

## Short communication

# Assessment of surgeon communication skills from the patient perspective: A national evaluation using the Communication Assessment Tool

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## ABSTRACT

**Objective:** The Communication Assessment Tool (CAT) has previously been translated and adapted to the Italian context. This national study aimed to validate the CAT and evaluate communication skills of practicing surgeons from the patient perspective.

**Methods:** CAT consists of 14 items associated with a 5-point scale (5 = excellent); results are reported as the percent of "excellent" scores. It was administered to 920 consenting outpatients aged 18–84 in 26 Italian surgical departments.

**Results:** The largest age group was 45–64 (43.8%); 52.2% of the sample was male. Scores ranged from 44.6% to 66.6% excellent. The highest-scoring items were "Treated me with respect" (66.6%), "Gave me as much information as I wanted" (66.3%) and "Talked in terms I could understand" (66.0%); the lowest was "Encouraged me to ask questions" (44.6%). Significant differences were associated with age (18–24 year old patients exhibited the lowest scores) and geographical location (Northern Italy had the highest scores).

**Conclusion:** CAT is a valid tool for measuring communication in surgical settings.

**Practice Implications:** Results suggest that expectations of young people for communication in surgical settings are not being met. While there is room to improve communication skills of surgeons across Italy, patients highlighted the greatest need in the Central and Southern regions.

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## 1. Introduction

Effective communication is essential for delivering quality patient care and building patient-physician relationships imbued with

compassion and shared respect. Interpersonal communication skills have consistently been described as a fundamental, measurable, and essential skill set for physicians to learn [1,2]. Indeed, communication is a key determinant for outcomes ranging from patient satisfaction to medical-error prevention, patient adherence, truly informed consent, and health status [3–11]. Unfortunately, it continues to be a skill set with which many physicians struggle in everyday practice.

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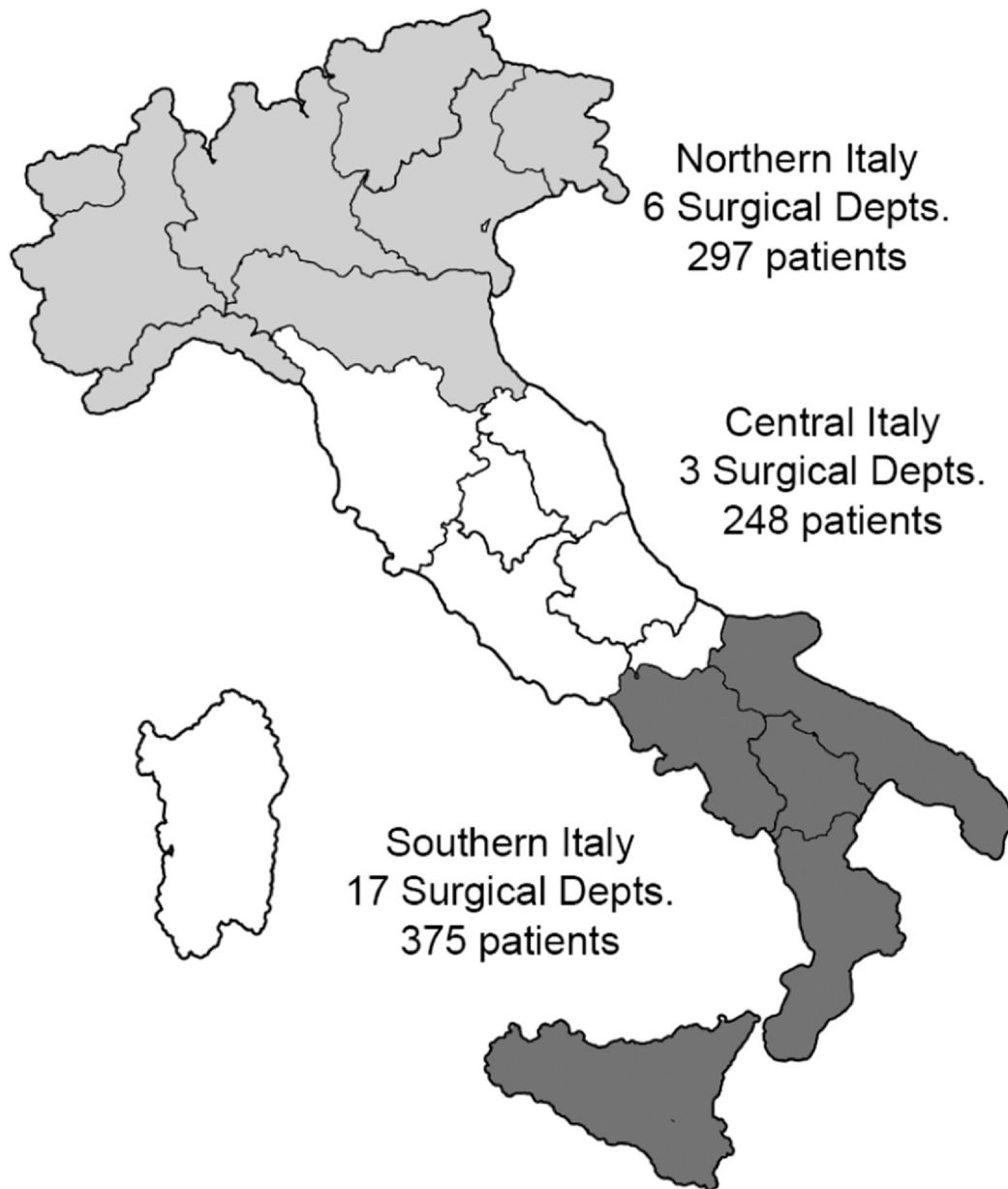


Fig. 1. Distribution of the surgical departments over the country.

In the surgical context, communication between physicians and patients is linked to patient safety in all phases of the surgical journey. Skillful physician-patient communication was often considered in the past to be secondary in importance to the fine motor skills of surgery. However, it is increasingly apparent that communication and other nontechnical skills are critical to safe surgical performance and outcomes and should be considered equally important [12].

Recently, the Communication Assessment Tool (CAT), an instrument that measures patient perceptions of the extent to which physicians accomplish essential interpersonal and communication skills, was translated and culturally adapted to the Italian context in a surgical outpatient clinic [13,14]. The CAT has been used to evaluate surgical residents' patient-communication skills [15–17], but few data are available on the skills of practicing surgeons. The aims of this study are to validate the CAT at national level in surgical outpatient clinics across Italy and to evaluate the communication skills of practicing surgeons from the patient perspective.

## 2. Methods

The Ethical Committee of the Coordinator Centre (the Surgical Department of Cardarelli Hospital) approved the study. The CAT is a reliable and valid instrument for measuring patient perceptions of physician performance in the area of interpersonal and communication skills. Scale development processes and psychometric properties are detailed in the original CAT article, supporting the practice of reporting percent-excellent scores [13]. The Italian CAT version is shown in Appendix Fig. A (for the English version of the 14 CAT items, please see Table 2).

Eligible participants were adults aged 18–84 who agreed to participate and signed the informed consent. Support staff at the outpatient clinics offered patients the opportunity to complete the CAT at the end of their appointment with a surgeon. Staff informed patients that the survey was voluntary, anonymous, and confidential, and instructed them to return the completed CAT to a secure location in the waiting room. Patients with cognitive deficit

**Table 1**  
Demographic characteristics of the 920 patients completing the CAT.

Characteristics	n (%)
Sex	
Male	480 (52.2)
Female	440 (47.8)
Age group, years	
18–24	43 (4.7)
25–44	200 (21.7)
45–64	403 (43.8)
65–84	274 (29.8)
Nationality	
Native Italian speaker	887 (96.4)
Non-native Italian speaker	33 (3.6)
Had the patient seen this physician before?	
No	725 (78.8)
Yes, but only once	103 (11.2)
Yes, more than once	92 (10.0)
Were you the patient today?	
Yes	847 (92.1)
No, I was with the patient today	73 (7.9)

**Table 2**  
Percentage of excellent ratings for individual CAT items in the 920 subjects.

CAT Item	Ratings Excellent n (%)
1. Greeted me in a way that made me feel comfortable	542 (58.9)
2. Treated me with respect	613 (66.6)
3. Showed interest in my ideas about my health	518 (56.3)
4. Understood my main health concerns	536 (58.3)
5. Paid attention to me (looked at me, listened carefully)	578 (62.8)
6. Let me talk without interruptions	551 (59.9)
7. Gave me as much information as I wanted	610 (66.3)
8. Talked in terms I could understand	607 (66.0)
9. Checked to be sure I understood everything	551 (59.9)
10. Encouraged me to ask questions	410 (44.6)
11. Involved me in decisions as much as I wanted	508 (55.2)
12. Discussed next steps, including any follow-up plans	554 (60.2)
13. Showed care and concern	584 (63.5)
14. Spent the right amount of time with me	580 (63.0)

were excluded; the original CAT was designed to be accessible across literacy levels but was not tested for use across different levels of cognitive function.

A descriptive analysis of CAT scores collected was performed. As noted in the original scale development article, psychometric analysis indicated that “excellent” maps onto “yes”, and all the other response options map onto “no” [13]. Accordingly, and consistent with previous use of the CAT, results are presented as the percent of participants who gave ratings of “excellent”. With respect to data analysis, frequencies and proportions were used to describe the characteristics of patients as well as the CAT score for each item. The percentage of excellent responses was calculated from the total number of respondents to each individual question.

For categorical variables, the Pearson chi-square or Exact test was applied as appropriate. Binary logistic regression was used to evaluate the relationship between the CAT items as dependent variables and possible predictors as the independent variables. The model was estimated using the stepwise backward method (Wald’s test). The coefficients obtained from the logistic regression analyses were also expressed in terms of odds of occurrence of an event. Two-sided p values of < 0.05 were considered to indicate statistical significance. SPSS Statistics for Windows version 26.0 software (IBM Corp., Armonk, New York) was used for statistical analysis.

**3. Results**

Twenty-six surgical outpatient clinics in Italy participated as recruiting centers (Fig. 1) and 920 patients completed the CAT. Patients characteristics are presented in Table 1. The sample had a broad age distribution with a mean of 53.9 years (SD = 15.9); the majority were 45–64 years old (43.8%) and 52.2% were male. Scores on individual CAT items ranged from 44.6% to 66.6% excellent (Table 2). The highest-scoring items were “Treated me with respect” at 66.6%, “Gave me as much information as I wanted” at 66.3% and “Talked in terms I could understand” at 66.0%. The lowest scoring item was “Encouraged me to ask questions” at 44.6%, a finding that matches other published results.

There were no significant differences in the overall percentage of items rated as excellent when comparing results based on patient gender. As shown in Table 3, there were significant differences in 7 of the 14 CAT items (1,2,3,4,5,8,9) based on age group (p < .05); while the youngest (18–24 year old) group was relatively small, ratings were lower on every CAT item. In addition, Table 4 illustrates that there were significant differences associated with geographical location in 7 of the 14 CAT items (1,2,4,6,7,8,14) (p < .05); the North of Italy was associated with the highest scores on every item.

The multivariate analysis summarized in Appendix Table A reinforces and refines the univariate findings. Age groups greater than

**Table 3**  
Percentage of Excellent Ratings for Individual CAT Items based on age.

CAT Item	Age group, years n (%)				P-Value*
	18–24	25–44	45–64	65–84	
1. Greeted me in a way that made me feel comfortable	13 (30.2)	126 (63.0)	250 (62.0)	153 (55.8)	< 0.001
2. Treated me with respect	20 (46.5)	135 (67.5)	286 (71.0)	172 (62.8)	0.004
3. Showed interest in my ideas about my health	13 (30.2)	118 (59.0)	238 (59.1)	149 (54.4)	0.003
4. Understood my main health concerns	16 (37.2)	117 (58.5)	251 (62.3)	152 (55.5)	0.010
5. Paid attention to me (looked at me, listened carefully)	17 (39.5)	128 (64.0)	268 (66.5)	274 (60.2)	0.004
6. Let me talk without interruptions	20 (46.5)	112 (56.0)	252 (62.5)	167 (60.9)	0.124
7. Gave me as much information as I wanted	22 (51.2)	132 (66.0)	279 (69.2)	177 (64.6)	0.097
8. Talked in terms I could understand	20 (46.5)	136 (68.0)	275 (68.2)	176 (64.2)	0.030
9. Checked to be sure I understood everything	18 (41.9)	111 (55.5)	254 (63.0)	168 (61.3)	0.025
10. Encouraged me to ask questions	12 (27.9)	81 (40.5)	191 (47.4)	126 (46.0)	0.053
11. Involved me in decisions as much as I wanted	17 (39.5)	111 (55.5)	229 (56.8)	151 (55.1)	0.195
12. Discussed next steps, including any follow-up plans	19 (44.2)	119 (59.5)	256 (63.5)	160 (58.4)	0.076
13. Showed care and concern	23 (53.5)	131 (65.5)	259 (64.3)	171 (62.4)	0.485
14. Spent the right amount of time with me	25 (58.1)	125 (62.5)	259 (64.3)	171 (62.4)	0.855

\* In bold P-Values statistically significant.

**Table 4**  
Percentage of Excellent Ratings for Individual CAT Items based on geographical localization in the 920 subjects.

CAT Item	Geographical localization n (%)			P-Value*
	North	Center	South	
1. Greeted me in a way that made me feel comfortable	193 (65.0)	131 (52.8)	218 (58.1)	<b>0.015</b>
2. Treated me with respect	219 (73.7)	157 (63.3)	237 (63.2)	<b>0.007</b>
3. Showed interest in my ideas about my health	180 (60.6)	130 (52.4)	208 (55.5)	0.145
4. Understood my main health concerns	194 (65.3)	129 (52.0)	213 (56.8)	<b>0.006</b>
5. Paid attention to me (looked at me, listened carefully)	202 (68.0)	149 (60.1)	227 (60.5)	0.079
6. Let me talk without interruptions	198 (66.7)	132 (53.2)	221 (58.9)	<b>0.006</b>
7. Gave me as much information as I wanted	214 (72.1)	160 (64.5)	236 (62.9)	<b>0.036</b>
8. Talked in terms I could understand	213 (71.7)	150 (60.5)	244 (65.2)	<b>0.020</b>
9. Checked to be sure I understood everything	193 (65.0)	141 (56.9)	217 (57.9)	0.091
10. Encouraged me to ask questions	144 (48.5)	102 (41.1)	164 (43.7)	0.208
11. Involved me in decisions as much as I wanted	175 (58.9)	131 (52.8)	202 (53.9)	0.286
12. Discussed next steps, including any follow-up plans	188 (63.3)	148 (59.7)	218 (58.1)	0.389
13. Showed care and concern	204 (68.7)	146 (58.9)	234 (62.4)	0.051
14. Spent the right amount of time with me	206 (69.4)	140 (56.5)	234 (62.4)	<b>0.008</b>

\* In bold P-Values statistically significant.

18–24 years were predictors of favorable response for CAT items 1,2,4,7 and 8 (i.e., differences within items 3, 5, and 9 did not meet the level of statistical significance when moving from univariate to multivariate analysis). Surgeons in the North region received higher scores on every CAT item, significantly higher on items 1,2,4,6,7,8 and 14, a finding entirely consistent with the univariate analysis. In almost every case, the region of central Italy had the worst outcome. Finally, having met the physician at least once predicted a favorable response for CAT items 2,4 and 6; having met the physician more once was a predictor of patients' favorable response for CAT items 1,2,4,6, 7,8 and 14.

## 4. Discussion and conclusion

### 4.1. Discussion

This is the first study assessing the communication skills of Italian surgeons from the patient perspective. While patients indicated that surgeons were respectful, informative, and talked in a way that patients could understand, none of these essential communication tasks was rated as “excellent” by more than two-thirds of sample. Surgeons involved in the study received very low ratings on the item related to actively engaging the patient in asking questions. Our data reflect patterns found in previous studies using the CAT in other settings [13–15,18–20] and are concordant with results of two studies reporting that surgeons spent the majority of their time educating patients and providing them with details about surgical conditions and treatments (i.e., giving information) [21,22]. These studies, together with our results, demonstrate that surgeons are less adept at engaging in informed and collaborative decision-making, showing relative deficiencies in several areas [21,22].

We found significant age-related differences, with the youngest age group consistently reporting the lowest scores. This observation was clearly discerned in the multivariate analysis where being in the 18–24 year old group – known as Generation Z – predicted a reduced probability of excellent rating. Of note, the discrepancy between univariate and multivariate analysis for age might be due to the small number in this age group. In any case, our data suggest that young patients' expectations are not being met, a finding reinforced by work with adolescents and young adults in the cancer context [23] and broader analyses of Generation Z. A marked difference was also found in 7 of the 14 CAT items when comparing results based on geographical location, consistently showing the North of Italy as the region with the highest scores. Disparities can derive from differences in fiscal capacity and funding (i.e., Southern pro-capita gross domestic product is lower than Northern regions) as well as from diverse choices and preferences of the regional governments. Results

indicate that the national performance average is drastically lowered by the regions in southern Italy which faces the challenge of addressing several critical issues including prevention, care of the elderly and chronic diseases, attention to patient's communication, and equity of the system [24].

### 4.2. Conclusion

This study confirms that the CAT is an efficient instrument for assessing patient perspectives of surgeon communication skills; it can be used both as an evaluative mechanism and a learning tool. Our data show that most surgical patients tended to perceive surgeon communication as respectful, informative, and understandable. However, patients clearly desire more active participation: The CAT item on the extent to which surgeons encouraged them to ask questions, a critical component of patient participation in the encounter, received the lowest proportion of percent-excellent ratings. Future research in surgical settings across regions should focus more deeply on how patient perceptions are affected by patient age, education, and socioeconomic status as well as surgeon age and gender; differences may reflect both surgeon characteristics and patient expectations.

### 4.3. Practice implications

Our results support implementing the CAT in surgical settings as a tool for monitoring surgeon communication skills and for promoting tailored educational interventions to improve them. The perceptions of young patients indicate that surgeons are more likely to meet needs by treating adolescents and young adults as people who can handle participation in clinical encounters. Moreover, while there is room to improve interpersonal and communication skills for surgeons across Italy, developing this skill set among surgeons working in the South and Center of Italy may be an important first step toward reducing the gap that emerges when making comparisons to health services located in the North of the country. These geographical findings deserve to be carefully considered by the health regional services and by the central government to guarantee equality of care, a fundamental principle of the Italian national health service.

### Patient details

I confirm all patient/personal identifiers have been removed or disguised so the patient/person(s) described are not identifiable and cannot be identified through the details of the story.

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## CRedit authorship contribution statement

**Mariano Fortunato Armellino:** Conceptualization, Formal analysis, Investigation, Methodology, Project administration, Resources, Supervision, Validation, Visualization, Writing - original draft, Writing - review & editing. **Pierluigi Marini:** Resources; Data curation; Investigation; Project administration; Writing - review & editing. **Diego Piazza:** Resources; Data curation; Investigation; Writing - review & editing. **Francesco Manguso:** Data curation; Formal analysis; Software; Writing - Original draft, Writing - review & editing. **Vincenzo Bottino:** Resources; Data curation; Investigation; Project administration; Writing - review & editing. **Ildo Scandroglio:** Resources; Data curation; Investigation; Writing - review & editing. **Patrizio Capelli:** Resources; Data curation; Investigation; Writing - review & editing. **Antonio Stracqualursi:** Resources; Data curation; Investigation; Writing - review & editing. **Paolo Millo:** Resources; Data curation; Investigation; Writing - review & editing. **Giuliano Sarro:** Resources; Data curation; Investigation; Writing - review & editing. **Enrica Menditto:** Conceptualization; Methodology; Project administration; Writing - review & editing. **Gregory Makoul:** Conceptualization; Formal analysis; Supervision; Validation; Writing - review & editing. **Daniela Scala:** Conceptualization; Investigation; Methodology; Project administration; Resources; Supervision; Validation; Writing - review & editing.

## Declaration of Competing Interest

The authors declare that they have no Conflict of Interest.

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## Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at [doi:10.1016/j.pec.2021.06.010](https://doi.org/10.1016/j.pec.2021.06.010).

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