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### Longitudinal study

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*Published in:*

Patient Education and Counseling

*Publication date:*

2021

*Document Version*

Peer reviewed version

[Link to publication](#)

*Citation for pulished version (HARVARD):*

Givron, H & Deseilles, M 2021, 'Longitudinal study: Impact of communication skills training and a traineeship on medical students' attitudes toward communication skills', *Patient Education and Counseling*, vol. 104, no. 4, pp. 785-791.

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# Patient Education and Counseling

## Longitudinal study: Impact of communication skills training and a traineeship on medical students' attitudes toward communication skills.

--Manuscript Draft--

<b>Manuscript Number:</b>	PEC-20-421R3
<b>Article Type:</b>	Research Paper
<b>Keywords:</b>	attitudes; communication skills; traineeship; medical education
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<b>Abstract:</b>	<p><b>Objectives</b> - To study longitudinally students' attitudes towards communication skills (CS) in order to examine whether CS training (CST) has an enduring impact on medical students' attitudes toward being a lifelong learner of CS.</p> <p><b>Methods</b> - 105 students completed the Communication Skills Attitude Scale at 4 times: before CST, after CST and before and after a traineeship.</p> <p><b>Results</b> - CST improved the attitudes of our students toward CS, and the traineeship stabilised those attitudes. However, while the improvement in positive attitudes was sustained over time, negative attitudes increased 6 months after CST.</p> <p><b>Conclusion</b> - CST using experiential methods in a safe environment has the potential to improve students' attitudes towards CS. A short traineeship in general medicine allows students to quickly integrate CST into clinical practice, without deteriorating their attitudes toward CS. However, 6 months of medical lessons without CST reinforces students' negative attitudes.</p> <p><b>Practice Implications</b> - To avoid the deterioration of attitudes over time, CST should be continuous or at least spaced at intervals less than 6 months and supported by the institutional authorities. In addition, placing the CST close to an observation traineeship in general practice seems an interesting way to prevent further deterioration of attitudes.</p>

## **Longitudinal study: Impact of communication skills training and a traineeship on medical students' attitudes toward communication skills**

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### **Conflict of interest statements**

Declarations of interest: none.

## **Longitudinal study: Impact of communication skills training and a traineeship on medical students' attitudes toward communication skills**

### **Abstract**

*Objectives* – To study longitudinally students' attitudes towards communication skills (CS) in order to examine whether CS training (CST) has an enduring impact on medical students' attitudes toward being a lifelong learner of CS.

*Methods* – 105 students completed the Communication Skills Attitude Scale at 4 times: before CST, after CST and before and after a traineeship.

*Results* – Our final sample size is 105 students. CST improved the attitudes of our students toward CS, and the traineeship stabilised those attitudes. However, while the improvement in positive attitudes was sustained over time, negative attitudes increased 6 months after CST.

*Conclusion* – CST using experiential methods in a safe environment has the potential to improve students' attitudes towards CS. A short traineeship in general medicine allows students to quickly integrate CST into clinical practice, without deteriorating their attitudes toward CS. However, 6 months of medical lessons without CST reinforces students' negative attitudes.

*Practice implications* – To avoid the deterioration of attitudes over time, CST should be continuous or at least spaced at intervals less than 6 months and supported by the institutional authorities. In addition, placing the CST close to an observation traineeship in general practice seems an interesting way to prevent further deterioration of attitudes.

**Keywords:** attitudes; communication skills; traineeship; medical education

### **Funding sources**

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors

## **1. Introduction**

### ***1.1 Context***

Stewart and Roter reported in 1989 that « one component of excellent communication is a set of attitudes in student-physicians ». Although the importance of good physician-patient communication has since been consistently recognised [1-4], academic leaders and students may still have negative attitudes in this regard [1, 5-7]. They consider communication skills (CS) to be an easy and soft science that is not worth studying [5, 7]. The study's primary focus is on attitudes toward learning medical CS. While there have been studies related to attitudes toward patient-centred CS in the medical encounter [8], the approach used in the current research to study attitudes is conceptually different. We thus use the term "attitudes" to refer to students' evaluations (positive or negative) of learning medical CS. Students' attitudes influence how the communicative skills training (CST) will be received [9], the amount of time they will spend learning these skills [10] and how they will use them when dealing with real patients [11].

Few data are available on changes in these attitudes, and the majority of these have been collected using a cross-sectional design (i.e., assessing the attitudes of students from different grades toward CST) [12-14]. Studies using longitudinal methods to assess changes in attitudes towards CST are lacking [13]. This is precisely the objective of this study, which longitudinally explores attitudes toward CS learning after CST. This seems all the more important as the few longitudinal data that exist tend to indicate that these attitudes are negatively influenced and modified by medical education [15].

Various factors within medical education may be responsible for this erosion: traineeship, CST and the curriculum. Firstly, it seems that traineeship and more particularly role models (traineeship tutors) convey behaviours and attitudes that are sometimes the opposite of those taught in the CST [16]. Second, CST programmes themselves may be responsible for a decline in students' attitudes toward CS [6, 15, 17, 18]. Students reported in a focus group that they developed negative attitudes toward CS after CST in which they felt they were considered poor communicators [15]. Thirdly, the curriculum itself, when it is essentially biomedical and disease-focused, can negatively influence students' attitudes toward CS [19], as they no longer perceive the usefulness of these skills [20]. In addition, university professors and academic leaders may convey negative attitude towards CS and CS learning [7].

Thus, it seems that workplace-based learning (traineeship) and formal medical curriculum (CST and curriculum) do not foster positive attitudes toward CS and CS learning among students. These results are an incentive for medical schools to verify that their teaching conditions do not deteriorate attitudes toward CS learning among students. The objective of this study was both to observe potential erosions in the attitudes of our students over time, and more specifically, to advance in the understanding of whether these possible changes originate from the practical application of CST during traineeship, the CST itself and/or the lack of continuity of CST (prevalence of biomedical courses in the curriculum).

## ***1.2 Importance***

Authors argue that additional longitudinal studies evaluating students' attitudes towards communication throughout the medical curriculum are needed [8, 12, 14, 21]. This is precisely the overall objective of this study: to better understand the potential negative impact of elements inherent in the curriculum on these attitudes. According to Cleland et al. [14], « a better understanding of influences on communication skills learning will inform the development of 'best practice' teaching (...) », p.250.

## ***1.3 Research questions***

We aimed to establish whether an erosion of attitudes occurred in our students after the first CST, 6 months later (after predominantly biomedical lessons) and after the first traineeship. To this end, our research questions (QR) were: (QR1) Does our communication skills training (CST) aimed at communication skills acquisition have a negative impact on students' attitudes toward CS?; (QR2) Does this potential decline in attitudes worsen after 6 months devoted mainly to biomedical lessons?; (QR3) Does the first traineeship negatively impact students' attitudes toward CS?

## **2. Methods**

Third-year medical students have a course of “medical psychology” at the beginning of their 3<sup>rd</sup> year at the University of Namur (in Belgium, the basic university curriculum in medicine, before any specialisation, takes 6 years). The course covers the history and definitions of medical psychology, the illness and the sick, the impact of the psyche on the onset and course of the illness, the impact of the psyche on the treatment of the illness, the impact of the illness on the psyche and the doctor-patient relationship. This course consisted of 15 hours. In 2016, we decided to devote 5 of these 15 hours to the teaching of doctor-patient communication. No specific communication curriculum existed in our university. The objectives of this new communication skills training were (1) to enhance student's knowledge about the central role of communication in their future practice, (2) to make them aware of their attitudes and beliefs towards these skills, (3) to practice CS and develop a retroactive analysis of their communication behaviours and (4) to focus on these skills just before their first traineeship so that they can immediately observe and practice what they have learned during the course. The content of our CST was based on the Calgary-Cambridge Guides [22, 23]. Theoretical lessons were coupled with experiential teaching (i.e., all students were asked to perform a role play in pairs). The structure of the course has been extensively developed elsewhere, and we invite readers who would like more details to refer to it [24]. However, a few changes have been made and are detailed here: the temporality of each step has been somewhat modified, and the debriefing was not carried out in plenary session, but individually for each pair of students, right after their role play. Moreover, all students had the opportunity to watch the video of their role play. The structure and its few fittings are briefly summarised in Figure 1.

INSERT FIGURE 1

### ***2.1 Procedure***

The students in the 3rd Bachelor of Medicine at the University of Namur (Belgium) were followed throughout the academic year 2018-2019. They were required to complete questionnaires at four times:

T1) Before Communication Skills Training (CST): in September 2018

T2) After Communication Skills Training (CST): in December 2018

T3) Before their first traineeship: in June 2019 (+ 6 months after post-test)

T4) After their first traineeship: in July 2019

The four data collection times of this longitudinal study are shown in Figure 2.

INSERT FIGURE 2

Before filling out each of the 4 questionnaires, students were asked to read and accept the informed consent form to participate freely in this study. This study was approved by the local Ethics Committee of “Cliniques Universitaires UCL Mont-Godinne” and conducted in accordance with the Declaration of Helsinki.

#### *T1) Before the CST*

During the first introductory course in medical psychology (September 2018), a questionnaire was proposed, on a voluntary and unpaid basis, to the 3<sup>rd</sup> year medical students. The link to the questionnaire was open access on the "virtual laboratory" (website of the psychology department offering different surveys to students). They were asked to complete it before the first course (next week) in medical psychology. At that time, none of the students had benefited from a course targeting communicative skills or attitudes as part of their medical curriculum.

#### *T2) After the CST*

Students enrolled in the medical psychology course completed the second “post-test” questionnaire after all 15 hours of the medical psychology course (containing the 5 hours focusing on CST).

#### *T3) Before the first traineeship and T4) After the first traineeship*

At the end of their third year of study (in June), all students enrolled at the University of Namur must complete a 3-week traineeship in out-patient primary care setting. They accompany their tutor throughout his/her consultations, observe and, according to the invitation of the tutor, some of them take part more actively in the consultation (realisation of anamnesis or basic technical acts, such as a blood test, blood pressure check, etc.). It is mainly an observational traineeship. The objectives of this traineeship are: (1) to put into practice one's theoretical knowledge, (2) to approach the concrete aspects of the doctor-patient relationship, (3) to understand the importance of professional confidentiality, medical ethics and teamwork, (4) to initiate an analysis and reflection about one's future medical practice, (5) to recognise the importance of general practice. A self-questionnaire was proposed to these medical students on a voluntary and unpaid basis. They were asked to complete it before and after completing their traineeship. Information about the questionnaire was given to students at the end of one of their lessons.

## **2.2 Instruments**

The questionnaire included the Communication Skills Attitude Scale (CSAS) [25] and questions about age and gender.

### *CSAS*

We chose to use the CSAS, which is the most widely used and validated tool to measure attitudes of medical undergraduates toward CS. It has been widely implemented in different settings and countries, translated and validated in different languages [26-30]. More precisely, we used the French version, known as the CSAS-F [31]. Like the original version, this scale is made up of 26 items. These items have response option on a 5-point Likert-type scale, ranging from 1 (e.g., "strongly disagree") to 5 (i.e., "strongly agree"). All these items are divided to measure 2 types of attitudes. The first subscale is made of 13 items measuring positive attitudes toward learning CS (e.g., Item 1: *To be a good doctor, I absolutely must have good communication skills*). The second subscale of 13 items measures negative attitudes toward learning communication skill (e.g., Item 2: *I don't see the value in learning communication skills*). After reversing the scores for items 1 and 22, adding the scores for the 13 items in each subscale gives 2 scores: the total positive attitude score (PAS) and the total negative attitude score (NAS). The scores range from 13 to 65, with higher scores indicating stronger attitudes. The CSAS has been found to show satisfactory test-retest reliability and internal consistency [14, 25].

## **2.4 Data analysis**

The data were analysed using Statistical Package for the Social Sciences (SPSS), version 26 of IBM. To compare the means of attitudinal scores at 4 times, we used General Linear Model (GLM) repeated measures. The time of measurement of attitudes (before CST, after CST, before traineeship, after traineeship) and the valence of attitudes (positive, negative) were introduced as within-subject factors. Two of the conditions of application were observed: the independence of the data within each measurement time and the normal distribution of each difference per measurement time. However, the condition of

sphericity was not found. The analysis of the results therefore continued with the correction of Greenhouse-Geisser.

### 3. Results

#### 3.1 Participants

Of the 179 students enrolled in the medical psychology course during the 2018-2019 year, 168 students completed the questionnaire before CST (93.9% participation) and 169 students after CST (94.4% participation). Of the 156 students registered for the traineeship, 149 students answered the questionnaire before the traineeship (95.5% participation) and 152 students after the traineeship (97.4% participation). Some students registered in the medical psychology course in September 2018 did not take the traineeship in June 2019 (i.e., students repeating their 3<sup>rd</sup> year or 2<sup>nd</sup> year students anticipating this course). The participants in this study are the students who have registered and completed both the medical psychology course and the traineeship during the 2018-2019 academic year. There was a final total of 119 students. Among the 119 participants, 105 responded to the 4 questionnaires, resulting in a participation rate of 88.2%. This final sample consisted of 25 men (23.8%) and 80 women (76.2%). The average age of the responding students was 20.11 years old ( $SD = .84$ ). The samples present at the different measuring times and the participation rates are summarised in Figure 2. Since the CST and the traineeship are mandatory for all students, one characteristic of our sample is that they all participated in the “CST” and the “traineeship”. As this is a within-subject design, the subjects were considered as their own controls.

#### 3.2 CSAS

Internal consistency of the subscales was confirmed using Cronbach’s coefficients (see Table 1). The Cronbach Alpha reliability obtained for the two subscales were all above .65 and thus considered as acceptable [32, 33], ranging from .65 to .80.

INSERT TABLE 1

#### 3.3 Effects of CST and traineeship

Descriptive analyses indicating the means and standard deviations obtained on the PAS and NAS subscales at each time are presented in Table 2.

INSERT TABLE 2

Two-way repeated measures analysis of variance (ANOVA) revealed a significant main effect of valence ( $F = 918.53, p = 0.000$ ) and a significant interaction effect between time and valence ( $F = 24.40; p = 0.000$ ). Further analysis of simple main effects indicated that (1) for positive valence, the significant effect of time was  $F = 18.82, (p = 0.000, \text{ see Figure 3})$ ; (2) for negative valence, the significant effect of time was  $F = 15.63, (p = 0.000)$ .

## INSERT FIGURE 3

### 3.3.1 QR1 (T1-T2)

For negative attitudes, the mean difference between times 1 and 2 was -2.95 ( $p < 0.000$ ). For positive attitudes, it was 2.62 ( $p < 0.000$ ). Thus, after CST (T2), there was a significant decrease in negative attitudes and a significant increase in positive attitudes.

### 3.3.2 QR2 (T2-T3)

For negative attitudes, the mean difference between times 2 and 3 was 1.28 ( $p = 0.002$ ). For positive attitudes, it was -0.11 ( $p = 0.78$ ). Thus, after 6 months (T3), the negative attitudes increased significantly, on the other hand, there was no statistically significant change in the positive attitudes.

### 3.3.3 QR3 (T3-T4)

For negative attitudes, the mean difference between times 3 and 4 was -0.55 ( $p = 0.10$ ). For positive attitudes, it was 0.01 ( $p = 0.98$ ). After the traineeship (T4), the differences in positive and negative attitude scores were not statistically significant.

## 4. Discussion and Conclusion

### 4.1 Discussion

Firstly, concerning the effect of CST, according to traditional theories of attitudes, the development and change of attitudes is influenced by 4 factors: 1) exposure to new information, 2) imposed behavioural change, 3) an increase in self-knowledge, introspection and 4) a change in affiliation group [30]. It seems that the first three aspects can be found in our CST:

- 1) During the CS theory classes, students were exposed to new information about CS: evidence on the benefits of communication skills, validated communication models, etc.
- 2) During experiential lessons (role plays), communication behaviours from the Calgary-Cambridge Guides were practiced. This may correspond to what Fishbein and Ajzen [34] call an “imposed behavioural change”. According to attitude theory, changes in behaviour during role playing may be accompanied by a change in underlying attitudes [34]. Experiential learning involving the use of role-playing appears to have the potential to contribute to attitudinal change among medical students.
- 3) Finally, answering the CSAS questionnaire is an exercise of introspection, increasing students' awareness of their own attitudes. The debriefing (which follows the role play) invites students to self-reflect and therefore seems to be a key moment as well. Greater knowledge and awareness of their attitudes and behaviours may have already contributed to changing the attitudes of our students.

Other authors have found an improvement in attitudes (decrease in NAS score and increase in students' PAS score) after a CST comparable to ours [30]. According to Bowlby's Attachment Theory, an essential quality of a good trainer to promote learning would be the ability to build a secure and safe space during both the scenario and the debriefing in order to limit learners' anxiety [35]. We have been particularly careful to establish a framework of security, confidentiality and trust that mirrors the doctor-patient relationship [36], for example, by having students sign a document before their role play in which they agree to respect confidentiality and not to judge each other's performance. The fact that the students could choose their partner for the role-play and perform it without any observers (other than the trainer) was considered by the students to be "*reassuring*", allowing them to feel "*less stressed*". Thus, it is possible that this attention to their well-being during the role play and debriefing in particular may have reduced their level of anxiety and fostered a more positive assessment of CST and CS (since these two assessments are known to be highly correlated [31]). In another study, we uncovered preliminary links between the debriefing climate judged to be of high quality and positive student attitudes [37]. Finally, the fact that these 5 hours of CST took place within a course in medical psychology may have increased affective learning by situating CST in a broader psychosocial context. The medical psychology course is given by a psychiatrist who teaches the importance of the relationship with the doctor in the announcement of a diagnosis and the course of an illness, all illustrated by clinical cases. This may have served to emphasise the usefulness of communication in clinical practice. Studies have indicated that students consider it important to teach communication integrated with medical content [38].

Concerning T3, positive attitudes did not seem to be influenced by the biomedical courses given in the second semester contrary to negative attitudes. Negative statements in the CSAS provide insights into student's attitudes that are influenced by this period of no CST curriculum. Indeed, the item "Nobody is going to fail their medical degree for having poor communication skills" actually becomes true during this period of time when CS are not assessed. If we look at the item "I haven't got time to learn communication", the absence of courses for 6 months may indeed have implicitly conveyed this message to the students. Finally, concerning the different items of the type "I don't need good communication skills to be a doctor", the students may indeed have concluded from these 6 months that they had more need of biomedical knowledge. Our results therefore call for ongoing CST to maintain improvements in negative attitudes; otherwise, they may not be sustainable. A change in attitude will only persist over time if it is supported and reinforced by the educational environment [39].

Finally, concerning the absence of deterioration in attitudes following the traineeship, the fact that the traineeship takes place in general medicine (a speciality identified as "people-oriented" [40, 41]) and in a non-hospital setting probably contributes to the results obtained. Exposure to medical staff from a specialty who view CS as fundamental to good clinical practice, may contribute to maintain positive attitudes toward CS. We argue that early exposure to clinical practice in family medicine educational settings may provide an environment, the mentorship and the positive initial clinical experiences favourable to

maintain positive attitudes [14]. In the traineeship, tutors act as role models (i.e., a person with whom we can identify and who has qualities and status that we would like to achieve [42]). It has been shown that through the phenomenon of "socialisation"[43], role models are a means of instilling attitudes, values and associated behaviours in students and young physicians [44, 45]. Teachers and tutors are role models that students will then, consciously or unconsciously, tend to imitate [46]. Studies [16, 47] have shown that students lack supervision and feedback from their tutor during their internship. Having been paired with a tutor and thus benefiting from his/her explanations and feedback for 3 weeks may have also contributed to the maintenance of our students' attitudes. In addition, placing CST in close to an internship seems promising so that students can better realise the benefits of learning communication skills in real practice [48, 49]. Indeed, in other studies, students who already had clinical experience perceived the learning of CS more positively. They perceived more interest in acquiring CS for good communication with the patient but also with the team [17, 50]. Thus, just because students learn and practice CS does not necessarily mean that they perceive the usefulness of these skills in their future practice [7, 20]. Therefore, integrating a traineeship in family medicine into CST or scheduling CST close to a traineeship can allow students to contextualise the CS learned and prevent the deterioration of attitudes. In addition, authors have argued that quickly contextualising the learning of CS can maximise their transfer into practice [51].

#### **4.2 Study limitations**

The main limitation of our longitudinal study is that we do not have a control group of students (i.e., students who did not follow the CST or the traineeship) because of the structure of the curriculum. In addition, the effect of time, a maturation process [52] as well as other factors that could have occurred during these academic year and impact the attitudes of our students cannot be discarded. In addition, students' answers to the questionnaire could be influenced by social desirability. We took precautions to minimise this bias, stating that they were asked to indicate their own opinion about these items and that the confidentiality of their responses was guaranteed. However, students could have responded based on what they felt was more consistent with the content seen in the CST since the teachers are also the researchers. Finally, this quantitative study does not explain the reasons for the change and/or stability of attitudes observed over time. A qualitative study to gather student insight on this issue may be an area for future research within this cohort.

#### **4.3 Conclusion**

Like other studies, we found that a limited CST could improve attitudes. The longitudinal design of our study allowed us to identify that negative attitudes intensify in the absence of CST during the period between coursework and traineeship. Finally, placing CST close to a general practice traineeship appears to be an interesting perspective to prevent further deterioration of attitudes.

#### **4.4 Practice Implications**

Attitudes of medical students towards CS appear to change during medical training and may therefore be consciously influenced in order to limit their erosion over time. First, experiential training method coupling with explicit discussions about students' attitudes looks promising to enhance positive attitudes towards CS. Second, to avoid the deterioration of attitudes over time, CST should be continuous or at least spaced at intervals less than 6 months. Moreover, as medical curricula seem to be a vehicle for negative attitudes, it seems important to involve members of medical faculties in supporting CST and to embody these skills by being role models consistent with the content taught in CST. Finally, placing the CST close to an observation traineeship (even a short one) in general practice appears to be an interesting way to prevent further deterioration of attitudes. The inclusion in the CST of a traineeship in a "person-oriented" specialty such as general medicine, in a non-hospital setting, that associates 1 mentor and 1 mentee can allow students to quickly contextualize the CS learned and thus facilitate their integration in an environment that does not deteriorate them.

### Acknowledgements

We thank the students for the time they spent answering our questionnaires. We also thank the University of Namur's Traineeships Commission for allowing us to collect data during their traineeship in general medicine. Finally, we would like to thank the reviewers for their comments that considerably improve the quality of this manuscript.

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## Tables

**Table 1.** Cronbach's alpha coefficients.

	<b>T1</b>	<b>T2</b>	<b>T3</b>	<b>T4</b>
<b><math>\alpha</math> of PAS</b>	0.77	0.77	0.79	0.80
<b><math>\alpha</math> of NAS</b>	0.65	0.71	0.72	0.77

*Note.* PAS= Positive Attitude Scale; NAS= Negative Attitude Scale.

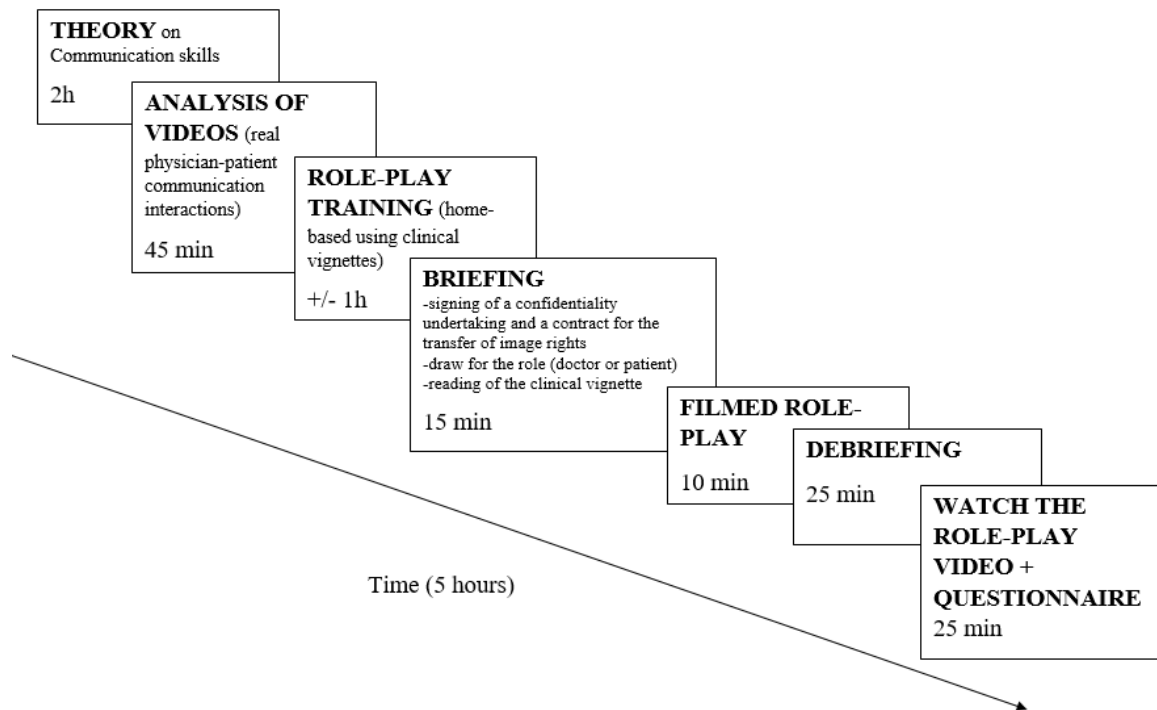
**Table 2.** Means and standard deviation of attitudinal scores (PAS and NAS) at 4 times.

	<b>Times of attitude measurement</b>			
	<b>Before CST</b>	<b>After CST</b>	<b>Before traineeship</b>	<b>After traineeship</b>
<b>PAS</b>	<i>M</i> = 50.28 ( <i>SD</i> = 5.53)	<i>M</i> = 52.89 ( <i>SD</i> = 5.43)	<i>M</i> = 52.78 ( <i>SD</i> = 5.67)	<i>M</i> = 52.79 ( <i>SD</i> = 5.76)
<b>NAS</b>	<i>M</i> = 28.79 ( <i>SD</i> = 4.71)	<i>M</i> = 25.84 ( <i>SD</i> = 4.73)	<i>M</i> = 27.11 ( <i>SD</i> = 5.37)	<i>M</i> = 26.56 ( <i>SD</i> = 5.74)

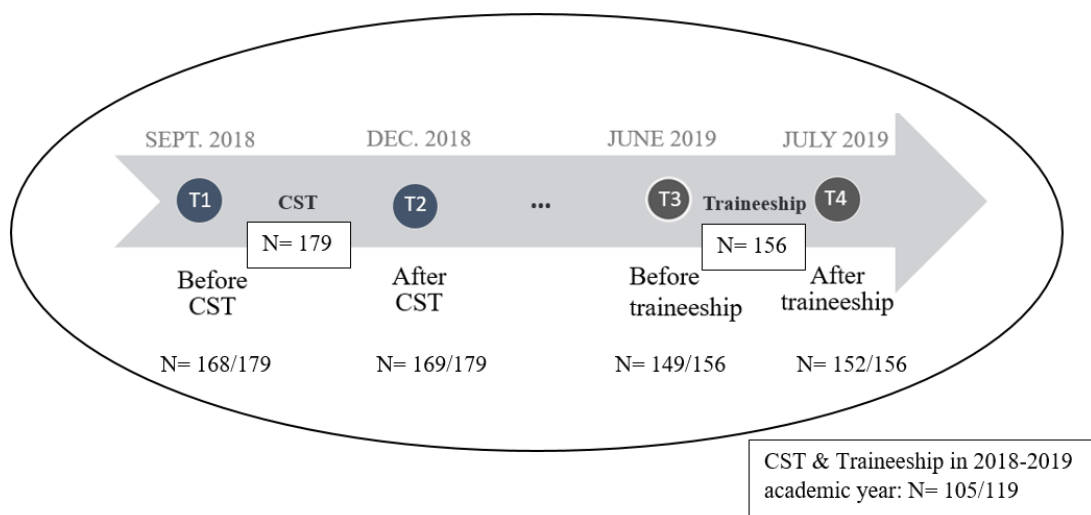
*Note.* PAS= Positive Attitude Scale; NAS= Negative Attitude Scale; CST= Communication Skills Training; *M* = Mean; *SD*= Standard Deviation.

**Figures.**

**Figure 1. Organisation** of the 5 hours of medical psychology courses devoted to the teaching of communication skills (CST).

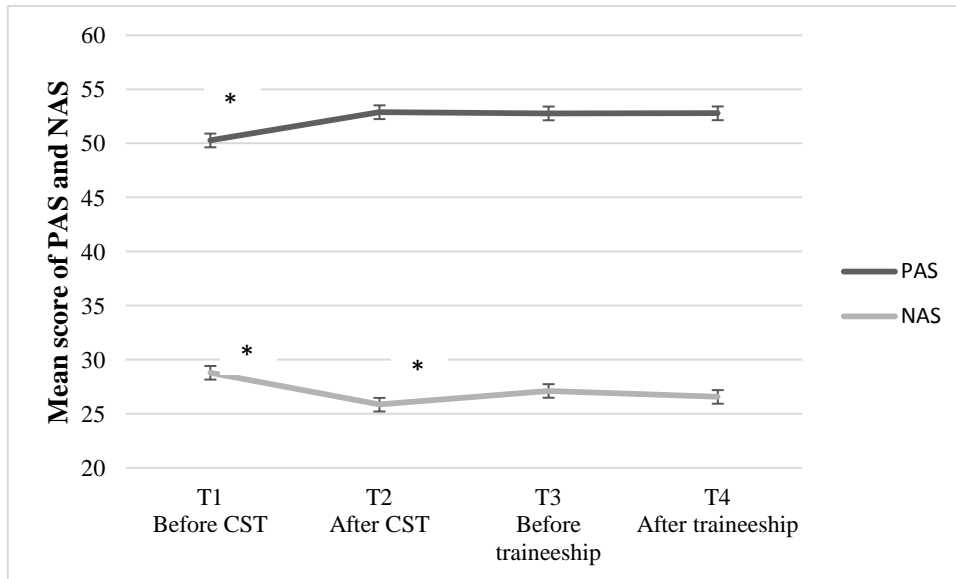


**Figure 2. Longitudinal design of the study.**



*Note.* CST= Communication Skills Training.

**Figure 3.** Means of PAS and NAS at the 4 measurement times.



*Note.* \* $p < 0.000$ ; PAS= Positive Attitude Scale; NAS= Negative Attitude Scale; CST= Communication Skills Training.