



Original Article

Turkish adaptation of the verbal and social interaction Questionnaire for nursing students: a validity and reliability study

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Abstract

Objectives: This study aims to adapt of the Verbal and Social Interaction Questionnaire for Nursing Students to Turkish.

Methods: The data of the methodological study were collected online between March and May 2021. The scale was translated using forward-back translation techniques. An expert panel in nursing education area considered the translations and provided content validation. The scale with student information form was conducted with 210 voluntary third and final year nursing students after pilot testing. Internal consistency was examined with Cronbach's alpha coefficients and item analysis and the translated scale factors' the goodness of fit analyzed with Confirmatory Factor Analysis. The scale was conducted to 35 nursing students at two-week intervals to investigate the re-test reliability.

Results: Content validity index was 0.977. Factor loads were collected under four domains as in the subscales of the original scale i.e., inviting to talk about feelings and thoughts, building a caring relationship, encouraging social and practical aspects, caring towards health and wellbeing. Cronbach's alpha coefficient was 0.950. Test-retest measurements did not significantly differ ($p>0.05$) and had a high correlation.

Conclusion: Turkish adaptation of the Verbal and Social Interaction Questionnaire for Nursing Students was concluded to be a valid and reliable tool.

Keywords: Interaction; nursing education; questionnaire; verbal and social.

Nursing care is a scientific, ethical, aesthetic, professional, and individualized interpersonal process that begins and develops between the interaction of two people.^[1] Good nurse-patient communication is crucial for the success of individualized nursing care outcomes. Care goals are achievable if nurses sincerely respect their patients,^[2] establish positive and trusting therapeutic communication, and focus on understanding and helping them.^[3] Educators and clinical leaders should establish an environment where students can learn professional behavior for an enhanced communication.^[4] Previous studies emphasize the importance of effective communication to provide quality care and recommend that nurses use patient-centered therapeutic communication.^[5,6] The goal

of care is achievable and effective nursing care can be offered if the continuity of the interaction in the patient-nurse relationship is ensured.^[7,8]

A trust-based relationship is developed through therapeutic communication, empathy, altruistic love, interest, and supportive atmosphere form the basis of nursing art.^[1] Nurses' success in developing good communication skills is rooted in nursing education and experience.^[3] Thus, nursing students must develop their verbal and social care skills for their professional careers.^[9,10] Nursing students should be ready to employ their verbal and social care skills to therapeutically interact with the individuals/families they care for and to face various difficulties of the clinical setting.^[6] With this, nurse ed-

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What is presently known on this subject?

- Nursing students are expected to understand the importance of effective communication and develop them in their clinical practice. In this context, objective tools are needed to investigate the perception of nursing students towards verbal and social interaction with patients during their education and upon graduation.

What does this article add to the existing knowledge?

- The Turkish translation of VSI-NS is the instrument fit to evaluate students' perception about verbal and social interactions with patients. Translating the measurement tool into Turkish provides the opportunity to students' perception about verbal and social interactions experiences with patients in four different aspects, namely frequency, importance, difficulty and confidence.

What are the implications for practice?

- The VSI-NS can guide educators and clinical leaders in determining and monitoring students' verbal and social interaction levels. It can also provide comprehensive data in evaluating the professional competence level of the students and determining the strategy for the areas that need to be developed.

ucators' evaluation of nursing students' verbal and social care interactions constitutes the basis of nursing education and is a crucial part of their development.^[11] This evaluation process both helps in boosting nursing students' success in their professional careers and assisting their educators to reflect on the learning processes, outcomes, and communication proficiencies.^[12] Nursing curriculums should therefore provide patient-nurse interaction competence.^[13] Nursing students are expected to understand the importance of effective communication in maintaining interpersonal relationships and care to develop their communication skills^[14] and adopt a flexible and reflective approach when interacting with patients.^[15]

Finally, objective measurement tools are needed to evaluate nursing students' perception regarding verbal and social interaction with patients during their education and upon graduation. However, there is no current valid and reliable objective tool in previous literatures. Therefore, this study intends to translate The Verbal and Social Interaction Questionnaire for Nursing Students (VSI-NS) into Turkish. This adaptation will meet the need for valid and reliable data collection tools to point out the frequency, importance, difficulty, and confidence between student-nurse and patient interaction and to monitor the effectiveness of education. The research question is "Is the Turkish version of the VSI-NS a valid and reliable instrument for the verbal and social caring interactions between student-nurses and patients?"

Materials and Method

Design

The methodological research included the translation of the VSI-NS and evaluation of its content validity, construct validity, and testing reliability. The study data was collected March–May 2021.

Sample and Setting

Third year and senior nursing students in a university in the

spring semester of the 2020–2021 academic year formed the study sample. In determining the number of samples for methodological studies, it is recommended in the literature to select individuals five to ten times the total number of the items in the scale.^[16] Accordingly, the minimum sample size was computed as 155. Considering the potential data losses, 210 nursing students (almost seven times) volunteering to take part in the study were included in the sample for the scale, including 31 items. For the inclusion criteria, the student had to be a third- or fourth-year student in the nursing department in the institution where the study was carried out, have at least two semesters of clinical practice experience, can understand the Turkish statements in the scale, and agree to take part in the study. The nursing students, of whom 86.7% (n=182) female and 13.3% (n=28) male. The students mean age was 22,540±1,978 years. 91.9% (n=193) of them were graduated from other high schools and 8.1% (n=17) from health high schools. 38.6% (n=81) were third grade and 61.4% (n=129) were fourth grade students.

Data collection tools

Student Information Form

The form includes four questions about the sociodemographic characteristics of the students, including age, gender, high school graduated (health high school or other) and grade (third and final year).

The Verbal and Social Interaction Questionnaire for Nursing Students (VSI-NS)

Developed by Rask et al.,^[17] the scale evaluates nursing students' skills in verbal and social interaction with their patients from a nursing care perspective. The scale consists of 31 items and four sub-dimensions. The sub-dimensions are inviting to talk about feelings (12 items) and thoughts establishing a caring relationship (7 items), social and practical encouragement in daily life (6 items), and care for health and well-being (6 items). Each scale item is answered in four parts: frequency, importance, difficulty, and confidence. Each part consists of Likert-type answers with four options (not at all, to some degree, high degree, very high degree). All items of the difficulty dimension are reversed-scored before summing. Summed scores for four dimensions could range 31–124. The subscales ranges were "thoughts establishing a caring relationship: 12–48," "social and practical encouragement in daily life: 7–28," "care for health and well-being: 6–24" and "care for health and well-being: 6–24." Summed scores of per subscale is divided by the numbers of items of that subscale. Scores for the 4 sub-dimensions and the overall score for each part are calculated with the arithmetic mean. The scores obtained from the sub-dimension and general score range 1–4. There is no cut-off score, with an increase in the score indicating better verbal and social interaction perception of students themselves. In the initial study of the scale, the Cronbach's alpha coefficient was 0.93 and factor loads were >0.50. Cronbach's alpha coef-

ficient of the subscales were “inviting to talk about feelings: 0.89,” “thoughts establishing a caring relationship: 0.87,” “social and practical encouragement in daily life: 0.86,” and “care for health and well-being: 0.81” in the original study.

Phase 1

Translation

Language Equivalence of the NSI-VS; the language equivalence of the scale was carried out in four stages as suggested in the literature,^[18–20] including translation, back-translation, expert opinion, and pilot study.

Translation Phase: The translation was done by two linguists who are expert in both Turkish and English language. A common scale form was finalized with the consensus of translators and researchers.

Back Translation Phase: It was translated from Turkish to English by sending it to two different language experts, other than the language experts who previously translated the scale. The items in the original scale and scale after back-translation were compared and the scale was evaluated for meaning integrity.

Getting Expert Opinion: The translated scale was submitted to 10 lecturers who were experts in the field of nursing and who took part in the education of students in clinical practice areas for their opinions on content validity. The Content Validity Index (CVI) was utilized to evaluate expert views.

Implementation of the Pilot Study: A pilot study was conducted with 10 students to evaluate the intelligibility and suitability of the scale items. Along with the feedback received from the students, minor corrections were made and the scale items were finalized.

Phase 2

Implementation of the Turkish Version of the VSI-NS

VSI-NS was transferred to the electronic environment by the researchers, and the data were collected based on self-report with the online survey method. Students with access to the online survey link read the study's explanations and answered the questions after ticking the checkbox, indicating whether they agreed to take part in the study. A 15-minute time to answer the data collection tools was allotted. To examine the reliability and invariance of the scale over time, it was re-administered to 35 students (using same nicknames) two weeks later by the researchers.

Data Analysis

Students' socio-demographic data were analyzed as frequency, mean, standard deviation. CVI was calculated for the language and content validity. Construct validity of the scale was performed with confirmatory factor analysis (CFA) using the AMOS software. Cronbach Alpha was used to analyze the reliability of the scale and item analysis was performed for

each item. Test-retest measurements were done with paired-group t-test and intra-class correlation analysis. Statistical significance was accepted at the $p < 0.05$ level.

Ethical Considerations

Mikael Rask provided the written permission to Turkish adaptation of the VSI-NS. The permissions of the institution and ethics committee (Date: 25/03/2021, Decision number: 24237859-288) was also obtained. Nursing students who voluntarily participated after agreeing with what would be expected of them were provided of those.

Results

Testing Validity

Content Validity

The VSI-NS in Turkish was obtained by translation-back translation techniques and then presented to 10 expert lecturers working in nursing education for language evaluation and content validity using Davis technique. In this technique, the experts pointed between 1 (inappropriate) to 4 (very appropriate) and confirmed comprehensibility, linguistical correctness, clarity, and meaningfulness of the wording of each item. Expert opinions were expected to be at least 80% as quite or very appropriate.^[21] CVI was calculated by dividing the total number of experts by the number of experts who gave 3 and 4 points after the items' rating were finalized. The CVI values ranged 0.80–1.00 for each item. Total scale CVI (0.977) was considered 'excellent'. Thus, the content validity of the scale was completed.

Construct Validity

Confirmatory Factor Analysis (CFA)

The CFA model fit was analyzed by the goodness-of-fit index (GFI), adjusted GFI (AGFI), comparative fit index (CFI), the root mean square error of approximation (RMSEA), root mean residual (RMR). Moreover, the fit of the model was based on the χ^2 value and the degrees of freedom (χ^2/df) ratio.^[22–24] In Table 1, the CFA model examined the fit indices of the four-factor model of the Turkish version of the scale. The fit indices values were $\chi^2/df=3.251$, GFI=0.90, AGFI=0.91, CFI=0.90, RMSEA=0.05, and RMR=0.04. Data on the path diagram of the confirmed model (Fig. 1), and Table 2 shows the item factor loadings t and R^2 values.

Testing Reliability

Internal Consistency and Item Analysis

Table 3 presents the items analysis of the scale. The total scale Cronbach's alpha was 0.950 and subscales were “inviting to talk about feelings: 0.904,” “thoughts establishing a caring relationship: 0.933,” “social and practical encouragement in daily life: 0.927,” “care for health and well-being: 0.938,” item-

Table 1. Fit indices obtained as a result of CFA

Index	Normal value*	Acceptable value**	Fit indices obtained as a result of CFA
χ^2/df (chi square fit test/degree of freedom)	<2	<5	3.251
GFI (goodness of fit index)	>0.95	>0.90	0.90
AGFI (adjusted goodness of fit index)	>0.95	>0.90	0.91
CFI (comparative fit index)	>0.95	>0.90	0.90
RMSEA (root mean square error of approximation)	<0.05	<0.08	0.05
RMR (root mean square residual)	<0.05	<0.08	0.04

Reference: Çapık. 2014; Çokluk et al., 2021; Evci& Aylar. 2017. CFA: Confirmatory factor analysis.

total correlation varying from 0.457 to 0.712., table demonstrates that when total correlation and items were removed and considering Cronbach Alpha Values, no item was found to decrease the internal consistency.

Test-retest Reliability

The VSI-NS was applied to 35 student-nurses in two-week intervals to examine its test-retest reliability using paired-group t-test and intra-class correlation analysis (ICC). The ICC results obtained for all items of the scale were determined to be quite high. Results show that re-tests did not differ significantly, and re-tests had a high correlation (Table 3).

Discussion

Nurse-patient interaction is defined by how a group of knowledge, skills, and attitudes is reflected into care.^[13] These competencies should be gained through theoretical knowledge and clinical practice during training, and educational programs focusing on students' interaction skills should be adopted.^[13,25] Developing valid and reliable scales to assess and monitor student development or using international scales with language and cultural adaptation will have significant contributions.^[11] The VSI-NS, developed by Rask et al.,^[17] is a valid and reliable tool that allows students to evaluate their clinical practice in terms of their communication with the patient. Therefore, the

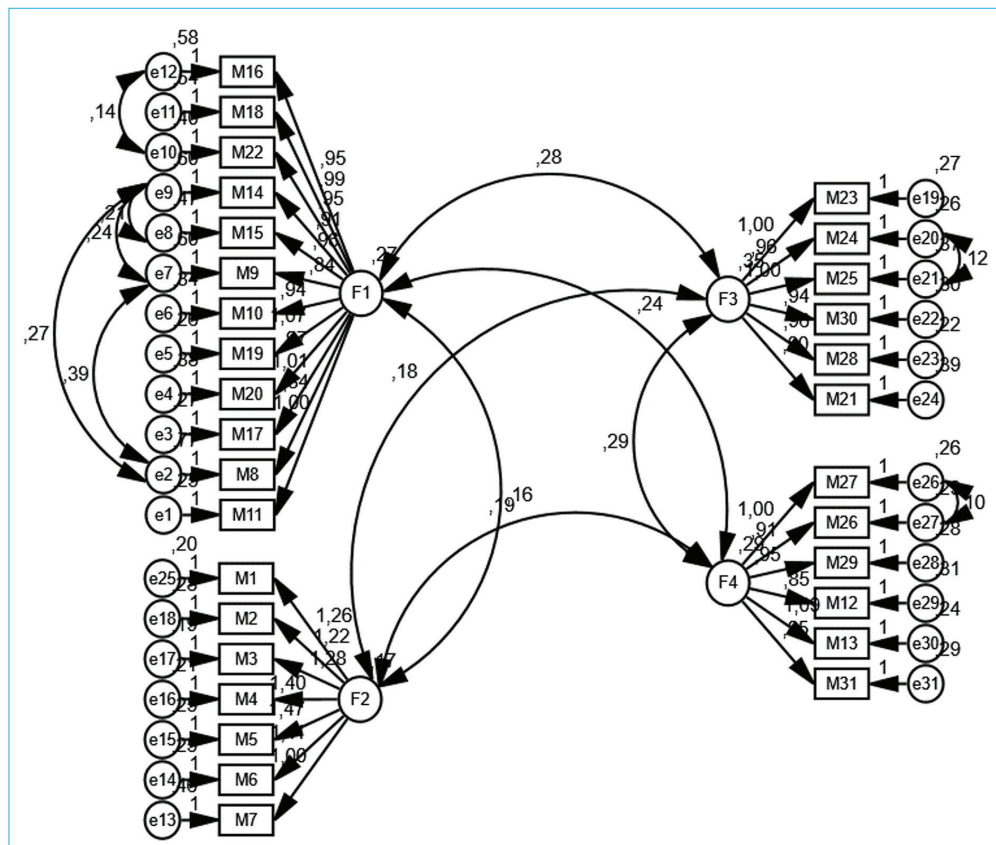


Figure 1. Path diagram and factor loads of the confirmed model.

Table 2. Factor loads of the confirmed model

Items		Factor	β	Std. β	Std. Error	t	p	R ²
Item 11	<---	F1	1.000	0.718				0.413
Item 8	<---	F1	0.844	0.444	0.069	12.290	0.001	0.582
Item 17	<---	F1	1.014	0.712	0.051	19.797	0.001	0.401
Item 20	<---	F1	0.971	0.630	0.055	17.513	0.001	0.483
Item 19	<---	F1	1.071	0.735	0.052	20.445	0.001	0.455
Item 10	<---	F1	0.939	0.636	0.053	17.669	0.001	0.520
Item 9	<---	F1	0.839	0.486	0.062	13.485	0.001	0.566
Item 15	<---	F1	0.958	0.583	0.059	16.190	0.001	0.365
Item 14	<---	F1	0.911	0.517	0.064	14.341	0.001	0.591
Item 22	<---	F1	0.954	0.612	0.056	16.974	0.001	0.504
Item 18	<---	F1	0.988	0.570	0.062	15.829	0.001	0.483
Item 16	<---	F1	0.949	0.539	0.064	14.941	0.001	0.554
Item 7	<---	F2	1.000	0.513			0.001	0.563
Item 6	<---	F2	1.111	0.669	0.081	13.656	0.001	0.465
Item 5	<---	F2	1.466	0.765	0.100	14.619	0.001	0.596
Item 4	<---	F2	1.405	0.779	0.095	14.745	0.001	0.607
Item 3	<---	F2	1.284	0.772	0.087	14.679	0.001	0.585
Item 2	<---	F2	1.220	0.682	0.088	13.790	0.001	0.448
Item 23	<---	F3	1.000	0.751			0.001	0.544
Item 24	<---	F3	0.962	0.744	0.044	21.673	0.001	0.412
Item 25	<---	F3	1.003	0.695	0.050	20.091	0.001	0.325
Item 30	<---	F3	0.936	0.710	0.045	20.611	0.001	0.374
Item 28	<---	F3	0.958	0.768	0.043	22.487	0.001	0.268
Item 21	<---	F3	0.802	0.604	0.046	17.309	0.001	0.340
Item 1	<---	F2	1.257	0.752	0.087	14.501	0.001	0.477
Item 27	<---	F4	1.000	0.721			0.001	0.405
Item 26	<---	F4	0.911	0.675	0.039	23.457	0.001	0.541
Item 29	<---	F4	0.954	0.695	0.049	19.405	0.001	0.398
Item 12	<---	F4	0.850	0.633	0.048	17.664	0.001	0.507
Item 13	<---	F4	1.086	0.763	0.051	21.319	0.001	0.436
Item 31	<---	F4	0.849	0.643	0.047	17.929	0.001	0.516

*P<0.01.

VSI-NS scale was adapted to Turkish after performing its validity and reliability analyses. The results of the original study were discussed conversely with previous studies.

Language, content, and construct validity were analyzed to test the validity of the adapted scale.^[16,26] Scale translation methods were used for the language validity of the scale. The CVI was calculated for the validation of the Turkish version and this value was expected to be at least 0.80. CVI calculated with expert opinions was "excellent" (0.977). These data showed that the scale was suitable for adaptation regarding language and content. Following expert recommendations, the VSI-NS was found suitable for testing for construct validation and reliability, with only minor corrections and without removing any item.

The fit of the factors in the Turkish adaptation of VSI-NS was assessed with CFA. Each item should have a factor loading of

0.30 and higher.^[22] The factor loadings were high, standard error values were low, and t-values were statistically significant when the standardized coefficients are examined. The original scale was followed when assigning the factor loadings^[17] and factor analysis revealed that the subsequent factors clustered under the four domains.

The factor loadings were assigned as in subscales of the original scale. There is no need to delete any items. The original structure of the scale was confirmed.

Reliability analysis shows that stability, consistency, or dependability of the tool.^[26] Cronbach's Alpha Coefficient evaluation criteria were used for reliability results. Accordingly, "0.00 ≤ α < 0.40 is not reliable," "0.40 ≤ α < 0.50 indicates slight reliability," "0.50 ≤ α < 0.60, low reliability," "60 ≤ α < 70 adequate reliability," "0.70 ≤ α < 0.90, high reliability," and "≥0.90 excellent reliability."^[27] It is considered sufficient if the value is 0.70 or higher.

Table 3. Item analyses and test re-test results of the scale

	Item analysis		Difference between test and re-test		Intra-class correlation coefficient	
	Item- Total correlation	Cronbach's alpha when the item is deleted	t	p	ICC	p
Item 1	.590	.948	1.675	0.103	0.817	.001*
Item 2	.623	.948	-0.723	0.475	0.659	.001*
Item 3	.594	.948	0.572	0.571	0.933	.001*
Item 4	.624	.948	1.000	0.324	0.938	.001*
Item 5	.608	.948	1.000	0.324	0.873	.001*
Item 6	.533	.949	1.435	0.160	0.924	.001*
Item 7	.579	.948	-0.828	0.413	0.797	.001*
Item 8	.457	.950	-1.000	0.324	0.906	.001*
Item 9	.503	.949	-1.435	0.160	0.976	.001*
Item 10	.613	.948	-0.813	0.422	0.878	.001*
Item 11	.681	.948	-0.442	0.661	0.921	.001*
Item 12	.584	.948	1.000	0.324	0.922	.001*
Item 13	.704	.947	1.000	0.324	1.000	.001*
Item 14	.498	.949	-1.785	0.083	0.943	.001*
Item 15	.581	.948	-1.000	0.324	0.924	.001*
Item 16	.515	.949	-1.435	0.160	0.978	.001*
Item 17	.667	.948	0.572	0.571	0.954	.001*
Item 18	.554	.949	-0.239	0.812	0.764	.001*
Item 19	.698	.947	-0.572	0.571	0.988	.001*
Item 20	.589	.948	-0.572	0.571	0.993	.001*
Item 21	.599	.948	-0.373	0.711	0.945	.001*
Item 22	.582	.948	-1.276	0.211	0.828	.001*
Item 23	.685	.947	0.274	0.786	0.804	.001*
Item 24	.691	.947	-1.000	0.324	0.946	.001*
Item 25	.645	.948	-1.276	0.211	0.893	.001*
Item 26	.587	.948	1.435	0.160	0.937	.001*
Item 27	.643	.948	1.435	0.160	0.945	.001*
Item 28	.712	.947	1.000	0.324	0.999	.001*
Item 29	.601	.948	1.358	0.183	0.840	.001*
Item 30	.652	.948	-0.813	0.422	0.900	.001*
Item 31	.596	.948	0.572	0.571	0.994	.001*

ICC: Intra-class correlation coefficient; *p<0.01.

[24] A Cronbach's alpha of 0.93, 0.94,^[10] and for the original scale had, Chinese version, and this study, respectively, demonstrating a high reliability for the Turkish version. The Cronbach alpha value of each factor in this study ranged 0.904–0.938 compared with 0.81–0.89 in the original study^[17] and 0.86–0.89 in the Chinese version.^[10] These results explained that the scale adapted to Turkish had high internal consistency, similar with previous validity and reliability studies.

The fact that an item in the scale has a correlation coefficient of ≥ 0.3 , with the total of the items, indicates that its distinctiveness is high.^[28] Since the item-total correlation was >0.457

in this study, the answers given to the items had a positive correlation between the items and the scale total, indicating that the participants understood the statements correctly and gave objective answers.

Test-retest method, which is one of the commonly used methods for testing the reliability of the scale, was also used in this study. Data obtained from repeated measurements were tested with intra-class correlation analysis. ICC results range 0–1. The value interpreted a high agreement when approached 1.^[29] ICC values of the items were determined to be high with a confidence interval of 95%. This indicates that the

measurements obtained from the VSI-NS scale at re-test results are consistent; thus, the instrument is reliable. Test-retest reliability was not reported by Rask et al.^[17] Zhang et al.^[10] showed the scale's good stability of the Chinese version of the VSI-NS.

Limitations

As for limitation, the study was performed in a nursing school whereas the experiences of students in different clinical settings and patient groups varied. Moreover, the self-report scale that was used might be afflicted with bias potential. Additionally, the reliability of the scale was assessed only with the test-retest method since there was no Turkish translation form for evaluating the verbal and social interaction of students with patients. Therefore, it can be recommended to test the scale by applying it to larger and different sample groups in future studies.

Conclusion

As a result, the Turkish version of VSI-NS appears to be a useful tool in assessing students' verbal and social interactions with patients. Introducing the measurement tool into Turkish provides the opportunity to evaluate students' perception about verbal and social interaction experiences with patients in four different aspects: frequency, importance, difficulty and confidence. It is also an inclusive tool applicable in different clinical settings. The scale can guide educators and clinical leaders in determining and monitoring students' verbal and social interaction levels. It can also provide comprehensive data in evaluating the professional competence level of the students and determining the strategy for the areas that need to be developed.

Conflict of interest: There are no relevant conflicts of interest to disclose.

Peer-review: Externally peer-reviewed.

Authorship contributions: Concept – A.Ö., E.U.; Design – A.Ö., E.U.; Supervision – A.Ö., E.U.; Fundings – A.Ö., E.U.; Materials – A.Ö., E.U.; Data collection &/or processing – A.Ö.; Analysis and/or interpretation – A.Ö., E.U.; Literature search – A.Ö., E.U.; Writing – A.Ö., E.U.; Critical review – A.Ö., E.U.

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