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Original Research Article

Socio-demographic correlates of communicative competence among young nursing students

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ABSTRACT

Background: Communicative competence is the ability to communicate effectively and appropriately across different social contexts. In nursing education, effective communication is essential for quality patient care and professional practice. This study examined the association between selected socio-demographic variables (age, educational attainment, and family income) and self-reported communicative competence among young adult nursing students.
Methods: A cross-sectional correlational study was conducted among 60 nursing students. Participants completed a communicative competence questionnaire and a socio-demographic survey. Descriptive statistics summarized competence scores. Pearson's correlation assessed associations between communicative competence and age, years of education, and family income. Multiple linear regression examined whether age and education independently predicted communicative competence. Statistical significance was set at $p<0.05$.
Results: Most participants were female (98%), unmarried (90%), and from rural areas (78%). The mean age was 24.4±4.4 years. The mean communicative competence score was 90.4±17.0, with a median of 88.5 (IQR: 78–104). Pearson's correlation showed a significant negative association between age and communicative competence (r=–0.34, p=0.03). No significant associations were observed for family income (r=0.02, p=0.86) or years of education (r=–0.19, p=0.51). In the regression model (adjusted R^2=0.09; F (2,57) =3.95, p=0.024), age remained a significant predictor (B=–1.18, p=0.022), whereas education was not significant.
Conclusions: Age was modestly but significantly associated with lower self-perceived communicative competence among nursing students. Further studies should explore psychosocial and educational determinants to guide communication skills training in nursing education.

Keywords: Communicative competence, Interpersonal communication, Socio-demographic factors, Educational attainment, Nursing students

INTRODUCTION

Communicative competence refers to the ability to enact effective and appropriate communication behaviors across different social contexts. Classic theoretical models conceptualize communicative competence as an impression of appropriateness and effectiveness in interaction, supported by an individual's motivation, knowledge, skills, and contextual understanding.[1] Importantly, communicative competence is not considered a fixed internal trait but rather an evaluative judgment that emerges from the interaction between the communicator's behavior, the observer's perceptions, and situational factors.[1] An influential early framework proposed by Wiemann identified five components of interpersonal communicative competence: interaction management, empathy, affiliation or supportiveness, behavioral flexibility, and social relaxation.[2] These dimensions

collectively capture a range of interpersonal abilities, including managing conversational flow, demonstrating emotional understanding, and adapting communication behavior to different situations.

Communicative competence can be measured using several approaches, including self-report questionnaires, observer or partner ratings, and performance-based assessments. Each approach has strengths and limitations. Self-report measures are practical and easy to administer; however, they primarily assess individuals' perceptions of their communication abilities rather than objectively observed competence.[3] McCroskey and McCroskey emphasized that self-assessments cannot be assumed to represent actual communicative performance, although they may provide useful insight into self-perceptions that influence communication choices.[3] Consequently, self-reported competence should be interpreted as a subjective evaluation influenced by factors such as self-awareness, social expectations, and personal confidence.

The study of communicative competence is important across educational, interpersonal, and healthcare contexts. In healthcare, communication competence is considered a core professional skill, although its definition and assessment are not uniform across professions.[4] Beyond clinical care, communication competence has also been linked to psychosocial outcomes. In a study of college students, Wright et al found support for a model connecting interpersonal motives, face-to-face and online communication competence, satisfaction with social support, and depressive symptoms.[5] Similarly, among women with breast cancer participating in online support groups, Yoo et al reported that communication competence moderated the associations between giving or receiving emotional support and psychological outcomes; benefits differed by competence level.[6] These findings suggest that communication competence may shape social-support processes across different contexts.

Given the importance of communication skills, researchers have examined factors that may influence individuals' communicative competence. Socio-demographic variables such as age, gender, education level, and socioeconomic status may reflect differences in life experiences, socialization processes, and opportunities to practice communication. While competence might be expected to improve with age and educational exposure, empirical evidence presents a more complex picture.

For instance, Donovan and MacIntyre reported differences in communication apprehension and self-perceived competence by age cohort and sex; at university level, female students reported higher communication apprehension and lower self-perceived competence than male students.[7] A longitudinal study of college students also found that communication competence did not increase steadily, declining during the sophomore year and increasing during the junior and senior years.[8]

Education and socioeconomic status may also influence communicative development. Higher levels of education may provide exposure to diverse social interactions, presentations, and communication training, while socioeconomic resources may shape access to networks and learning opportunities. Nevertheless, findings vary by setting. A systematic review of communication between family physicians and patients with chronic conditions found that sociodemographic factors, particularly ethnicity and language proficiency, were associated with differences in interpersonal communication; evidence was uneven across communication domains and demographic variables.[9] Because these findings concern clinical encounters, their application to nursing students should be considered cautiously.

Within nursing education, communicative competence is especially important because nurses must interact effectively with patients, families, and multidisciplinary healthcare teams. Nursing curricula therefore emphasize clinical knowledge and interpersonal communication skills. A Brazilian study involving 1,079 nursing students found that interpersonal communication competence varied by demographic and academic characteristics, including age and marital status.[10] These findings suggest that student characteristics may be associated with how communication ability is assessed. For instance, older students balancing academic responsibilities with family or occupational commitments may face different communication challenges compared with younger students, although this possibility requires direct investigation. Understanding these variations may help educators design training and support. The present study therefore examines whether age, educational attainment, and family income are associated with self-rated communicative competence among nursing students. We interpret self-reported scores as indicators of perceived rather than objectively demonstrated competence, consistent with the limitations of self-report assessment.[3] The findings may inform future studies of communication skills training and student support.

METHODS

Study design and setting

This study utilized a cross-sectional, observational design to explore correlations between socio-demographic factors and communicative competence. Data were collected at a single time point using a survey administered to nursing students. The study was carried out at Florance College of Nursing, Irba, Ranchi, from January to February 2026, with participants responding to the survey during a scheduled session. The design was correlational and non-experimental, appropriate for an initial exploratory analysis of associations. The manuscript was prepared with reference to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidance for cross-sectional studies.[11]

Participants and recruitment

Participants were nursing students enrolled in a young adult cohort. A total of 60 students provided complete data for the primary analysis of communicative competence scores. Convenience sampling was used: eligible participants were those currently studying in the nursing program who consented to partake in the survey. Inclusion criteria included being a student in the program and within the typical age range of college or early-career nursing education (approximately late teens to early 30s).

There were no explicit exclusion criteria aside from inability or unwillingness to give informed consent. All participants were informed about the study's purpose and that their responses would be used for research; confidentiality was assured. The study protocol was reviewed and approved by the relevant institutional ethics committee, and written informed consent was obtained from each participant.

Notably, there was some item non-response in the demographic section of the survey: while 60 participants provided communicative competence scores, only 50 participants answered certain demographic questions such as gender and marital status. We report available data for each variable and have indicated the denominators used for percentages where applicable. No incentives were provided for participation beyond the educational value of self-reflection on communication skills.

Measures

Communicative competence (outcome)

Communicative competence was the primary outcome variable and was measured using a self-report questionnaire assessing participants' communication behaviors and skills. The questionnaire covered domains such as listening ability, clarity of expression, empathy, and communication confidence. These domains overlap conceptually with components of communicative competence described by Wiemann and with dimensions covered by Rubin and Martin's interpersonal communication competence measure.[2,12] The questionnaire included Likert-type items, with responses recorded on a numerical scale and summed to obtain a total score; higher scores indicated greater self-perceived communication competence. In the present sample, scores ranged approximately from the mid-60s to the mid-120s. The scores were interpreted as students' perceptions of their abilities in interpersonal contexts.

Socio-demographic variables

Several demographic and background variables were collected for analysis. Participants reported their age in years, which ranged from the late teens to early thirties (M=24.44, SD=4.38). Educational attainment was measured as the total number of years of formal schooling completed (M=13.54, SD=1.32) and treated as a continuous variable. Family income was reported as an approximate household income in local currency (M=41,670, SD=29,008) and was analyzed as a continuous variable despite some variability and potential skewness.

Gender information was provided by 50 respondents, of whom 98% were female and 2% male, reflecting the typical gender distribution in nursing programs. Most respondents were unmarried (90%), and the majority reported coming from rural areas (78%), with the remainder from urban settings (22%). Regarding religion, 56% identified as Hindu and 44% as other religions. In terms of family structure, 74% reported belonging to nuclear families and 26% to joint families. Except for age, education, and income, other demographic variables were used primarily for descriptive purposes and were not included in inferential analyses due to limited variability or missing responses.

Statistical analysis

Descriptive statistics were used to summarize communicative competence scores and socio-demographic characteristics. Measures of central tendency and dispersion, including mean, standard deviation, median, percentiles (25th, 50th and 75th), and minimum–maximum values, were calculated to describe the distribution of competence scores. Similar descriptive statistics were generated for continuous demographic variables such as age, years of education, and family income. Pearson's correlation analysis was conducted to examine bivariate relationships between communicative competence and the predictors (age, education, and family income). Correlations were tested using two-tailed tests with a significance level of α=0.05, and pairwise deletion was applied when missing data were present. Multiple linear regression analysis was then performed with communicative competence as the dependent variable and age and education as predictors. Model assumptions were assessed through residual plots, the Shapiro–Wilk test for normality, Cook's distance for influential observations, and variance inflation factors for multicollinearity. All analyses and visualizations were performed using Python (version 3.12).

RESULTS

Sample characteristics

A total of 60 nursing students were included in the analysis. The mean age of participants was 24.44 years (SD=4.38). On average, students had 13.54 years of formal education (SD=1.32), consistent with undergraduate nursing education. The mean reported family income was 41,670 (SD=29,008), showing substantial variability across participants. Among respondents who provided categorical demographic data (n=50), the majority were female (98%) and unmarried (90%). Most students

reported rural residence (78%), while 22% were from urban areas. Regarding religion, 56% identified as Hindu and 44% as other religions. Additionally, 74% belonged to nuclear families and 26% to joint families.

The sample profile indicates a predominantly young, female, unmarried group of nursing students, many from rural areas. These characteristics are typical for certain nursing colleges and should be considered when generalizing the findings (Table 1).

Distribution of communicative competence

Communicative competence had a mean of 90.40 (SD 17.04) and a median of 88.50, with percentile spread indicating moderate variability (IQR: 78–104; 5th–95th percentile: 64–125). These distributional summaries support the use of linear modeling if residual diagnostics are acceptable.

Higher scores indicate greater self-perceived communication competence. These values illustrate that while the central tendency is around 90, there is considerable spread. No ceiling or floor effects were evident, as scores populate the middle range well and reach into both lower and higher ends to a lesser degree (Table 2).

Bivariate associations

Pearson correlations indicate a statistically significant negative association between age and communicative competence ($r=-0.34$, $p=0.03$). Family income and education showed small and nonsignificant correlations with competence (income $r=0.02$, $p=0.86$; education $r=-0.19$, $p=0.51$).

Age was the only variable showing a statistically significant association with communicative competence. The negative coefficient indicates that as age increased, self-rated competence slightly decreased. Within this young adult sample, older students tended to report somewhat lower communication competence than younger students. In contrast, family income and years of education showed correlations close to zero, suggesting no meaningful relationship with competence. These findings may reflect the relatively homogeneous educational and socioeconomic background of nursing students or indicate that basic socio-demographic factors are not the primary determinants of perceived communicative competence in this group (Table 3).

Multiple regression model

To further investigate the predictors of communicative competence, we conducted a multiple regression with age and education as simultaneous independent variables. The rationale was to see if age's effect holds when accounting for education level, and vice versa, and to estimate their unique contributions. Family income was excluded from the model because its bivariate effect was negligible and including it (with some missing data) would reduce our sample size and statistical power unnecessarily.

The regression model was significant overall ($F(2,57)=3.954$, $p=0.024$) and explained about 11.2% of the variance in communicative competence scores ($R^2=0.112$, adjusted $R^2=0.091$). This R^2 is modest, indicating that the vast majority of variability in competence is due to other factors not in the model (which is not surprising for a complex trait like communication competence). However, the model does confirm the role of age observed in the correlation (Table 4).

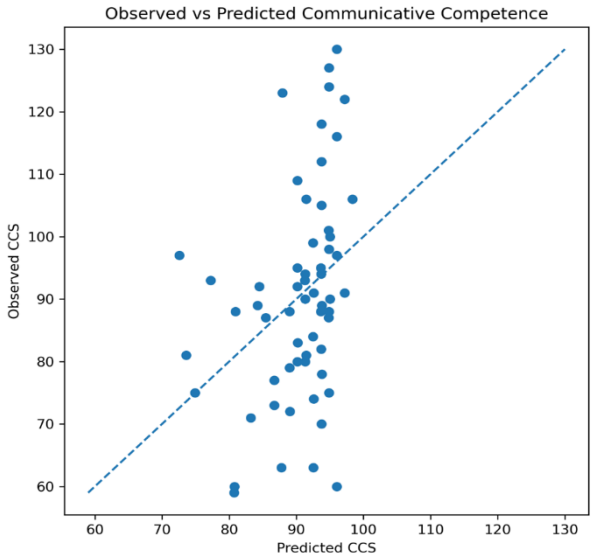


Figure 1: Scatter plot showing the relationship between observed and predicted communicative competence scores.

This scatterplot compares the actual self-reported competence scores (y-axis) with the scores predicted by the regression model using age and education (x-axis). The diagonal line indicates perfect prediction. The points cluster around the line but with considerable scatter, underscoring that the model explains only about 11% of the variance. Nonetheless, there is a slight downward tilt visible: higher predicted scores (towards the right, which correspond to younger age in the model since age has a negative weight) tend to align with higher observed scores (towards the top). In contrast, older age (leading to lower predicted scores, left side) often corresponds with somewhat lower observed scores. This visual reinforces that age had a negative association with competence, while education did not systematically shift predictions in a noticeable way.

Table 1: Socio-demographic characteristics of the nursing student sample (n=60).

Variables		Frequency/Mean	Percentage/SD
Age (years)		24.44	4.38
Education		13.54	1.32
Income		41670.00	29008.02
Gender	Female	49	98.00
	Male	01	02.00
Marital	Unmarried	45	90.00
	Married	05	10.00
Religion	Hindu	28	56.00
	Others	22	44.00
Family Type	Nuclear	37	74.00
	Joint	13	26.00
Residence	Rural	39	78.00
	Urban	11	22.00

Table 2: Descriptive statistics of communicative competence scores (n=60).

Variables	Mean	SD	Percentile		
			25	50	75
Communicative competence	90.40	17.04	79.75	89.50	98.25

Table 3: Pearson correlation coefficients between communicative competence and continuous socio-demographic variables (n=60).

Variables	Communicative competence	
Age (years)	r	-0.34
	P	0.03*
Income	r	0.02
	P	0.86
Education	r	-0.19
	P	0.51

Table 4: Multiple linear regression analysis predicting communicative competence (n=60).

Predictor	Mean±SD	B	SE	t	P	95% CI (Lower, Upper
Age	24.44±4.38	-1.18	0.50	-2.351	0.022*	(-2.19, -0.17)
Education	13.54±1.32	-1.12	1.70	-0.661	0.512	(-4.53, 2.28)
Model R^2		Adjusted R^2		F (2,57)		P
0.112		0.091		3.954		0.024*

Note: B=unstandardized regression coefficient; SE=standard error; CI=confidence interval; R^2=coefficient of determination; Adjusted R^2=adjusted coefficient of determination. $p<0.05$.

DISCUSSION

In this cross-sectional study of nursing students, age showed a significant inverse association with self-perceived communicative competence within the relatively narrow age range of approximately 18–35 years. Older students tended to report slightly lower communication competence compared with younger students. Regression analysis indicated that age was the only significant predictor, with competence scores decreasing by about one point for each additional year of age. However, the model explained only a modest proportion of variance (≈11%), suggesting that many other psychological, educational, and contextual factors likely influence perceived communication ability. Educational attainment and family income were not significantly associated with communicative competence. This lack of association may reflect the relatively homogeneous

educational background of nursing students or the possibility that specific communication experiences, such as presentations, clinical interactions, or communication training are more important than years of schooling. Similarly, socioeconomic background alone may not substantially shape students' perceived communication competence within a shared academic environment.

Relation to communication competence theory and prior evidence

The finding that older students reported lower communicative competence runs somewhat counter to a naive expectation that skill grows with age. However, it aligns with some nuanced perspectives in the literature:

Donovan and MacIntyre found that female university students reported higher communication apprehension and lower self-perceived competence than male university students, alongside differences in communication attitudes across educational age cohorts.[7] In our predominantly female sample, gender comparisons were not informative. The negative age association may reflect different educational or life experiences among older students; however, these factors were not measured and the explanation remains speculative.

A longitudinal study by Rubin et al found that college students' communication competence declined during the sophomore year before increasing in the junior and senior years.[8] Our cross-sectional result cannot establish a similar developmental pattern. It may instead reflect cohort differences, variation in academic experiences, or differences in how students evaluate their own communication skills.

Another possible interpretation concerns self-awareness. As students gain educational or clinical experience, some may become more conscious of the demands of effective communication and rate their abilities more critically. This interpretation is untested in the present data. Because self-reported competence does not necessarily reflect observed performance, lower ratings among older students should not be equated with objectively poorer communication skills.[3]

The context of being a young nursing student is also relevant. Nursing programs often include communication training and emphasize patient interaction skills. It could be that younger students, fresh out of secondary education, carry more confidence (perhaps from being in a familiar peer group or being more recently acclimated to classroom social environments), whereas slightly older students might be juggling more responsibilities (jobs, family) or may feel somewhat different from the majority and hence less confident socially. Additionally, older students might have experienced situations highlighting their communication limitations (such as challenging patient interactions during clinical rotations), influencing their self-rating.

The Brazilian study by dos Santos et al also identified age-related differences in interpersonal communication competence among nursing students, together with associations involving marital status and academic or professional activities.[10] The direction and meaning of these differences may depend on the particular competence domains and characteristics of each sample. Our findings should therefore be considered alongside, rather than treated as direct replication of, this larger Brazilian study. Differences in educational experiences or life responsibilities are plausible explanations, but were not directly tested here.

The nonsignificant associations with education and income should be interpreted cautiously. The relatively limited range of educational attainment in this sample may have reduced the ability to detect meaningful associations. Years of schooling also may not capture specific opportunities to practise interpersonal communication. Although family income was not associated with competence scores in the present analysis, this result does not establish the absence of socioeconomic influences. A systematic review of communication in clinical encounters highlighted the role of contextual and sociodemographic factors, particularly language proficiency and ethnicity.[9] However, evidence from patient–physician interactions does not directly establish the role of income or schooling in nursing students' self-ratings.

Psychosocial variables not measured in this study may be relevant to self-perceived competence. Donovan and MacIntyre reported an inverse relationship between communication apprehension and self-perceived competence, and Wright et al situated communication competence within a model of social-support satisfaction and depressive symptoms.[7,5] Older students in the present sample might have differed in communication anxiety or perceived social support, but these factors were not assessed. Accordingly, such mechanisms remain hypotheses for future research rather than conclusions from the current data.

Practical implications

These findings suggest several implications for nursing education and student support. First, older nursing students who report lower communication confidence may benefit from targeted academic and psychosocial support. Nursing programs could introduce small-group communication workshops, mentoring opportunities, or guided practice sessions that help strengthen confidence and interpersonal communication skills in academic and clinical settings. Second, communication skills training should remain an integral component of the nursing curriculum. Structured activities such as role-playing patient interactions, simulation-based learning, and feedback-oriented communication exercises may provide opportunities to practise communication scenarios and reflect on performance. A systematic review and meta-analysis reported that virtual reality simulation can improve

nursing students' communication skills, providing evidence for one form of simulation-based training.[13] Third, educators should consider cohort diversity and ensure that learning environments are inclusive for students from different backgrounds and age groups. Teaching methods that value varied life experiences and encourage collaborative communication may help students feel more engaged and confident. Finally, strengthening communication competence is essential for professional readiness in nursing. Students who lack confidence in their communication abilities may hesitate to participate actively in clinical decision-making or patient education. Early identification of students with lower perceived competence and providing supportive training opportunities can enhance their preparedness for effective patient-centered care and teamwork in healthcare settings.

Limitations

This study has several limitations that should be considered when interpreting the findings. First, the sample size was relatively small (N=60) and drawn from a single nursing program, which may limit the generalizability of the results to other educational institutions or cultural contexts. Second, the cross-sectional design restricts the ability to determine causal relationships; therefore, the observed association between age and communicative competence cannot be interpreted as a causal effect. Longitudinal studies would be needed to understand how communication competence develops over time among nursing students. Third, communicative competence was assessed using a self-report measure, which reflects perceived rather than objectively observed communication ability and may be influenced by self-confidence or social desirability. Fourth, several potentially important variables, such as communication anxiety, personality traits, language proficiency, and social support were not measured and may confound the observed relationships. Additionally, some demographic data were missing for a subset of participants, which may introduce minor bias. Finally, the relatively homogeneous nature of the sample in terms of educational level and background may have reduced variability and limited the detection of associations with socio-demographic factors.

CONCLUSION

In conclusion, this study found that among young nursing students, age was a significant correlate of communicative competence, with older students tending to view themselves as less competent communicators than younger students. Education (years of schooling) and family income did not show significant effects on communication competence in this relatively homogeneous group. These results suggest that within a nursing education context, personal and developmental factors might influence self-confidence in communication more than broad structural factors like education or socioeconomic status. Older students or those who are out-of-phase with the typical cohort may need additional support to build or recognize their communication strengths.

Effective communication is essential in nursing, affecting teamwork and patient care outcomes. Therefore, addressing gaps in communicative competence perception is important. Our findings prompt educators to be mindful of the diverse backgrounds in a nursing classroom – what a 19-year-old student finds easy in communication might be intimidating to a 29-year-old peer, or vice versa. By fostering an inclusive and supportive environment that helps all students improve and feel confident in their communication, nursing programs can better prepare their graduates for the collaborative and communication-intensive nature of healthcare work.

Ultimately, while demographics like age can hint at who might need more help, the focus should remain on individualized assessment and training. Each student can grow in communicative competence with practice and feedback. Future research, employing robust designs and broader variables, will further illuminate how factors like age interplay with training to shape communication skills. For now, our study adds a piece to the puzzle: reminding us that younger does not automatically mean less competent, and that older does not always mean more confident a nuance that educators and students alike should keep in mind.

Future directions

This study highlights several directions for future research. First, larger and more diverse samples of nursing students across multiple institutions or countries would improve generalizability and allow comparisons between early- and late-stage students or younger and older learners. Second, longitudinal studies following the same cohort from program entry to graduation could clarify how communicative competence develops over time and whether the observed age-related differences reflect cohort effects or developmental changes. Third, intervention studies examining communication training, simulation-based learning, or mentorship programs could determine whether targeted strategies improve communication competence and confidence among students.

Additionally, future research should include psychosocial variables such as communication anxiety, self-esteem, and social self-efficacy to better understand factors influencing perceived competence. Incorporating objective assessments, such as standardized patient interactions evaluated by observers would also help distinguish between perceived and actual communication competence among nursing students.

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