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ORIGINAL ARTICLE

Alexithymia, social skills, and communication skills in medical students: Levels and interrelationships

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Abstract

This study examined alexithymia, social skill, and communication skill levels among medical students and analyzed the relationships among these variables. Using a cross-sectional, correlational design, data were collected from 643 volunteer students (female: 52.4%; male: 42.6%; prefer not to state: 5.0%) enrolled at Çanakkale Onsekiz Mart University Faculty of Medicine during the 2025–2026 academic year. Data collection instruments were the Social Skills Inventory–Short Form (SSI-SF), the Toronto Alexithymia Scale (TAS-20), and the Health Professionals Communication Skills Scale (HP-CSS). The independent associations of social skill and alexithymia levels with communication skills were examined using multiple regression analysis, with gender and academic year included as covariates. Students scored at a moderate level on all three scales. Social skill level was positively associated with communication skills ($B = 0.87$; $p<0.001$; $R^2 = .26$), whereas alexithymia level, gender, and academic year were not significantly associated with communication skills. The findings support evaluating structured social skill training as part of communication education and testing its effectiveness in prospective, multicenter studies.

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Introduction

It is a widely accepted fact that communication skills play an important role in the development of clinical proficiency. In this regard, the Accreditation Council for Graduate Medical Education (ACGME) considers communication skills to be among six required skills needed by students, who should be able to handle not only their patients' treatment but also their communication with other members of the team [1]. Communication and social skills have also been incorporated in the Undergraduate Medical Education National Core Curriculum of Türkiye (UÇEP), which was launched in 2003 [2,3]. Indeed, the importance of communication skills is determined by the fact that clinician-patient communication determines patients' adherence to treatment [4], patient satisfaction [5], and, finally, the effectiveness of the treatment itself [6]. Bahraminia and Amini [7] and Akgün et al. [8] evaluated the link between clinicians' communication skills and their performance in clinical settings.

Social skills refer to a range of behaviors that are mainly gained from experiences and make it possible for people to interact effectively [9]. Within the framework of medical students, such skills assume professional characteristics and exert direct effects on team work and communications as compared to general social skills [10]. These two concepts are interrelated since features like interpersonal sensitivity, verbal ability, and emotional control have shown to be relevant to clinical communication [11]. Despite the fact that a hectic pace of learning might give rise to some situations conducive to developing skills [12,13], emotional exhaustion suffered by students might prevent further social development.

Emotional functioning in this regard can be illustrated by the concept of alexithymia. According to Sifneos [14], alexithymia involves a difficulty in recognizing one’s own emotions, a limited capacity for verbal expression of emotions, and a tendency toward concrete external cognition. Bagby et al. [15] further elaborated on this concept and conceptualized alexithymia into three factors: difficulty identifying feelings, difficulty describing feelings, and externally oriented thinking. These factors can be measured using the Toronto Alexithymia Scale (TAS-20). In medical school, there exists a greater likelihood for students to experience alexithymia than the average individual due to their academic and clinical demands; the prevalence of alexithymia among medical students has been reported to be between 16.5% and 49.0% [16-18].

There are several ways in which alexithymia affects social skills and communication abilities. Those people who cannot identify their emotions do not understand what goes on in their heads and in the minds of others, resulting in a decreasing ability to interact [19]. Skills required for good social abilities like empathy, reading body language and managing conflicts are directly impacted by this inability [20]. The effect of alexithymia on communication skills is also more direct than that of its influence on social skills, as those who struggle with expressing their emotions also struggle in talking to patients in a clinic setting [21]. It is uncertain whether the effect of alexithymia on communication skills is a direct one or an intermediary step via social skills [19,20]. Problems with the expression of emotions may affect not only the mental well-being of the students but also the empathic interaction that the students are likely to establish in interactions with patients [17].

There has been a considerable amount of literature dedicated to exploring the concepts of alexithymia, social skills, and communication skills separately. Literature that includes the relationship between these three concepts simultaneously is not widely available, and most of the existing studies have been conducted with populations from Western and Middle Eastern cultures, leaving little empirical data regarding the Turkish medical education setting. Thus, the purpose of this study was to fill this void by measuring alexithymia, social skills, and communication skills among medical students and evaluating the independent associations of alexithymia and social skills with communication skills using multiple regression analysis. The analysis was designed to estimate main-effect associations rather than a moderating or mediating mechanism. Based on the theoretical perspective outlined above, two

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hypotheses were tested: (1) higher alexithymia scores are associated with lower communication skill scores, and (2) higher social skill scores are associated with higher communication skill scores.

Materials and Methods

This study, which examined social skill, alexithymia, and communication skill levels in medical students and analyzed the relationships among them, was designed as cross-sectional and correlational research. In cross-sectional research, data are collected at a single point in time [22]. Correlational research aims to determine whether a relationship exists between two or more variables, and to describe its magnitude [23].

Participants

The subjects involved in this study were students who had registered themselves in the Faculty of Medicine of Çanakkale Onsekiz Mart University for the academic year 2025–2026. A total of 1,252 students had registered for the faculty for that academic year. Voluntary participation was used where the participants could decide whether to participate in the study. Using voluntary participation, 643 students opted to be part of the study.

Table 1. Distribution of participants by selected demographic variables.

Variable		N (%)
Gender	Male	274 (42.6)
	Female	337 (52.4)
	Prefer not to state	32 (5)
Academic Year	Year 1	152 (23.6)
	Year 2	92 (14.3)
	Year 3	178 (27.7)
	Year 4	88 (13.7)
	Year 5	63 (9.8)
	Year 6	70 (10.9)
Grade Retention	Yes	154 (24)
	No	489 (76)
High School Type	Science High School	332 (51.6)
	Anatolian High School	240 (37.3)
	Other	71 (11)
Total		643 (100)

Measures

Social Skills Inventory–Short Form (SSI-SF)

The SSI-SF was originally developed by Riggio [9] and adapted into Turkish by Yüksel [24]. The 30-item short form of the Social Skills Inventory (SSI-SF) was prepared by Köydemir [25], drawing from items 6, 16, 20, 21, 25, 26, 28, 29, 32, 34, 36, 39, 43, 45, 47, 49, 50, 57, 58, 59, 60, 61, 69, 70, 71, 73, 78, 80, 83, and 90 of the Turkish adaptation of the 90-item original scale by Yüksel [24]. The SSI-SF is a self-description scale with a five-point Likert format: "Not at all like me" (1), "A little like me" (2), "Like me" (3), "Quite like me" (4), and "Exactly like me" (5). The long form of the SSI consists of six subscales, with nine items reverse-coded. Factor analysis conducted during development of the short form established that the SSI-SF comprises 30 items and four subscales; however, the developer used a single total score across all 30 items rather than subscale scores [25]. Possible scores range from 30 to

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150, with higher scores indicating higher general social skill. Items 1, 3, 7, 9, 12, 13, 18, 25, and 27 are reverse-coded. Internal consistency (Cronbach's alpha) for the SSI-SF in the present study was α = .70.

Toronto Alexithymia Scale (TAS-20)

The TAS-20 was developed by Bagby, Parker, and Taylor, and adapted into Turkish by Güleç et al. [26]. The scale contains 20 items, each rated on a five-point Likert scale (1 = strongly disagree; 5 = strongly agree). Internal consistency (Cronbach's alpha) in the original form was .81, and test–retest reliability was .77. The scale has a three-factor structure: difficulty identifying feelings (items 1, 3, 6, 7, 9, 13, and 14), difficulty describing feelings (items 2, 4, 11, 12, and 17), and externally oriented thinking (items 5, 8, 10, 15, 16, 18, 19, and 20). The Turkish adaptation confirmed this three-factor structure. Cronbach's alpha values for the Turkish form were .78 for the total scale, .80 for the first subscale, .57 for the second, and .63 for the third.

Health Professionals Communication Skills Scale (HP-CSS)

The HP-CSS was developed by Leal-Costa et al. [27] and adapted into Turkish by Mendi et al. [28]. It is a self-report scale measuring communication skill in health professionals. The scale consists of 18 items organized into four subscales: empathy (items 2, 4, 6, 11, and 12), informative communication (items 5, 8, 9, 14, 17, and 18), respect (items 1, 3, and 15), and social skill (items 7, 10, 13, and 16). Items are rated on a six-point Likert scale. Higher scores indicate stronger communication skills. Cronbach's alpha for the total scale and subscales ranged from .72 to .79, and test–retest reliability ranged from .82 to .89.

Data analysis

Data were transferred to JAMOVI statistical software, selected because it is freely available. Missing data were checked, and cases with missing responses were excluded. Categorical demographic data were summarized as frequencies and percentages. Multiple regression analysis was used to examine the independent associations of demographic variables, social skill level, and alexithymia level with communication skills. Categorical variables were dummy-coded, with one category designated as the reference group for each: "male" for gender and "Year 1" for academic year. Each dummy variable was coded 1 for the category of interest and 0 for all others, so that the coefficient for a given category was interpreted relative to the excluded reference category [29,30]. The model included main effects only; no alexithymia × social skills interaction term or indirect-effect model was estimated. Therefore, neither moderation nor mediation was tested. A significance threshold of $p<0.05$ was used throughout.

Ethics

This study was approved by the Non-Interventional Clinical Research Ethics Committee of Çanakkale Onsekiz Mart University (date: 28.01.2026; decision number: 2026-02/02-13). Institutional permission was granted by the Faculty of Medicine of Çanakkale Onsekiz Mart University (date: 25.12.2025; reference number: E-30566003-302.08.01-2500339327).

Results

Social skill levels

Social skill levels of medical students were examined by inspecting the mean, standard deviation, median, minimum, and maximum for each item of the Social Skills Inventory–Short Form. Results are presented in Table 2.

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Table 2. Social skill levels of medical students (descriptive statistics).

Scale Items	N	Mean (SD)	Median (Min.–Max.)
SS-1. I am generally uncomfortable touching other people.	643	2.42 (1.03)	2 (1–5)
SS-2. I am interested in learning why people behave as they do.	643	3.19 (1.18)	3 (1–5)
SS-3. I am not very good at controlling my emotions.	643	2.57 (1.08)	2 (1–5)
SS-4. I enjoy being sociable.	643	2.93 (1.12)	3 (1–5)
SS-5. I sometimes worry about whether I am saying or doing the right thing in certain situations.	643	2.80 (1.13)	3 (1–5)
SS-6. I feel at ease with people of all types—young, old, wealthy, and less affluent.	643	2.90 (1.12)	3 (1–5)
SS-7. My facial expression is usually neutral.	643	2.57 (1.05)	2 (1–5)
SS-8. By watching how people relate to others, I can easily understand their character.	643	2.94 (1.11)	3 (1–5)
SS-9. It is quite difficult for me to control my emotions.	643	2.54 (1.06)	2 (1–5)
SS-10. I always attend social gatherings where friends come together.	643	2.89 (1.10)	3 (1–5)
SS-11. I often worry that what I say will be misunderstood.	643	2.70 (1.09)	3 (1–5)
SS-12. When I am in a group, I have difficulty choosing what to talk about.	643	2.56 (1.12)	2 (1–5)
SS-13. I rarely show my anger.	643	2.71 (1.11)	3 (1–5)
SS-14. I can usually tell what people are really thinking, however hard they try to conceal it.	643	2.86 (1.07)	3 (1–5)
SS-15. Even when I feel upset, I am quite good at keeping my composure.	643	2.84 (1.08)	3 (1–5)
SS-16. When introducing myself to strangers, I usually take the initiative.	643	2.72 (1.07)	3 (1–5)
SS-17. I am greatly affected when someone smiles or frowns at me.	643	2.82 (1.10)	3 (1–5)
SS-18. In relationships, people should meet all of each other's expectations.	643	2.50 (1.10)	2 (1–5)
SS-19. I can liven up a dull meeting.	643	2.77 (1.06)	3 (1–5)
SS-20. I can detect people who are pretending to be something they are not, right from the first encounter.	643	2.79 (1.08)	3 (1–5)
SS-21. When I am angry, I am very good at hiding it from others.	643	2.70 (1.05)	3 (1–5)
SS-22. I enjoy talking with many different people at meetings.	643	2.79 (1.04)	3 (1–5)
SS-23. I care very much about whether other people like me.	643	2.72 (1.11)	3 (1–5)
SS-24. I am generally chosen as a leader in groups.	643	2.64 (1.03)	3 (1–5)
SS-25. I rarely show my feelings and excitement.	643	2.54 (1.05)	3 (1–5)
SS-26. People often tell me I am a sensitive and understanding person.	643	3.14 (1.12)	3 (1–5)
SS-27. I find it hard to hide a strong emotion.	643	2.88 (1.07)	3 (1–5)
SS-28. I enjoy attending crowded events and meeting new people.	643	2.81 (1.09)	3 (1–5)
SS-29. I am generally occupied with the impression I make on others.	643	2.65 (1.06)	3 (1–5)
SS-30. I can adapt easily to any kind of social setting.	643	2.76 (1.09)	3 (1–5)

As Table 2 shows, relatively low endorsement was observed for items about discomfort with physical contact, difficulty controlling emotions, a neutral facial expression, difficulty choosing what to say in a group, and the belief that partners in a relationship should meet all of each other's expectations. The remaining items received moderate endorsement. High endorsement was not observed for almost any item. The pattern suggests that medical students have moderate social skills.

Alexithymia levels

Alexithymia levels of medical students were examined by inspecting the mean, standard deviation, median, minimum, and maximum for each item of the Toronto Alexithymia Scale. Results are presented in Table 3.

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Table 3. Alexithymia levels of medical students (descriptive statistics).

Scale Items	N	Mean (SD)	Median (Min.–Max.)
A.1-I am often confused about what emotion I am feeling.	643	2.70 (0.92)	3 (1–5)
A.2-It is difficult for me to find the right words for my feelings.	643	2.78 (0.92)	3 (1–5)
A.3-I have physical sensations that even doctors do not understand.	643	2.58 (1.04)	3 (1–5)
A.4-I am able to describe my feelings easily.	643	3.05 (0.92)	3 (1–5)
A.5-I prefer to analyze problems rather than just describe them.	643	3.17 (0.99)	3 (1–5)
A.6-When I am upset, I do not know whether I feel sad, frightened, or angry.	643	2.76 (0.96)	3 (1–5)
A.7-I am often puzzled by sensations in my body.	643	2.77 (0.97)	3 (1–5)
A.8-I prefer to just let things happen rather than understand why they turned out that way.	643	2.78 (0.94)	3 (1–5)
A.9-I have feelings I cannot quite identify.	643	2.85 (0.94)	3 (1–5)
A.10-Being in touch with emotions is essential for people.	643	2.90 (0.95)	3 (1–5)
A.11-I find it hard to describe what I feel about people.	643	2.75 (0.97)	3 (1–5)
A.12-People tell me to talk more about my feelings.	643	2.74 (0.95)	3 (1–5)
A.13-I do not know what is going on inside me.	643	2.73 (1.00)	3 (1–5)
A.14-I often do not know why I am angry.	643	2.62 (1.02)	3 (1–5)
A.15-I prefer talking to people about their daily activities rather than their feelings.	643	2.89 (0.97)	3 (1–5)
A.16-I prefer to watch light entertainment shows rather than psychological dramas.	643	2.99 (1.01)	3 (1–5)
A.17-It is difficult for me to reveal my feelings even to close friends.	643	2.81 (0.99)	3 (1–5)
A.18-I can feel close to someone even during moments of silence.	643	3.18 (0.98)	3 (1–5)
A.19-I find examining my feelings useful when solving personal problems.	643	2.68 (1.01)	3 (1–5)
A.20-Looking for hidden meanings in films or plays takes away from the enjoyment.	643	3.02 (0.98)	3 (1–5)

As Table 3 shows, nearly all items received moderate endorsement, with no responses concentrated at clinically meaningful extreme values. This pattern is consistent with a subclinical alexithymia profile. Medical students have moderate alexithymia levels.

Communication skill levels

Communication skill levels of medical students were examined by inspecting the mean, standard deviation, median, minimum, and maximum for each item of the HP-CSS. Results are presented in Table 4.

Table 4. Communication skill levels of medical students (descriptive statistics).

Scale Items	N	Mean (SD)	Median (Min.–Max.)
CS.1-I respect patients' right to express themselves freely.	643	3.95 (1.46)	4 (1–6)
CS.2-I try to learn about my patients' emotions.	643	3.81 (1.36)	3 (1–6)
CS.3-I respect patients' rights and freedom to make decisions.	643	3.90 (1.42)	4 (1–6)
CS.4-While a patient is speaking, I show my interest through body language (nodding, eye contact, smiling…).	643	3.88 (1.42)	4 (1–6)
CS.5-I inform patients about concerns they raise (within my scope of competence).	643	3.87 (1.40)	4 (1–6)
CS.6-I listen to patients without bias, regardless of their physical appearance, personal characteristics, or manner of expression.	643	3.82 (1.38)	3 (1–6)
CS.7-I express my views and requests to patients clearly.	643	3.86 (1.37)	3 (1–6)

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Scale Items	N	Mean (SD)	Median (Min.–Max.)
CS.8-When giving patients information, I pause to allow them to properly understand what I have said.	643	3.87 (1.35)	4 (1–6)
CS.9-I use clear and understandable language when giving patients information.	643	3.88 (1.37)	4 (1–6)
CS.10-When a patient does something that seems incorrect, I let them know I disagree or feel uncomfortable.	643	3.70 (1.37)	3 (1–6)
CS.11-I set aside time to listen to patients and understand their needs.	643	3.83 (1.35)	4 (1–6)
CS.12-I try to understand my patients' feelings.	643	3.81 (1.39)	3 (1–6)
CS.13-In interactions with patients, I express my thoughts clearly and precisely.	643	3.79 (1.35)	3 (1–6)
CS.14-I believe patients have the right to receive health-related information.	643	3.96 (1.44)	4 (1–6)
CS.15-I believe I show respect for patients' needs.	643	3.91 (1.41)	4 (1–6)
CS.16-I find it difficult to make requests of patients.	643	3.20 (1.30)	3 (1–6)
CS.17-I make sure patients have properly understood the information given.	643	3.81 (1.37)	4 (1–6)
CS.18-I find it difficult to ask patients questions to obtain information.	643	3.08 (1.36)	3 (1–6)

As Table 4 shows, relatively lower endorsement was observed for items about trying to learn about patients' emotions, listening without bias, clearly expressing one's own views and requests, expressing disagreement or discomfort to a patient, trying to understand patients' feelings, clearly and precisely expressing one's thoughts during interactions, difficulty making requests of patients, and difficulty asking questions to obtain information from patients. The remaining items received moderate endorsement. High endorsement was not observed for almost any item. Medical students have moderate communication skills.

Associations of gender, academic year, social skill level, and alexithymia level with communication skills

The independent associations of gender, academic year, social skill level, and alexithymia level with communication skills were examined using multiple regression. Gender was dummy-coded with "male" as the reference group; the coefficients for female and prefer-not-to-state were estimated relative to male. Academic year was dummy-coded with "Year 1" as the reference group; the coefficients for other years were estimated relative to Year 1. Social skill level and alexithymia level were entered as continuous variables. Results are presented in Table 5.

Table 5. Factors associated with communication skills in medical students (multiple regression).

Variables	B	Sig.	95% CI	F	*p*	R^2
Female	2.36	0.122	(−0.63, 5.36)	24.99	<0.001	0.26
Prefer Not to State	1.05	0.774	(−6.12, 8.22)			
Year 2	−1.77	0.478	(−6.67, 3.13)			
Year 3	−0.34	0.868	(−4.42, 3.73)			
Year 4	1.17	0.641	(−3.76, 6.11)			
Year 5	3.75	0.182	(−1.77, 9.27)			
Year 6	−5.14	0.065	(−10.60, 0.32)			
Social Skill Level	0.87	<0.001	(0.74, 0.99)			
Alexithymia Level	0.02	0.762	(−0.13, 0.17)			

B: regression coefficient; 95% CI: 95% confidence interval for B; F: model fit ANOVA result; R^2: total variance explained by the regression model.

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As Table 5 shows, neither female gender nor preferring not to state gender was significantly associated with communication skills relative to male gender (p>0.05). Academic years 2–6 were not significantly associated with communication skills relative to Year 1 (p>0.05), and alexithymia level was not significantly associated with communication skills (B = 0.02, p=0.762). Social skill level was the only variable with a statistically significant positive association (B = 0.87, p<0.001): higher social skill scores were associated with higher communication skill scores. Accordingly, Hypothesis 1 was not supported, whereas Hypothesis 2 was supported.

Discussion

This study examined alexithymia, social skill, and communication skill levels in medical students within the same sample and estimated their independent associations with communication skills using a multiple regression model. Students scored at a moderate level on all three scales. In the regression model, only social skill level was significantly and positively associated with communication skills; alexithymia, gender, and academic year were not significantly associated. These findings are discussed below in the context of the existing literature.

Social skill levels

Scores for social skills were relatively centralized about the middle range of the continuum. Those pertaining to emotional regulation, facial expressivity, and group communication showed some level of deviation from the average, being somewhat lower than the overall average, consistent with the developmental challenges faced by medical students that have been described before. According to Dener & Elçin [10], the challenging nature of the medical course limits the ability of students to practice their skills of working in a team and communicating with patients in an actual environment. According to Riggio [9], social skills comprise such elements as emotional expressiveness, emotional regulation, social expressiveness, and social sensitivity, and a lack of one of these elements negatively impacts interpersonal skills.

Alexithymia levels

The responses to the alexithymia statements had a distribution skewed towards the middle values and contained very few observations with extreme values of clinical significance. This distribution is consistent with the subclinical type of alexithymia often found in studies. The prevalence of alexithymia among medical students was estimated at between 16.5% and 49.0% in different samples [16–18]. In this case, our study participants occupy a position in the middle part of the indicated range. Sifneos [14] described the condition as indicative of limitations in the ability to process emotions. Moderate alexithymia can help one cope with everyday life but limits empathy and emotional plasticity. Simic et al. [20] found that alexithymia at this level negatively impacts academic and psychological satisfaction among medical students. Bagby et al. [15] claim that the three alexithymia factors are not equally influential on behaviors, and difficulty in identifying feelings is the most crucial factor affecting behavior.

Communication skill levels

The scores obtained for communication skills were moderately high as well. The students' scores for the questions pertaining to respect for patient rights and informative communication were relatively better than those obtained on questions that required active information gathering and disagreement. Bahraminia and Amini [7] reported that clinical communication performance among final-year medical students fell short of a competence threshold. Bazzari and Bazzari [21] obtained similarly moderate scores on the health professionals communication scale with pharmacy students, and suggested this reflects a tendency for communication development to plateau when not structurally embedded in the

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curriculum. Although the ACGME has designated communication skills as one of six core medical competencies [1], how this requirement is operationalized in curricula varies considerably across institutions.

Association of social skill level with communication skills

Social skill level was positively associated with communication skills (B = 0.87, p<0.001), and the model accounted for 26% of the variance in communication skills. This finding is consistent with the applicability of Riggio's [9] social skills model in the medical student context. According to Nurrokhmanti et al. [11], communication skills constitute an important dimension of health professionalism and are difficult to develop independently of a social skill repertoire. Meta-analytic evidence also links stronger clinician communication with better patient adherence and healthcare outcomes [4,5]. Because the present study was cross-sectional and relied on self-report, its result should be interpreted as an association rather than an educational or clinical effect. Nevertheless, it provides a rationale for evaluating structured social skill practice within communication curricula in prospective educational studies.

Association of alexithymia with communication skills

Alexithymia was not independently associated with communication skills after social skills and demographic variables were included in the model. Although this differs from studies reporting links between alexithymia and communication difficulties [19,21], those studies may differ in population, measures, and model specification. Importantly, attenuation or non-significance of a regression coefficient after adjustment cannot by itself demonstrate mediation. Because the present model included neither an indirect-effect model nor an alexithymia × social skills interaction term, the findings do not establish either mediation or moderation by social skills. Future longitudinal studies should test these mechanisms using explicitly specified mediation or moderation models.

Associations of gender and academic year with communication skills

Gender was not an important factor in communication skills. There are pieces of evidence from the literature showing that gender has an impact on alexithymia test scores, but results related to communication skills test scores are mixed [8]. The lack of significant association between the level of academic year and communication skills contradicts the idea that communication skills develop positively with more clinical experience. A possible reason for this observation could be that the accumulation of clinical experience by itself cannot lead to an improvement in communication skill scores without formal training [1,2].

Limitations

The cross-sectional design establishes neither temporal order nor causality. Associations in the regression model therefore should not be interpreted as evidence that social skills cause stronger communication skills. Academic-year coefficients compare different student cohorts at one time point rather than change within the same students over time.

All three constructs were measured using self-report instruments, making the findings susceptible to social desirability, recall, and common-method bias. The study did not include objective assessments such as observed clinical encounters, standardized-patient ratings, or supervisor evaluations; consequently, the scores may not fully represent communication performance in practice.

The volunteer sample was drawn from a single medical faculty, which limits generalizability and may introduce self-selection or nonresponse bias. In addition, the main-effects regression did not test an interaction or an indirect pathway, so no conclusion can be drawn about social skills as a moderator or

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mediator. Multicenter, longitudinal studies using behavioral outcomes and prespecified mediation or moderation analyses are warranted.

Conclusion

Among 643 medical students, social skill level was the only variable independently associated with communication skills after adjustment for gender, academic year, and alexithymia. Alexithymia was not independently associated with communication skills in this model; accordingly, the first hypothesis was not supported and the second was supported. These cross-sectional findings identify an association, not a causal, mediating, or moderating effect.

By examining alexithymia, social skills, and communication skills together, the study adds context-specific evidence from Turkish medical education and highlights social skills as a relevant correlate of communication. Communication curricula may benefit from structured opportunities to practice emotional expression, interpersonal sensitivity, and interaction across varied clinical scenarios. Future multicenter and longitudinal research should evaluate whether such training improves observed clinical communication and should directly test any proposed mediating or moderating mechanisms.

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Conflict of interest

The authors declare that they have no conflict of interest.

Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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