 (SOCIAL BELONGING) ^b | FACTOR 3 (SCHOOL SUPPORT) ^c | FACTOR 4 (CLINICAL SUPPORT) ^d |
| 2. I can be involved in the care of patients | .695 | | | |
| 8. My clinical instructor supports/guides my learning | .688 | | | |
| 7. My clinical instructor is ready to help me when I need it | .665 | | | |
| 1. I adapt to the nursing team during my clinical rotations | .541 | | | |
| 14. When I do not attend classes, my classmates call me/take care of my situation | | -.906 | | |
| 15. I feel comfortable when I am with my classmates | | -.898 | | |
| 16. My classmates are ready to help me when necessary | | -.876 | | |
| 13. I have a strong bond with my classmates | | -.858 | | |
| 19. I am accepted by my classmates | | -.810 | | |
| 17. I am invited to extracurricular activities | | -.807 | | |
| 18. My classmates respect me | | -.804 | | |
| 11. I trust my school to guide my education. | | | -.953 | |
| 12. The school supports/guides my learning | | | -.889 | |
| 10. I can easily convey my concerns to my school management. | | | -.820 | |
| 9. My school provides an inclusive environment | | | -.654 | |
| 6. Nurses include me in sharing information in the clinic | | | | .868 |
| 3. Nurses respect me as a student | | | | .858 |
| 5. As a nursing student, I am welcomed in the clinics I visit | | | | .823 |
| 4. The nurse responsible for me shares information about patient care with me | | | | .694 |

^a46.80% of the total variance.

^b15.01% of the total variance.

^c8.41% of the total variance.

^d6.51% of the total variance.

variability (direct oblimin), one of the orthogonal rotation methods, was chosen as the rotation method. In parallel with the examined results and the original scale, a four-factor structure emerged. After the measurement, it was concluded that the item factor loadings were greater than 0.50, the factor loadings of each item in the scale varied between 0.54 and 0.95, and there were no overlapping items. In line with the results, item removal was not applied, and a four-factor structure consisting of 19 items emerged, as in the original scale. These factors are named clinical compliance, social belonging, school support, and clinical support. The

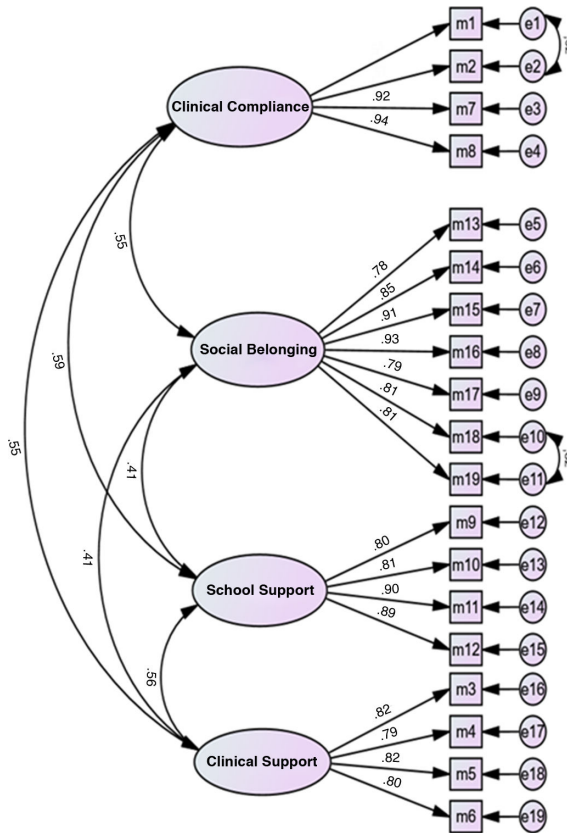


Figure 1. SBNS confirmatory factor analysis. *Note.* SBNS = Sense of Belonging in Nursing School.

clinical compliance factor, with an eigenvalue of 8.89, consists of four items and explains 46.80% of the total variance. The social belonging factor, with an eigenvalue of 2.85, consists of seven items and explains 15.01% of the total variance. The school support factor, with an eigenvalue of 1.59, consists of four items and explains 8.41% of the total variance. The clinical support factor, with an eigenvalue of 1.23, consists of four items and explains 6.51% of the total variance. An important criterion of the factor analysis is that the explained variance exceeds 50% of the total variance and the eigenvalue is greater than 1 (Yaşlıoğlu, 2017). As a result of our test, the analysis results were considered as compatible since the total variance explained in the scale was 76.74% and the eigenvalue was greater than 1. In the original scale, the total explained variance value was 71.74% (Patel et al., 2023), indicating that the scale had a valid factor structure.

In the CFA results of the SBNS scale, fit index values obtained were $\chi^2/df = 2.15$, RMSEA = .077, GFI = .852, adjusted goodness-of-fit index = .805, IFI = .948, NFI = .906, and CFI = .947. A χ^2/SD ratio of less than 2 is an indicator of good fit, but a ratio of less than 5 indicates that it is within the acceptable range (Çapık, 2014). According to the results of our CFA, this ratio was at the limit of good fit ($\chi^2/df = 2.15$). For the RMSEA value to be within acceptable limits, it is sufficient for it to be lower than 0.08 (Çapık, 2014). In this context, the RMSEA value of .077 we obtained in our analysis met this criterion. In this context, according to the results of the CFA, the scale had sufficient fit indices.

Analysis of the Internal Consistency Analysis Data

The Cronbach's alpha, which is a measure of the internal consistency of the items, is used to explain or question the homogeneous structure of the items in the scale. It is interpreted that the items in the scale with a high Cronbach's alpha are consistent with each other and consist of items measuring the same feature. A Cronbach's alpha greater than 0.80 indicates high reliability (Yıldız & Uzunsakal, 2018). While the Cronbach's alpha of the scale was 0.914 in the original scale, it was 0.933 in our study. The Cronbach's alpha of the subdimensions were 0.855 for the first factor, 0.942 for the second factor, 0.907 for the third factor, and 0.879 for the fourth factor. These results show that the internal consistency of the scale is high. In the original scale,

it was 0.952 for the first factor, 0.902 for the second factor, 0.904 for the third factor, and 0.926 for the fourth factor (Patel et al., 2023).

Turkish Version of the SBNS Scale

The mean score the participants obtained from the SBNS scale was 75.52 + 11.60. This value was 73.0 + 12.43 in the original scale study, and the results of the two studies are quite close to each other.

The scale consists of 19 items, and the score range is between 19 and 95. Responses given to the items are rated on a 5-point Likert-type scale ranging from 1 to 5 (1 = strongly disagree, 2 = disagree, 3 = undecided, 4 = agree, 5 = strongly agree). The higher the score is, the higher the person can indicate a high sense of belonging toward the nursing school.

Limitations of the Study

The very low proportion of male students in the sample group (13%) can be considered a limitation of this study. Although a strong evidence has been provided for the validity and reliability of the Turkish version of the SBNS scale, we recommend that in future studies, the psychometric properties of the instrument should be examined in groups representing gender equality.

CONCLUSION

Considering that the sense of belonging affects the learning motivation, clinical commitment, commitment to the profession, and career choice in nursing students, it is of great importance to measure the students' sense of belonging. For this purpose, it can be said that the SBNS scale, which we adapted to Turkish language and culture, is a valid and reliable tool. In conclusion, thanks to this study, the SBNS scale not only will be a scale that can be used to examine empirically on its own but also will open new horizons for other similar studies by providing new views and ideas related to nursing students' sense of belonging to school in future studies.

Implications for Nursing and Health Policy

This study was conducted, and there was no scale used in the Turkish literature to measure nursing students' sense of school belonging; thus, it is the first in this sense. Thus, nursing students' levels of belonging can be measured systematically in order to complete their education safely. In this regard, arrangements can be made in the educational curricula of nursing schools, and precautions can be taken.

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Data availability. All data and materials used in the research are kept by the researchers.

Consent for publications. The participants give written and verbal consent for the anonymous publication of this study. Moreover, no personal details were revealed in the study.

Consent to participate. Research permission (date: 14.03.2023 no: 1179011) was obtained from the institution where the research was conducted. After the participants were informed about what the purpose of the study was and how the study would be carried out by the researcher, they gave their written and verbal consent.

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