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The Fall and Rise of Medical Students' Attitudes to Communication Skills Learning in Ireland: A Longitudinal Approach

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Authors' contributions

This work was carried out in collaboration between all authors. Authors MM, GD and MH designed the study, author MM performed the statistical analysis. Authors MM, GD and MH wrote the protocol, and author MM wrote the first draft of the manuscript. Authors MM, GD and MH managed the analyses of the study. Author MM managed the literature searches and this was reviewed by authors GD and MH. Authors GB and MH reviewed the first draft. All authors read and approved the final manuscript.

Research Article

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ABSTRACT

Many studies have explored attitudes to communication skills learning before and after a teaching intervention but there remains a dearth of published longitudinal studies. An area currently unexplored is medical student's attitudes to communication skills teaching and learning over the entirety of the undergraduate programme. A longitudinal approach was utilized in this study involving all medical students (n= 128) entering a Medicine Under Graduate Degree Programme in 2007 in a Dublin Medical School. Participants completed a previously validated Communication Skills Attitudinal Scale (CSAS) on Day 1 of the second medical year prior to clinical exposure. Once baseline attitudes were established, the tool was completed sequentially at the end of the 2nd, 3rd, 4th and 5th (final) medical years. Results indicated a mean Positive Attitude Score (PAS) of 51.9 (range 13-65) at the beginning of 2nd year declining to 45.5 at the end of this year. This decline in positivity was statistically significant with $p < 0.035$. Results indicated a mean Negative Attitude Score (NAS) of 29.8 (range 13-65) at the beginning of 2nd year rising to 33.8 at the end of this

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year. However, the longitudinal approach taken highlighted that attitudes rose again by the end of the 3rd year -mean PAS 48.7, and 4th - 49.3 and attitudes almost returned to baseline by the end of the 5th Year - mean PAS 49.3. The NAS score remained constant at 31.4 at the end of 3rd year, 31.4 at the end of 4th and 29.6 at the end of the 5th year .These changes in NAS were not statistically significant. A qualitative study is indicated to investigate the causation of the fall in positive attitude scores and rise in negative attitudes at the end of the second year. As communication skills are a core requirement for practicing in a professional discipline further research into these findings is warranted.

Keywords: Communication skills; attitudes; undergraduate medicine.

1. INTRODUCTION

A recent area of interest in the European literature is that of medical student's attitudes to communication skills teaching and learning. This has been investigated previously in medical student cohorts in the UK [1], Norway [2], Scotland [3] and more recently Korea [4]. It has been largely under investigated in Ireland. Initially, Doherty [5] investigated medical student's attitudes to communication skills training and attitude change following formal teaching. She reported that student's confidence improved in areas relating to direct patient encounters. Students reported that they felt they were better listeners, less nervous around patients and more comfortable in knowing what to say to patients following formal training. This was a small exploratory study and pioneered interest in this topic area in Ireland. Subsequently, Rees et al. [6] published a series of papers in the UK which culminated in the design and validation of a communication skills attitude scale CSAS (Appendix 1). During this process Rees reported that UK medical students had varying attitudes to communication skills learning, with some believing good communication skills were essential to be an effective doctor. However, others believed these skills came naturally and time spent learning these skills were futile and wasteful. Communication skills were seen as a soft science as they were not quantifiable and were perceived to be of low academic credibility. She suggested that student resistance to the integration of the social sciences into medical training may be owing to a number of factors. These included student's uncertainty in the early years of their relevance to clinical practice, incongruity with the biomedical model, teacher's attitudes and poorly defined educational goals.

Subsequently, Tor Anvik et al. [2] re-tested the CSAS following a translation to Norwegian. They distributed the CSAS by postal survey to 4 Medical Schools and yielded a 60 % response rate (n=1833). On analysis of the data they concluded that `attitudes` were more complex than merely positive or and negative. They suggested there were 3 concepts measured within the tool, namely `attitudes to learning` (Items 7,10,12,18, 21 and 25), attitudes to the relative importance of good communication skills from the students perspective` (Items 1, 4 positive, and 3, 9, 22 negative) and thirdly `respecting patients and team members`(Items 5,9,14,16). They postulated that attitudes may affect cognitive and affective learning and suggested that repeated measures of the CSAS may assist in curriculum design and evaluation [2]. A limitation of this study was that it was cross sectional not longitudinal. Cleland [3] then re-tested the CSAS tool in Scotland where similar findings to Rees [1, 6] were observed. Students indicated a positive attitude initially, but this declined over the clinical years. A limitation of this study was that of 'cohort effects' as three separate cohorts of students were studied and compared rather than one cohort progressing through the undergraduate years [7].

More recently, Sowon-Ahn [4] utilized the CSAS in Korea to explore potential differences in attitude of medical students to communication skills learning in a different culture and where English was not the first language. The results again indicated that students had doubts about the need for communication skills learning in medicine and concern regarding the facilitation of interpersonal skills. Ambiguity regarding their motivation to learn these skills and a negative attitude towards assessment ultimately resulted in a displayed overconfidence in their skills. In summary, despite a variety of research study settings, the finding of a decline in positive attitude pre and post an initial training course appears consistent. The aim of this study was therefore to utilize a longitudinal approach to investigate attitudes and attitude changes in an Irish Medical School over the entirety of the training programme.

2. METHODS

2.1 Research Sample

A total class of 128 medical students was initially invited to participate on Day 1 of the 2nd Medical Year, pre clinical exposure. Participants were informed of the research aims and asked to complete a communication skills attitude scale (CSAS) whilst in a large lecture theatre. All were assured that participation was optional and anonymous. All data was collected by the first author who was not involved in teaching or assessing the communication skills programme to reduce potential bias [9]. This initial dataset formed the baseline attitude scores. All students completed a CSAS, n=128 , however, one student who was repeating the 2nd year was, following discussion, excluded from this study as previous clinical exposure may have been a confounder. The final sample at the beginning of year 2 was 127 medical students. The CSAS was distributed again to all participants in a large lecture theatre by the first author at the end of their 2nd Medical Year (n = 127) and then sequentially at the end of the 3rd (n= 96); 4th (n= 110) and 5th (n= 47) medical years respectively. The entire original cohort started and finished the programme.

3. RESEARCH INSTRUMENT

3.1 Communication Skills Attitude Scale – CSAS

The Nottingham Communication Skills Attitude Scale (CSAS) [6] was utilized in this study (Appendix 1). This previously validated tool consists of a likert scale consisting of 26 statements, 13 of which are positively worded and 13 are negatively worded. Positive and negative statements are randomly interspersed throughout the instrument. Student's scores range from 13-65 for positive attitude statements (PAS) and 13-65 for negative attitude statements (NAS). The validity of the tool is further enhanced by students having a high positive score (PAS) having a reciprocal low negative score (NAS).

3.2 Analysis of the Data

The CSAS forms were completed anonymously at the start of the programme and were thus not coded with an identifier that could be used to link each student's survey data over the five measurement points. Furthermore, the number of survey responses in the five measurement points were disparate (min=47, max=127). Consequently, it was not possible to utilize paired statistical tests or repeated measures ANOVA in this study [7]. Resampling methods [7,8] were therefore utilized to analyze the data. The underlying statistical estimator

for PAS / NAS was ANOVA, whereas the Kruskal-Wallis non-parametric test for used for individual questions [9]. Where significance was determined across the five measurement points, a second level analysis was conducted. This analysis consisted of removing one measurement point at a time and repeating the resampling analysis with the remaining four measurement points [8, 9].

4. RESULTS

4.1 Positive Attitude Score (PAS), Negative Attitude Score (NAS)

Weak statistical significance was determined for a difference across the five measurement points for the PAS score (90^{th} percentile p=0.075). Second-level analysis determined that the beginning of the second medical year and the end of the second medical year measurement points were the cause of the difference across the five measurement points. Third-level analysis showed that there was statistical significance (95^{th} percentile p=0.035) for a difference between the PAS scores of the start and end of the second medical year (Table 1 and Fig. 1).

Table 1. Mean PAS & NAS scores

	Year 2 start	Year 2 end	Year 3	Year 4	Year 5
PAS	51.9	45.5	48.7	49.3	49.3
NAS	29.8	33.8	31.4	31.4	29.6

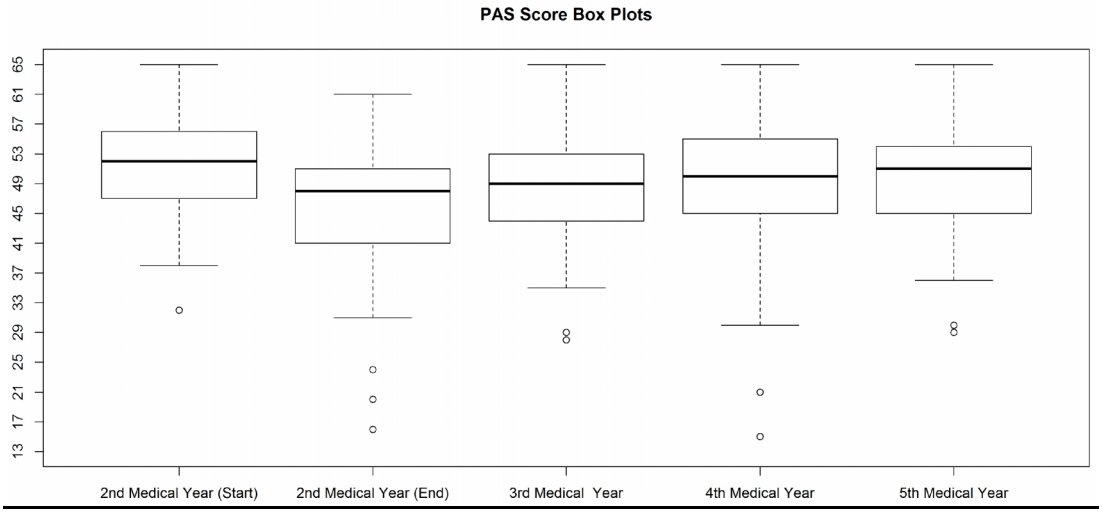

Fig. 1. Box plots of 5 measured points of PAS

No statistical significance was determined when comparing the NAS scores across the five measurement points (Table 1 and Fig. 2).

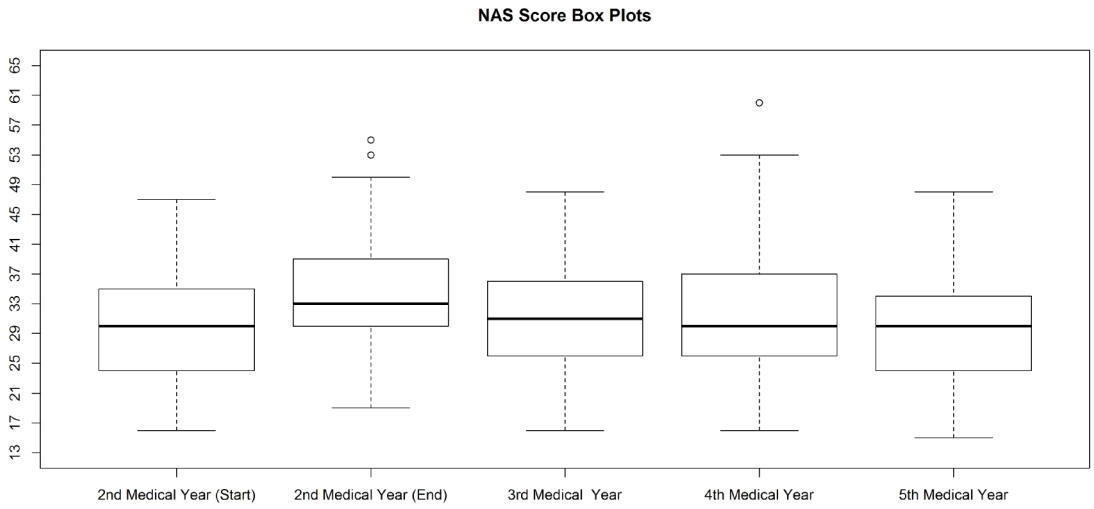

Fig. 2. Box Plots of 5 measured points of NAS

4.2 Positive Items

Item 7 "Learning communication skills is interesting"
Item 9 " Learning CS has helped or will help facilitate my team-working skills"
Item 21 "I think it's really useful learning communication skills on the Medical Degree"

Weak statistical significance was determined for a difference across the five measurement points for items 7 (90^{th} percentile p=0.077), 9 (90^{th} percentile p=.08) and 21 (90^{th} percentile p=0.069) - Table 2. Second-level analysis revealed that only the start of the second medical year measurement point was responsible for the change across the five measurement points in item 7. Similar analysis showed that the beginning and end of the second medical year measurement points were responsible for the change across the five measurements in items 9 and 21. Third-level analysis revealed that there was a statistically significant difference (95^{th} percentile p=0.046) between the start and end of the second medical year measurement points for item 9. Similarly, a weak statistically significant difference (90^{th} percentile p=0.038) was determined between the start and end of the second medical year measurement points for item 21.

Table 2. Mean values for items having statistically significant changes

Item	Year 2 start	Year 2 end	Year 3	Year 4	Year 5
2- Neg	1.35	2.28	1.92	1.94	1.66
3- Neg	2.48	2.9	2.7	2.35	1.91
7- Pos	3.58	2.9	3.02	3.03	2.96
9- Pos	4.22	3.48	3.89	3.86	3.96
11- Neg	2.77	3.33	2.94	2.74	2.55
21- Pos	4.15	3.45	3.8	3.83	4.04
22- Neg	2.82	3.42	3.33	2.94	2.66

4.3 Negative Items

Item 2 - "I can't see the point in learning communication skills"
Item 3- "Nobody is going to fail their medical degree for having poor communication skills"
Item 11. "Communication skills learning states the obvious and then complicates it "
Item 22 "My ability to pass exams will get me through medical school rather than my ability to communicate".

Statistical significance was determined for a difference across the five measurement points for items 2 (95^{th} percentile p=0.0155) and 3 (95^{th} percentile p=0.0064), Table 2. Weak statistical significance was determined for a difference across the five measurement points for items 11 (90^{th} percentile p=0.0999) and 22 (90^{th} percentile p=0.0504). Second-level analysis showed that only the start of the second medical year measurement point was responsible for the change in item 2 across the five measurement points. For item 3, it was determined that the fifth medical year measurement point was responsible for the change across the five measurement points. The end of the second medical year and the fifth medical year measurement points were determined to have caused the change across the five measurement points for item 11. Third-level analysis for item 11 revealed a weak statistically significant difference (90^{th} percentile p=0.041) between the end of the second medical year and the fifth medical year measurement points.

Second-level analysis of item 22 showed that the end of the second medical year, the third medical year and the fifth medical year measurement points were responsible for the first-level difference across the five measurement points. Third-level analysis of item 22 showed a weak statistically significant difference (90^{th} percentile p=0.057) between these three measurement points. Fourth-level analysis showed that the fifth medical year measurement point was responsible for the difference identified in the third-level analysis.

With regard to other items of interest and relevance on the CSAS, 60 % of participants disagreed with *ITEM 19: I don't need good communication skills to be a good doctor* from the beginning to the end of the programme demonstrating a positive correlating between good communication and good doctoring. Equally of interest was *ITEM 20: I find it hard to admit to having some problems with my communication skills.* It appears the further into the training programme the student progresses the less able they are to admit to difficulties with communication. This needs to be observed for and addressed at this crucial point in the training programme pre certification.

5. DISCUSSION

The results identified that students had positive baseline attitudes to communication skills teaching and learning at the beginning of their second medical year. The findings of a positive attitude at the beginning of the pre-clinical course concurred with Rees's (1) original UK study's findings albeit the power of Rees`s study was greater with a sample size of 216. The educational methods used by Rees are similar to those employed in Ireland with small group experiential learning methods, supported by seminars and assessed at a history taking station at OSCE (1).Thus these findings may be generalisable and be reflective of attitudes of medical students in other Irish and UK medical schools.

Students in this study were less positive in attitude to communication skills teaching and learning at the end of the first clinical year (Year 2). With regard to interest in learning,

usefulness of skills set and impact of communication skills on team working .This concurs with previous UK findings [6]. Tor Anvik also reported an attitude decline in 3 out of 4 medical schools in Norway over a 6 year programme. He described this attitude change as being more specific to `affective` attitudes [10] and reported `cognitive` attitudes remained constant. His study suggested students feelings regarding the teaching of communication changed in the early years perhaps owing to a dislike of teaching methods such as video-recording and feedback and poorly delivered feedback. These factors may leave the students uncomfortable and vulnerable with resultant negativity.

Over 60% of students at every data point disagreed with the statement that that they don't need good communication skills to be a good doctor. The need for this skill set is recognized, this has been described previously as a cognitive attitude [10]. It may be the manner in which it is taught that is affecting the attitude change or affective attitude [10). Aspegren [11] previously reported student's preferred practical experience and experiential learning to attain communication skills rather than formal teaching. As students tend to over-estimate their communication skills abilities [3] they may feel that their skills are not in need of improvement and be 'unconsciously incompetent' in this skill set in the earlier years. A decrease in negativity in the later years may be due to the progression of the students from the 'unconscious incompetent' to the 'conscious incompetent' [12].The relevance of this skill set may become more evident as the students near completion of the training programme and begin to appreciate the realities of joining the clinical workforce. Students did report an increasing inability to report problems with communication as they progressed through the programme. It could be postulated that by the programme end students become more aware of their limitations. It is essential that they are supported at this crucial point of transition from student to health care professional. This self awareness may be owing to natural ageing and maturing or may be as a result of becoming more self reflective as they progress through a medical training course. Further qualitative research is indicated to fully explore this area.

A suggested cause of a decline in attitude at the end of year 2 is that following the theoretical component of the taught course and actual patient contact; the students may have gained insight into their limitations in this area. They may experience a loss of positivity as they experience difficulty with the application of theoretical classroom taught knowledge in the reality of clinical medicine. It could be that medical students merely espouse the theories of good communication in the early years giving the socially desired responses on the CSAS. A further suggestion for the decline in attitude is the de-emphasis of the importance of communication skills in the clinical years. The culture of medicine to which the students become exposed to in which communication skills were not traditionally considered a priority. Making communication clinically relevant to junior medical students may address the decline in attitudes. Educational initiatives may include shadowing of Senior Staff as positive role model and direct observations of Inter-Disciplinary and Intra-disciplinary communication interactions in the clinical setting.

Communication skills are often seen as a soft science, not quantifiable and of low academic credibility. Students decline in attitudes to communication skills learning may be due to their uncertainty in the early years of their relevance to clinical practice as they spend little time there. Incongruity with the biomedical model may be a causative factor reflected in students attitudes. Equally teacher's attitudes may influence the students' experiences [10]. Poorly defined educational goals may fail to emphasize the fundamental need for good communication skills for professional practice. It is accepted that attitudes are difficult to influence but may change when new knowledge is presented, provided that the knowledge is convincing and the presenter is credible [11]. Recently there is an increased interest and

review of the selection processes for candidates entering Medical Schools in Ireland. Medical Educators accept that attitudes will impact on skills and ultimately on behavior [11]. Good communication skills need to be identified early in the selection process to identify personnel truly suited to a career in Clinical Medicine. Tomorrows doctors need to demonstrate above average intelligence quotients (IQ), emotional intelligence and ultimately positive attitudes to communication skills learning.

6. LIMITATIONS

A potential limitation of this study is the use of a 5 point Likert scale. The use of a seven or nine point Likert scale [8] is indicated in future studies to yield more sensitive data that would facilitate exploration of the potential impact clinically of a change in attitude. Coding of the CSAS forms with confidential individual identifiers throughout the 5 years would have enabled comparisons to be made with regard to individuals' changes and allowed for analysis of paired data. Inclusion of aspects of the curriculum, socio-demographic data and individual differences may explain some of the outcomes and would have enabled comparisons to be made with findings from previous studies [1,2,3,4,5,6,10]. Further cluster analysis of the items changing most significantly on the CSAS to identify any latent factors would have potentially strengthened the results. These limitations will be addressed in future studies.

7. CONCLUSION

In conclusion, undergraduate students in an Irish Medical School have a positive attitude to communication skills teaching and learning at the beginning of the training programme. By the end of the first clinical year (2^{nd} year), the decline in attitudes to communication skills teaching and learning was statistically significant. By the end of the training programme attitudes are almost back to the original baseline attitude scores. The decline in attitudes at the end of the 2nd year is an area for concern and needs to be addressed with effective teaching interventions. Communication skills are a mandatory and core component of professionalism and a prerequisite to inter-disciplinary clinical work.

ETHICAL APPROVAL

Consent for this study was gained from the Health Sciences Departments' Research and Ethics Committee.

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PRACTICE POINTS

- Medical students in Ireland commence their training with a positive attitude to communication skills teaching and learning.
- There is a statistically significantly drop in positivity at the end of the first clinical year (Year 2).
- Educational initiatives need to address this decline in positive attitude supporting students through the middle years of training promoting the attainment and retention of the core skills of good communication required for professional practice.

COMPETING INTERESTS

The authors report no competing interests or conflict of interest in the researching and writing of this paper.

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APPENDIX 1

Communication Skills Attitude Scale- (Rees) 2002

Please read the following statements about communication skills **(CS)** learning. Indicate whether you agree or disagree with all of the statements by circling the most appropriate response:

1=strongly disagree 2=disagree 3=neutral 4=agree 5=strongly agree

1 In order to be a good doctor I must have good communication skills 1 2 3 4 5
2 I can't see the point in learning communication skills 1 2 3 4 5
3 Nobody is going to fail their medical degree for having poor Skills 1 2 3 4 5
4 Developing my CS is just as important as developing my knowledge of Medicine 1 2 3 4 5
5 Learning C.S has helped me or will help me respect patients 1 2 3 4 5
6 I haven't got time to learn communication skills 1 2 3 4 5
7 Learning communication skills is interesting 1 2 3 4 5
8 I can't be bothered to turn up to sessions on communication skill 1 2 3 4 5
9 Learning CS has helped or will help facilitate my team-working skills 1 2 3 4 5
10 Learning CS has improved my ability to communicate with patient 1 2 3 4 5
11 Communication skills teaching states the obvious then complicates it 1 2 3 4 5
12 Learning communication skills is fun 1 2 3 4 5
13 Learning communication skills is too easy 1 2 3 4 5
14 Learning CS has helped or will help me respect my colleagues 1 2 3 4 5
15 I find it difficult to trust information about communication skills given To me by non-clinical lecturers 1 2 3 4 5
16 Learning communication skills has helped or will help me recognize Patient's rights regarding confidentiality and informed consent 1 2 3 4 5
17 Communication skills teaching would have a better image if it sounded More like a science subject 1 2 3 4 5
18 When applying for medicine, I thought it was a really good idea to Learn communication skills 1 2 3 4 5
19 I don't need good communication skills to be a doctor 1 2 3 4 5
20 I find it hard to admit to having some problems with my communication Skills 1 2 3 4 5
21 I think it's really useful learning communication skills on the Medical Degree
1 2 3 4 5
22 My ability to pass exams will get me through medical school rather than My ability to communicate 1 2 3 4 5
23 Learning communication skills is applicable to learning medicine 1 2 3 4 5
24 I find it difficult to take learning communication skills seriously 1 2 3 4 5
25 Learning communication skills is important because my ability to Communicate is a lifelong skill 1 2 3 4 5

26 Communication skills learning should be left to psychology students
Not medical students 1 2 3 4 5

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