Development and pilot testing of a questionnaire to assess the knowledge-level and attitudes of junior doctors on infectious diseases and antimicrobial resistance

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Introduction

Appropriate professional competencies and attitudes are of critical importance for healthcare-personnel to effectively prevent, diagnose and treat infectious diseases, and to curb the spread of antimicrobial resistance. Without the proper level of preparedness and the required number of professionals working in this area, the management of communicable diseases is not feasible. The aim of our study was to evaluate the knowledge and attitude of junior doctors on infectious diseases and antimicrobial resistance in Hungary, as well as determining the inclination of medical students to pursue a career in this area.

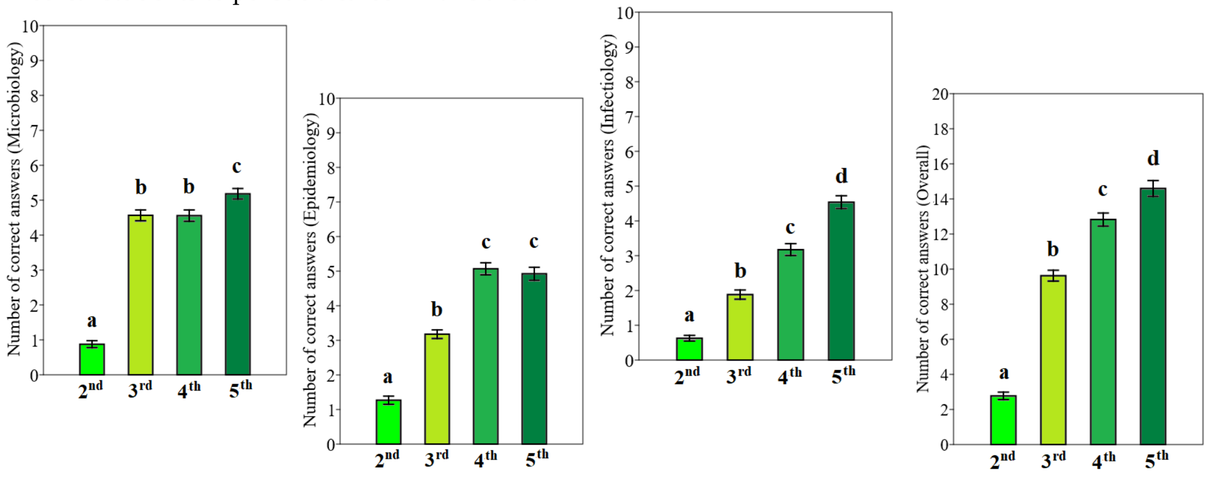

Figure 1. Number of correct answers of the 2nd to 5th year medical students from different topics and overall [mean ± SE] The bar charts represented by different letters (a-d) indicate significant differences (Mann-Whitney post-hoc test, p<0.05)

Methods

A self-administered, 47-item questionnaire was developed by an expert panel, including questions on demographic characteristics, source of knowledge on antimicrobials, knowledge-level (30 items, three different subject areas) and attitudes (10 items). Following instrument development, pilot testing was performed among junior doctors at the Faculty of Medicine, University of Szeged, between January-December 2018. Descriptive statistics and nonparametric tests were performed by IBM SPSS Statistics 22.0. Internal consistency measures (Cronbach's α, Kuder–Richardson KR-20) and the test-retest analysis both showed acceptable reliability. Based on the responses to the questionnaire, an attitude score (0-7) was determined. The study protocol was approved by the Human Investigation Review Board at the University of Szeged (Registration number: 3930 [16/2017]). Participants provided an informed written consent.

Results

Among the n=146 respondents, 57.5% (n=84) has polled female, with an average age of 29.1±3.2 years. 41.8% (n=61) and 42.5% (n=62) of respondents cited the Internet and scientific papers as relevant sources of information, respectively. 71.2% (n=104) were satisfied with their academic achievements during their graduate studies. The number of correct answers among the re-spondents were 15.5±3.8 overall (range: 2-22), 36.3% did not reach an acceptable (≥15) score. Number of correct answers from the respective subject areas were: medical microbiology 6.0±1.8, epidemiology/infection control 5.4±1.7, and infectology 4.3±1.6. Good academic achievements corresponded to better results in the knowledge-based questions (13.7±3.7 vs. 16.3±3.6; p<0.001). Spearman-correlations were significant among the number of correct an-swers within the individual subject areas and with the overall number of correct responses. 95.1% of residents presented with an appropriate attitude (score≥5), while no correlation was shown between attitude scores and knowledge levels.

The study also involved 570 medical student respondents. 67.2% of the respondents polled female, with an average age of 23.45±2.59 years. 58.1% of medical students were aware of the medical field in which they want to work in, with students in their clinical modules in majority (p<0.001).

	2nd year	3rd year	4th year	5th year	Residents
N=570	152	137	120	104	57
Average age (years±SD)	21.33±0.99	21.49±1.44	23.71±1.64	23.65±1.24	29.73±2.73
Satisfaction with (past) academic achievements	53.2%	36.5%	75.9%	70.2%	68.4%
Involvement in undergraduate research	32.9%	12.4%	34.3%	44.2%	63.2%

Conclusions

Our instrument may be an effective tool for the identification of knowledge gaps related to infectious diseases among young prescribers in the early years of their professional career. Our results suggest the need for the implementation of novel teaching methods and curriculum improvement related to the topics of infectious diseases and antimicrobial chemotherapy. More than half of the respondents cited the internet as a relevant source of knowledge in this area, which carries a risk (using unreliable sources), but could become a target of interest in an educational reform.

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