

Is internship training counterproductive for emotional intelligence? A follow up study in a cohort of medical graduates in Sri Lanka

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Abstract

Introduction: Even though emotional intelligence (EI) has gained lot of attention globally, there is scarcity of such data from Sri Lanka. We aimed to determine the effect of internship training of medical graduates on EI.

Methods: This is a descriptive follow-up study in a cohort of medical graduates of a Sri Lankan university who participated in a baseline study that assessed their EI during pre-intern period. Follow up data were collected within 3 months of successful completion of internship. EI was assessed with self-administered Genos Emotional Intelligence Full Version (70 questions equally weighted: total score 350). Demographic and internship-related data were obtained using a self-administered questionnaire.

Results: Of 130 eligible post-interns, 88 responded (response rate-67.7%). 67% were women, mean age was 28.3 ± 0.9 years. Post-intern mean EI score was significantly lower than the pre-intern score (232.7 ± 14.9 vs 241.7 ± 23.3 ; $p=0.004$). Compared to pre-intern EI, post-intern EI has improved in men but has deteriorated in women (change in EI score: 2.1 ± 37.2 in men; -14.5 ± 22 in women; $p=0.01$). There was no statistically significant difference in the change in EI based on final MBBS result, marital status, specialties chosen for internship, type of hospital (teaching vs non-teaching) or unit (professorial vs non-professorial) where internship was done, number of co-house-officers or presence of post-graduate trainees in the unit.

Conclusions: In the study population, EI has significantly deteriorated during internship training. Overall deterioration was mainly due to the reduction of EI in women. Introducing programmes to improve EI of junior doctors is as important as improving clinical knowledge and skills.

Key words: emotional intelligence, internship training, medical graduates, Sri Lanka

Introduction

Emotional intelligence (EI) is defined as “the ability to monitor one’s own and other people’s emotions, to discriminate between different emotions and label them appropriately, and to use emotional information to guide thinking and behaviour and to manage and/or adjust emotions to adapt environments or achieve one’s goals”.¹ The two aspects of emotional intelligence are interpersonal and intrapersonal intelligence. Interpersonal intelligence is useful to understand and manage relationships with the other people which in turn helps to develop qualities like empathy and to build up positive relationships. Intrapersonal intelligence is used to become aware and to understand oneself. This kind of self-awareness is important for self-regulation and self-motivation. A higher EI is likely to be associated with a greater ability to understand, regulate, and manage emotions related to oneself and the others.

Evidence from different populations indicate that EI has a positive impact on academic and professional success in the field of medicine and others.²⁻¹² Previous

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studies have shown that EI is associated with improved empathy during medical consultation,¹³ better doctor-patient relationships,¹³ better clinical performance,^{14,15} and higher patient satisfaction.¹⁶ These findings highlight the importance of EI in making a competent and well-balanced doctor who looks after the overall well-being of the patients. Furthermore, EI is important for better self-care of doctors who constantly face emotionally demanding situations.

Even though EI has gained a lot of attention with regard to academic and work performance globally, there is scarcity of such data from Sri Lanka. We planned a study to evaluate the effect of internship training on EI in a group of Sri Lankan doctors. Determining the effect of internship training on EI and identifying the factors associated with changes in EI are important for developing strategies to improve EI in doctors in Sri Lanka.

Methods

This was a descriptive follow up study with pre and post exposure data collection. The participants were post-intern medical officers graduated from a medical faculty in Sri Lanka who had already participated in the baseline study during their pre-intern period. All those who were registered at the selected medical faculty and sat for the final MBBS examination in their first attempt in January 2016 were eligible for the baseline study. Detailed methodology of the baseline study is already published.⁹ The inclusion criteria for the follow up study were being a participant of the baseline study conducted in 2016, successful completion of internship within 3 months and availability of meaningful consent. Exclusion criterion was the inability to complete the internship successfully.

Written informed consent was obtained from all participants prior to recruitment. The ethical approval for the study was obtained from Ethics Review Committee of the Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka (Ref. No. 79/17).

Sampling

Consecutive sampling was done. All participants of the pre-intern baseline study were invited to join the post-intern follow up study. The number of participants of the baseline study was 130.

Study instruments

EI was assessed with self-administered Genos Emotional Intelligence Full Version (Genos EI

inventory).¹⁷ Prior permission was obtained to use this tool for research purposes. It was administered in the original language which was English. This tool has seventy items in seven different domains of EI. It quantifies how frequently a person behaves in an emotionally intelligent manner. The seven domains include: emotional self-awareness, emotional expression, emotional awareness of others, emotional reasoning, emotional self-management, emotional management of others and emotional self-control. The items are scored on a five-point Likert scale, consisting of 'Almost Never', 'Seldom', 'Sometimes', 'Usually' and 'Almost Always'. The maximum score for each item in this 70-item tool is 5. The maximum total score is 350 and maximum score for each domain is 50.¹⁷ A self-administered questionnaire was used to collect the sociodemographic details and the details related to the internship appointments. The data related to EI scores of the same cohort collected in the pre-intern period by the investigators were used for the comparison between pre-intern and post-intern EI.⁹

Data collection procedure

The potential participants were contacted via email and telephone and invited to participate in the study. The electronic versions of the study instruments (as google forms) were sent to the potential participants via email. The participants were assigned the same study number they had for the baseline study. The participant information sheet and the consent form were also incorporated into the electronic form along with the study instruments. In the electronic form the participant information sheet and the consent form appeared before the study instruments and those who were consenting were able to proceed to complete the study instruments. The facility to clarify queries related to the study was made available to all participants.

Statistical analysis

Data collected via the electronic forms were transported to SPSS for analysis. Data analysis was done with SPSS version 21. Percentages and means were used to describe sociodemographic characteristics and EI scores. The paired sample t-test was used to compare the means of the pre-internship and post-internship EI scores. The independent sample t-test was used to compare the change in the mean EI scores based on the internship related factors, final MBBS result and the marital status when there were only two groups and ANOVA was used when there were more than two groups. P value less than 0.05 was considered statistically significant.

Results

Out of 130 eligible individuals, 88 participated in the follow-up study (response rate 67.7%). 67% were women and the mean age was 28.3±0.9 years. Overall, the post-intern total EI score was significantly lower than the pre-intern total EI Score. (post-intern:

232.7±14.9; pre-intern: 241.7±23.3; p=0.004). Gender wise analysis showed that compared to pre-intern mean EI score, post-intern mean EI score has improved non significantly by 2.1 marks in men but has deteriorated significantly by 14.5 marks in women (Table 1).

Table 1. Pre and post-intern total EI score in men and women

	<i>Pre-intern EI score</i>	<i>Post-intern EI score</i>	<i>Change in EI (95% CI)</i>	<i>P value</i>
Men (n=29)	235.6	237.7	2.1 (-12.0 to 16.3)	0.759
Women (n=59)	244.7	230.2	-14.5 (-20.2 to -8.7)	<0.001
Overall (n=88)	241.7	232.7	-8.9 (-15.1 to -2.9)	0.004

EI = Emotional intelligence

The domains which had a significant deterioration between pre- and post-intern scores were emotional self-awareness, emotional awareness of others, emotional management of others and emotional self-control. It was most prominent with regard to emotional awareness of others (Table 2).

Table 2. Pre and post-intern EI score in the seven domains

<i>EI Domain</i>	<i>Pre-intern EI score</i>	<i>Post-intern EI score</i>	<i>Change in EI (95% CI)</i>	<i>P value</i>
Emotional Self-Awareness (ESA)	36.8	35.8	-1.0 (-1.6 to -0.5)	<0.001
Emotional Expression (EE)	32.6	33.0	0.4 (-0.3 to 1.1)	0.217
Emotional Awareness of Others (EAO)	35.4	29.9	-5.5 (-6.0 to -5.0)	<0.001
Emotional Reasoning (ER)	34.6	35.0	0.4 (-0.3 to 1.2)	0.229
Emotional Self-Management (ESM)	33.3	33.9	0.6 (-0.1 to 1.2)	0.079
Emotional Management of Others (EMO)	35.5	34.0	-1.5 (-2.0 to -0.9)	<0.001
Emotional Self-Control (ESC)	33.4	31.2	-2.2 (-2.9 to -1.5)	<0.001

EI = Emotional intelligence

There was no statistically significant difference in the change in mean EI score between pre-intern assessment and post-intern assessment based on internship related factors, final MBBS result or marital status (Table 3).

Table 3. Change in total EI score based on internship related factors, final MBBS result and social status

		<i>Pre-intern EI score</i>	<i>Post-intern EI score</i>	<i>Change in EI (95% CI)</i>	<i>P value</i>
Type of hospital:	teaching hospital (n=39)	243.5	231.9	-11.6	0.457
	non-teaching hospital (n=49)	240.3	233.3	-7	
Type of training unit:	both appointments at professorial units (n=7)	252.4	227.7	-24.7	0.118
	one appointment at a professorial unit (n=13)	235.6	238.3	+2.7	
	no appointment at a professorial unit (n=68)	241.8	232.2	-9.6	
Number of co-house officers:	first appointment 1 (n=19)	248.4	234.6	-13.8	0.415
	>1 (n=69)	239.8	232.2	-7.7	
	second appointment 1 (n=13)	252.3	235.9	-16.5	0.313
	>1 (n=75)	239.9	232.2	-7.7	
Postgraduate trainees in the unit:	first appointment yes (n=45)	243.6	233.1	-10.5	0.620
	no (n=43)	239.7	232.3	-7.4	
	second appointment yes (n=41)	244.3	231.3	-13	0.221
	no (n=47)	239.4	233.9	-5.5	
Specialty: first appointment	Medicine (n=31)	245.2	229.7	-15.5	0.287
	Surgery (n=20)	243.3	233.1	-10.2	
	Paediatrics (n=19)	239.4	233.3	-6.1	
	Obstetrics & Gynaecology (n=18)	236.3	236.9	+0.6	
	second appointment Medicine (n=31)	243.3	233.9	-9.4	
	Surgery (n=20)	241.1	232.3	-8.8	
	Paediatrics (n=19)	239.6	233.1	-6.5	
	Obstetrics & Gynaecology (n=18)	242.9	232.1	-11.8	
Final MBBS results category:	non-repeat (n=77)		244.2	233.3	-10.9
	repeat (n=11)	224.6	228.9	+4.4	0.100
Marital status: married (n=34)		240.9	228.5	-12.4	0.379
	unmarried (n=54)	242.9	235.4	-6.8	

EI = Emotional intelligence; MBBS = Bachelor of Medicine Bachelor of Surgery

Discussion

We found that in the study population, EI has significantly deteriorated during the internship training. When we looked at the gender-based changes in EI score it was apparent that the overall deterioration was mainly due to the significant reduction of EI in women. In men there was a non-significant improvement in the EI.

One might expect the EI to improve with experience gained during internship training as there is ample opportunity to be exposed to emotionally demanding situations in the interactions with the patients, care givers and members of the healthcare team. It was expected that the training and guidance provided by the senior members of the health care team would contribute to improved EI. What we actually observed in the majority of the study participants was the opposite. The EI deteriorated during the internship.

Literature provides evidence to indicate that there is a negative correlation between stress and EI.^{10,18-26} Some studies have interpreted this as EI being protective against stress.^{19,21,25} However, it is difficult to interpret the cause and effect with cross-sectional studies. Theoretically an individual with a higher level of EI is more likely to show an adaptive response to a stressful situation. On the other hand, there is a possibility of EI deteriorating with high level of stress. A systematic review by Lea et al. has reported that EI was adaptive in certain circumstances only, and that findings varied based on the type of stress.²⁷

High level of stress is a likely cause for the deterioration in EI we observed in this study. The internship is a stressful period for the new medical graduates as a result of multiple reasons including limited experience, high workload, long working hours and sleep deprivation. It is possible that the EI of the participants deteriorated due to the work-related stress experienced during the internship. A previous study including postgraduate medical students in India has shown that EI decreases with high workload, having night duty hours and having emergency duty.²⁸ Another study done in medical postgraduates in India has reported that those who had less work load, had higher EI scores.²⁹

We observed a gender-based difference in changes of EI between pre and post intern periods. It is possible that men and women respond to stress differently, and the different responses could be the reason for the deterioration of EI in women compared to men. In literature, gender has been described as an important determinant of vulnerability to psychosocial stress.^{30,31} Men and women tend to have psychological and biological differences with regard to stress

reactivity.^{32,33} Prior studies have shown various gender-based differences that increase endocrine, emotional, and arousal responses to stress in women making them more vulnerable to emotional distress.³⁴ Cyranowski et al has proposed that women are more likely to be negatively affected by interpersonal events.³⁵ During the pre-intern period women had a significantly higher EI score than men.⁹ However, in the post-intern follow up study, deterioration of EI was observed in women but not in men. This finding raises the question whether those with higher EI are more vulnerable to deterioration of EI as a response to stressful situations.

Contrary to what we believed, the nature of the training unit, number of co-house officers or presence of post-graduate trainees in the unit did not have a significant impact on the change in EI. There was no difference in the change in EI based on the specialty of the unit where internship was done, the performance of the participant at the final MBBS examination and the marital status.

It has been previously reported that EI has a positive impact on empathy, doctor-patient relationship, and clinical performance.¹³⁻¹⁵ Previous studies have also shown that higher level of EI is associated with better physical and mental health,^{36,37} lower anxiety and depression in adolescents³⁸ and adult students.³⁹ Thus, it is likely that the deterioration in EI during internship has negative implications such as poor work performance, lack of empathy, poor interpersonal relationships with patients as well as with other members of the healthcare team and being victimized to burnout, anxiety and depression. The most prominent deterioration in the study population was in the domain "emotional awareness of the others". This is likely to affect empathy which is an essential quality for a doctor.

Attention needs to be paid to seek methods to prevent deterioration and to further improve EI of these young doctors who are just beginning their career. EI can be improved through training. A few studies from developed countries have shown that various training strategies have enhanced EI and positively influenced health care outcomes.⁴⁰⁻⁴⁴

Introducing programmes to improve EI is as equally important as improving the clinical knowledge and skills in order to produce well-balanced doctors who are competent at practicing the science as well as the art of medicine. Identifying the reasons for the deterioration in EI during internship is another important aspect which is essential for planning remedial measures. A qualitative study might be useful to explore and understand these reasons better.

Our study had a few limitations. One major limitation was that we did not objectively assess the stress level of the participants in the pre- and post-intern periods. It limits our ability to correlate the level of EI with the level of stress. If we had a qualitative component to the study, we could have had a better understanding of the reasons for deterioration in EI. This was another limitation. Furthermore, our study participants were medical graduates of a single university. Thus, the generalizability of the study findings is limited.

Conclusions

In the study population, EI deteriorated significantly during the internship training. The observed overall deterioration was mainly due to the significant reduction of EI in women. Final MBBS results, marital status, and the internship related factors such as the training unit, specialty, number of co-house officers or presence of postgraduate trainees did not have a significant impact on the change in EI. Introducing programs to improve EI of junior doctors is as equally important as improving the clinical knowledge and skills.

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Conflicts of Interest

There are no conflicts of interest.

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