

Attitudes toward professionalism in medical students and its associations with personal characteristics and values: what actually makes a difference? [Response to Letter]

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Dear editor

On behalf of all authors, it is a great joy to explain our views and concept to interested readers.

In the article "Attitudes toward professionalism in medical students and its associations with personal characteristics and values: a national multicentre study from Slovenia raising the question of the need to rethink professionalism" we aimed to find out whether personal values and basic personality traits are associated with attitudes toward professionalism in medical students. The broader topic of our research interest was whether it would be possible to affect attitudes through values, taking into account that late adolescence/young adulthood is developmentally a very challenging phase of life. Specifically, the study years are known as an important period of transition from adolescence to young adulthood which can very often be difficult, due to interactions between an individual's psychological characteristics and common stressors such as academic demands, changes in lifestyle, moving away from home, separating from family, inadequate living conditions, physical and emotional problems, and financial concerns. Aside from personality, coping, motivation, and approach to learning were also characteristics shown to partially predict future professional performance, so that university faculty members should become better role models and inspire their students and peers.

In our study, only the value profession/work remained significant after modeling, showing that this value must be important for students of medicine to deal with the heavy burdens and requirements of medical studies. It also shown that students are aware that the profession they are being trained for is labor-intensive. However, as this was a cross-sectional study, no firm conclusions were drawn and further studies should be done in this area. The results presented in the article are part of a longitudinal study.

In their Letter to the Editor of the *Advances in Medical Education and Practice* Journal, Kiran Pillai, Muhammed Kermali, and Ahsan Rashid, medical students at St George's, University of London, proposed that the authors should have (i) split the national sample and analyzed samples from two faculties separately, (ii) adapted the questionnaire to reduce the approximate completion time, in order to increase

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the response rate, and (iii) used the Perceived Faculty Competency Inventory which might be more appropriate in assessing professionalism. Aside from that, the medical students mentioned that nurses who participated in professional ethical training scored higher in professional values.

With regard to the Letter to the Editor, we find it important to address several issues.

Firstly, we believe it is necessary to emphasize that the study under discussion was a part of a nationwide, ongoing, longitudinal study on professionalism in undergraduate medical students, which began in the academic year 2016/2017. The six-year study was designed to explore whether personal values and basic personality traits predict attitudes toward professionalism in medical students, and whether it would be possible to affect attitudes through values. The recognized, yet not controlled for, factor of the utmost importance was the developmentally very challenging phase of life that late adolescence/young adulthood is. The cross-sectional survey design is inherently limited, and only after the conclusion of this study will it be possible to identify a reliable enough pattern of associations between the variables of our research interests.

Secondly, the authors would like to emphasize discipline in the use of proper terminology as a prerequisite to any professional discussion: the dependent variable was attitudes toward professionalism, and not professionalism itself, a possibly quite vague concept. Attitudes toward professionalism were defined as a combination of evaluation, emotion, and cognition in relation to different social situations and objects, functioning as a permanent readiness to behave in a certain manner. The authors are very well aware of the social learning origin of this phenomenon and clearly stated that attitudes are formed through interactions in social environments and are associated with the behavior of individuals, with this association running both ways, ie, with attitudes leading to behavior, and behavior (experience) affecting attitudes. Hence, we were exploring attitudes; it is not accurate to address professionalism itself as an object of this research.

With regard to sampling, it is important to explain that all the medical students enrolled in the fourth and sixth (final) years at both faculties of medicine in Slovenia were invited to participate. They were provided with an explanatory statement and explanation of the instrument and were informed that participation was voluntary. In the year of data collection (2016–17), 207 students were enrolled in the 4th year and 211 in the 6th year at the

Faculty of Medicine in Ljubljana, while in Maribor there were 91 students in the 4th year and 67 in the 6th year. Of the 576 invited students, 323 participated in the study (56.1% response rate). The Letter to the Editor stated that the larger sample size from the Faculty of Medicine in Ljubljana could have skewed the results, but in fact there was a better response rate in Maribor. At the Faculty of Medicine in Ljubljana, 206 out of 416 students participated (49.5% response rate), and at the Faculty of Medicine in Maribor, 117 out of 158 participated (74.1% response rate). This comment will be taken into consideration alongside the future data collections and the response rate at follow-up.

This was the first national study dealing with medical students' associations between attitudes toward professionalism, personal traits, values, family background, and previous experience with physicians, and not a study focused on differences between the two medical schools in Slovenia. Using the G*Power software (version 3.1.9), the total sample of 323 students was calculated to have a >95% power to detect a significant association for linear regression (using an alpha of 0.05, considering 40 predictors, and assuming a medium effect size of 0.15). The Fisher Exact Test was used to explore the demographic differences between the two Slovenian faculties of medicine, and there were none. The response rate was mentioned as a limitation of this study in the article. In the Ljubljana Faculty of Medicine, the response rate was lower than in the Maribor Faculty of Medicine, which could be a source of selection bias, as the authors were very well aware. However, taking into consideration the research design, selected predictors, national consensus on the research topic, and the feasibility, the research design was accepted as presented in the article.

We agree with the idea that possible differences in teaching between the two faculties might have shaped students' attitudes toward professionalism. The teaching methods will be the object of other studies, given that this study's aim was focused on exploring hereditary traits in association with attitudes. Of the background variables, only gender was significantly associated with attitudes toward professionalism, which was concordant with previous research in Slovenia and mentioned in the article.

The length of the data collection, ie, the fact that the questionnaire required 45 mins to complete, was noted in the Letter as being a significant amount of time for students to dedicate to an optional questionnaire. Given that

the data collection took part within tutorial hours, we believe the feeling must not have been of a total waste of time. Furthermore, a selection bias might have been due to students missing a lecture, and not due to their unwillingness to cooperate. In fact, the students who were present participated willingly. Thus, the idea that it is entirely possible that those who gave consent tended to have a shared characteristic is in fact very accurate. It is a challenge for future data collections to hit a time when most students appear in class. As for the length of the instruments, i.e. inventories and scales, is concerned, these authors identified instrumentation with the best metric characteristics available and adopted in Slovenia. We also bear in mind that when the length of a test is changed, its reliability would be affected.

On the other hand, we had decided to monitor 40 predictors for a period of 6 years; to be able to assess such a large amount of data, a shorter data collection time was shown to be completely unrealistic. The instrumentation concerns are rejected by the authors' very strong belief that the selected instruments have been shown to have good metric characteristics and are also very well accepted and used in the psychological profession not only in Slovenia, but also in the region.

We acknowledge the concerns raised about the use of the Scale for Assessment Attitudes toward Professionalism (PAS). There may have been better approaches to assessing attitudes toward professionalism, as clearly explained by Barnhoorn,¹ who also raised the question of whether beliefs about professionalism are synonymous with professionalism. Our understanding was that values act as motivators and drive certain behavior. We were also very well aware of the fact that behavior was shown to be determined not only by values but by environmental factors and the students' characteristics. However, the PAS, consisting of 22 items, was shown to be reliable and valid when assessing attitudes toward professionalism in undergraduate medical students, and so we decided to use it. Aside from that, our decision about the PAS was based on several other factors: (i) its development was based on students' opinions and attitudes toward professionalism; (ii) the scale was developed in the Slovene language and needed no semantic and cultural equivalence adaptation; and (iii) no other instrument for attitudes toward professionalism to this

date exists in Slovene. Specifically, the same research in Slovenia² showed that cultural adaptation instruments developed in other languages do not guarantee good metric characteristics in Slovene.

Finally, regression modeling explained only 36% of the variance of attitudes toward professionalism; in the Letter to the Editor, it was stated that there may be other factors that influence professionalism which have not been evaluated in the study. Colleagues are invited to focus on the explanation in the article which states that the stability of the associations should be analyzed in future research, and more variables should be included to expand the explained variance, especially to reveal as yet unrecognized determinants of attitudes toward professionalism. Given that only 5% of the variance was covered by personality, we concluded that in further study designs hereditary factors need to be sampled again to test the stability of this finding. Our initial hypothesis was to assess the association between the two, i.e. personality characteristics and attitudes. Although the concept of professionalism includes clinical excellence, the focus of this research was the personal aspect. Moreover, the study itself showed that personal characteristics and values are important in students' attitudes, which affect behavior.

At this phase of our study, we could assume that strengthening attitudes toward professionalism in students would receive the most benefit from social learning interventions. These interventions are yet to be explored, monitored or evaluated.

Disclosure

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