**Ind. J. Pharm. Edu. Res., 2024; 58(2):671-678.**
https://www.ijper.org

Original Article

# Emotional Intelligence and Perceived Stress in Pharmacists Completing Post-Graduate Specialization Programs: A Cross-Sectional Study

**Dejan Senćanski*, Valentina Marinković, Andrijana Milošević Georgiev, Ivana Tadić**

Department of Social Pharmacy and Pharmaceutical Legislation, Faculty of Pharmacy, University of Belgrade, Belgrade, SERBIA.

## ABSTRACT

**Background:** Emotional Intelligence (EI) has been recognized by the International Pharmaceutical Federation as a required competency for a pharmacist. This study aimed to compare EI and Perceived Stress (PS) levels in pharmacists who completed the post-graduate specialization program (the Case), and pharmacists who started the program (the Control group). **Materials and Methods:** Validated instruments measuring EI and PS were distributed online to participating postgraduates or alumni. All complete responses were analyzed; data from participants who had undergone previous EI training were excluded. Comparing the groups, additional EI domains' subanalysis and their correlations with PS were made. **Results:** The overall response rate was 67.8%. There was no expected difference between the groups either in EI or in the PS levels, and the overall population reached means of 119.30±12.92 and 17.25±6.46, respectively. The highest EI levels were found in sales and marketing professionals in the pharmaceutical industry and the lowest in clinical pharmacy practitioners. EI and PS were highly negatively correlated ($r$=-0,543), thus indicating that developing EI may have protective effects against stress. Subanalysis revealed the highest potential for stress-protective effects in the Emotional Self-Management and Emotional Self-Control subdomains ($r$=-0,528, $r$=-0,457, respectively). **Conclusion:** Given the expanded importance of EI development in pharmacy practice, the results of the study could be a basis for the specialization and continuing pharmacist education program creators to evaluate the curricula and propose changes in the methodologies, contents, and approaches in work to meet development needs of post-graduate pharmacists better. Further research should confirm the findings of the EI subanalysis.

**Keywords:** Emotional Intelligence, Perceived Stress, Pharmacy, Education, Specialization.

**Correspondence:**
**Mr. Dejan Senćanski**
Faculty of Pharmacy, University of Belgrade, Belgrade, SERBIA.
Email: dejan.sencanski@lns.rs

**Received:** 07-07-2023;
**Revised:** 05-09-2023;
**Accepted:** 09-01-2024.

## INTRODUCTION

The role of a pharmacist has become increasingly complex. Clinical pharmacists in any of the settings have a task to contribute to achieving both person-centered and broader public health goals.[1] Their roles have been particularly evolving in the primary settings, where they need to act as a primary care focal point and provide personalized care plans deriving from interprofessional collaboration, which they ought to successfully manage.[2] Furthermore, clinical pharmacists need to develop strong cognitive, interpersonal, managerial, and leadership capabilities to excel in their roles.[1,2]

Emotional Intelligence (EI) has been recognized to contribute strongly to pharmacists' success.[3] EI may contribute to the development of good interpersonal relationships, enhance pharmacists' leadership capabilities, better occupational stress management, psychological well-being, and pharmacists' performance, and improve entrepreneurial orientation in practicing pharmacists.[4-7] In addition, EI positively correlates to the job performance of pharmaceutical sales professionals (sales representatives).[8]

In 2020, the International Pharmaceutical Federation (FIP), issued Version 2 of the behavioral competency framework to support "the development of foundation and early career pharmacists".[9] The Global Competency Framework (GbCF) contains four clusters focused on pharmaceutical public health, pharmaceutical care, organization and management, and professional and personal competencies.[9] EI competencies have been spread over the entire framework, and in cluster four, within competency 4.5. "Leadership and self-regulation", emotionally intelligent behaviors have been explicitly mentioned (i.e. ability to "recognize and describe emotional information about self and others: self-awareness, self-regulation, motivation, social skills,

**DOI:** 10.5530/ijper.58.2.75

and empathy").[9] Furthermore, within the same competency, the "ability to recognize when affected by setbacks or stress and manage with effective coping strategies (resilience)" was desired. Several previous studies found that developing EI and resilience may contribute to better stress management among students in higher education.[10,11]

The GbCF document derived from the FIP Nanjing Statements (NS) provided a vision of global pharmacy education.[12] In the US, Law *et al*. evaluated national pharmacy education curricular standards against the NS and found 83% and 94% to be the highest matches in statements of individual NS clusters.[13] However, another research demonstrated that the US curricula were significantly more loaded with patient-centered courses than the European ones.[14] A study capturing perceptions of 16 European students' representative associations about the preparedness of future pharmacists to perform clinical pharmacy activities found that most respondents felt either unprepared or had neutral opinions about it.[15] Their perceptions about the provided education and whether it met the clinical practice requirements were consequently aligned. The highest perceived preparedness for clinical pharmacy practice was found among the UK and the lowest among the Serbian students.[15]

Studies on EI and pharmaceutical practice are limited in scale and scope.[7,16] Our previous research revealed no difference in EI levels among practicing pharmacists delivering and not delivering a new standardized service in a primary healthcare setting, thus suggesting that Continuing Pharmaceutical Development (CPD) and certification programs might improve in line with the GbCF.[17] On the other hand, EI and Perceived Stress (PS) were negatively correlated in the overall study population, which may suggest that targeted EI development programs within the education courses may increase pharmacists' stress management capabilities.[17]

The NS Cluster 8 proposes that pharmacy schools should support CPD to prepare graduates for future, more demanding practice roles.[12] EI has only been studied in the CPD setting in the American Society of Health-System Pharmacists Research and Education Foundation's Pharmacy Leadership Academy.[5] To our knowledge, EI has not been studied in the population of pharmacists completing a post-graduate academic specialization program. Postgraduate academic specialization programs at the University of Belgrade-Faculty of Pharmacy were designed to align students' competency levels with the practice demands.[18]

## MATERIALS AND METHODS

### Aim

The study aimed to determine whether there are differences and correlations in EI and PS levels between pharmacists who completed and those who enrolled in an Academic Specialization Program (ASP).

### Ethics approval

The Pharmaceutical Chamber of Serbia Ethics Committee (EC) approved the study protocol (No. 262/5-2-2, dated November 4th, 2021). As approved by the EC, study participants gave informed consent to participate and confirmed that all the provided data could be used exclusively for research purposes.

### Study design, sampling, and recruitment

The study was performed as a cross-sectional study comparing two groups of pharmacists, the case group-ASP graduates (alumni, graduation years 2017-2021) and the control group-newly enrolled ASP students (academic year 2021-22). The purposeful sampling method was applied, as the list of potential study participants was obtained from the Faculty of Pharmacy database.

The sample size was calculated for the two independent samples t-test and was estimated at $\alpha$=0.05 and a power of 80%. For a representative sample, 34 participants were needed in each study group (calculated using the 0.5 criteria for the estimated effect size).[19,20]

### Inclusion and exclusion criteria

The inclusion criterion for both groups of participants was the provided informed consent. Exclusion criteria for both groups were earlier participation in EI development programs. Incomplete surveys were also excluded from the analysis.

### Instruments

The Genos Emotional Intelligence Inventory Concise Version instrument was used, as it was developed to measure EI levels mainly in the workplace.[21] It is a self-assessment questionnaire with 31 items that form 7 EI subdomains: Emotional Self-Awareness (ESA), Emotional Expression (EE), Emotional Awareness of Others (EAO), Emotional Reasoning (ER), Emotional Self-Management (ESM), Emotional Management of Others (EMO) and Emotional Self-Control (ESC).[21] This ability-based, well-validated instrument contains behavioral statements that one ought to agree to a certain degree on a 5-point scale. It has been recommended as one of the tools to be used in EI research in pharmaceutical education and practice.[22] The Serbian version of the Genos EI instrument has been fully validated following ISPOR guidelines.[17,23]

The Perceived Stress Scale (PSS) was used to measure PS. It is a 10-item questionnaire that captured how the participants felt or thought in a certain way over the month and marked it on a 5-point ordinal scale.[24] The PSS 10 statements form the positive and negative subscales.[24] Translation, cultural adaptation, and full validation of the Serbian version of the PSS were published in 2015.[25]

In addition to the EI and PS measuring scales, a demographic questionnaire was circulated to all study participants. It contained

questions related to general, personal data (age, gender, work experience, and previous EI training) and data about their practice (type, position, number of direct reports).

### Data collection

The survey was distributed electronically via the Survey Methods platform in December 2021.[26] Study participants received invitations via e-mail with a personalized link to access the survey, which could only be completed once. The invitations contained all necessary study information, including ethical and informed consent information. A 3-day reminder was sent automatically in case of no response to the invitation.

### Data Analysis

To analyse the data SPSS v.18 (SPSS Inc, Chicago, IL, USA) was used. Descriptive statistics were used to analyze demographic and other primary participants' data, including means and Standard Deviations (SD), frequencies, and ranges. Depending on the data distribution, various tests were applied to test the differences between the groups. Independent Samples T-test, or Mann-Whitney U Test, was used to compare continual data. In addition, the Chi-square test, One-way ANOVA, or Kruskal-Wallis analyses were exercised where appropriate. The correlations were tested by computing Pearson's or Spearman's coefficients. To better understand the clinical significance of the obtained results, the effect size calculations were made as Cohen's *d, r, φ*, and $\eta^2$, for all of the mentioned tests. Cohen's conventions were used to describe the size of the effect for *d*: 0.2, 0.5, 0.8; for *r, φ*, and *ρ*: 0.1, 0.3, 0.5; for $\eta^2$: 0.01, 0.06, 0.14, being small, medium and large, respectively.[19]

Internal consistency of both instruments was tested by computing Cronbach's alpha coefficient, thus considering the scores of ≥0.7 to demonstrate good reliability.[27] The EI and PS scores were calculated by summing up individual item scores. The scores of negatively formulated items were recorded before the analysis.

Our primary hypothesis and expected outcomes were that the case group's participants should have higher EI levels due to the assumed impact of academic and related professional development. EI and PS levels should be negatively correlated.

## RESULTS

A total of 185 participants were invited to take part in the study. In the case group, out of 132 invited participants, two refused to participate, and 75 completed the survey (57.7 % response rate). In the control group, out of 53 invited students, 49 completed the survey (92.4% response rate). Data from 2 incomplete surveys were eliminated in the case and 1 in the control group. Additional four sets of the results were not analyzed from the control group, as the inclusion criteria of not having EI training before the survey were not met. Therefore, the data of 73 and 44 participants were analyzed in the case and control groups, respectively. As shown in Table 1, the groups differed by gender, age, years after graduation and experience, and the number of direct reports, though the effect size was either small or medium. Participants were well spread across different areas (categories) of pharmaceutical practice. The "Other" category (25.6%) comprised people in clinical trials, regulatory, and drug supply functions in contracting research organizations or the pharmaceutical industry. Participants residing and working outside Serbia represented 13.7% of the study population.

Internal consistency tests revealed Cronbach's Alpha coefficient values of 0.88 and 0.87, thus confirming the EI and PS instruments' reliability (respectively).

The EI and PS and their respective subdomain scores analysis revealed no statistical differences between the groups. Clinical significance existed at a small level for the EI construct, and the mean scores were higher in the Case group (Table 2).

In between the study groups, one-way ANOVA analysis demonstrated a statistically significant difference between means of the years of experience in the current position and PS (F=5.534, $p$=0.005, $\eta^2$=0.088), total work experience, and PS (F=2.787, $p$=0.044, $\eta^2$=0.069), and the hierarchical position (employee or manager) and EI (F=5.275, $p$=0.023, $\eta^2$=0.044). Although there was no statistical significance, the clinical one was demonstrated to a medium level between the factor Age Group and the EI score (F=1.723, $p$=0.150, $\eta^2$=0.058). The comparison of means demonstrated the lowest EI levels in the clinical pharmacy group and the highest among participants working in marketing and sales positions in the pharmaceutical industry (Figure 1a). Further ANOVA subanalysis was given in Figure 1b.

### EI and PS correlations

A strong negative correlation was demonstrated between EI and PS scores, with Pearson's correlation coefficient of r=-0.543 ($p$=0.000) in the overall study population. The plot of means demonstrating the correlation is presented in Figure 2.

Further correlation analysis was conducted to understand the impact of different EI subdomains on PS (Table 3).

Correlations between EI and PS were negative, statistically significant, and with a large effect size. The largest effect size of the EI subdomains and PS correlations was pronounced by the ESM subdomain, in both groups and the overall study population.

## DISCUSSION

The study revealed no statistically significant difference in EI and PS levels among groups of ASP graduates and newly enrolled students. Clinical significance was demonstrated to a lower level. The lowest EI means were found in Pharmaceutical Care practitioners, where one would expect to be among the highest.[3] In line with our previous research and the research of other authors, strong inverse correlations between EI and PS were

demonstrated-the higher the EI levels, the lower the PS.[7,17] This may suggest that EI development might be essential in building resilience to stress.

To the best of our knowledge, this is the first study to compare EI and PS levels amongst two groups of ASP post-graduate students. Hall *et al.*'s study with a similar design focussed on the Pharmacy Leadership Academy students only.[5] Furthermore, our study focused on the impact of different EI subdomains on PS, which had been studied to a very limited extent.[7,17]

The study has several limitations, from the cross-sectional design (lower generalizability) to the sampling method (potential selection bias and lower generalizability due to a smaller sample size, particularly in the subgroups). Given the nature of the instruments used, self-report biases cannot be ruled out. The lower generalizability of the study results may derive from the single-university design, although participants came from all over the country, with 13.7% of them from abroad.

The study found no difference in EI and PS levels between the case and control groups, thus confirming our previous findings that pharmaceutical professional development programs might need to be methodically modified or complemented with EI-targeted programs.[17] The small clinical significance that was found when comparing EI and PS levels in the two study groups might be attributed to the impact of age on EI, as demonstrated

**Table 1: Characteristics of participating specializing pharmacists (Control) and specialists (Case) and their workplaces.**

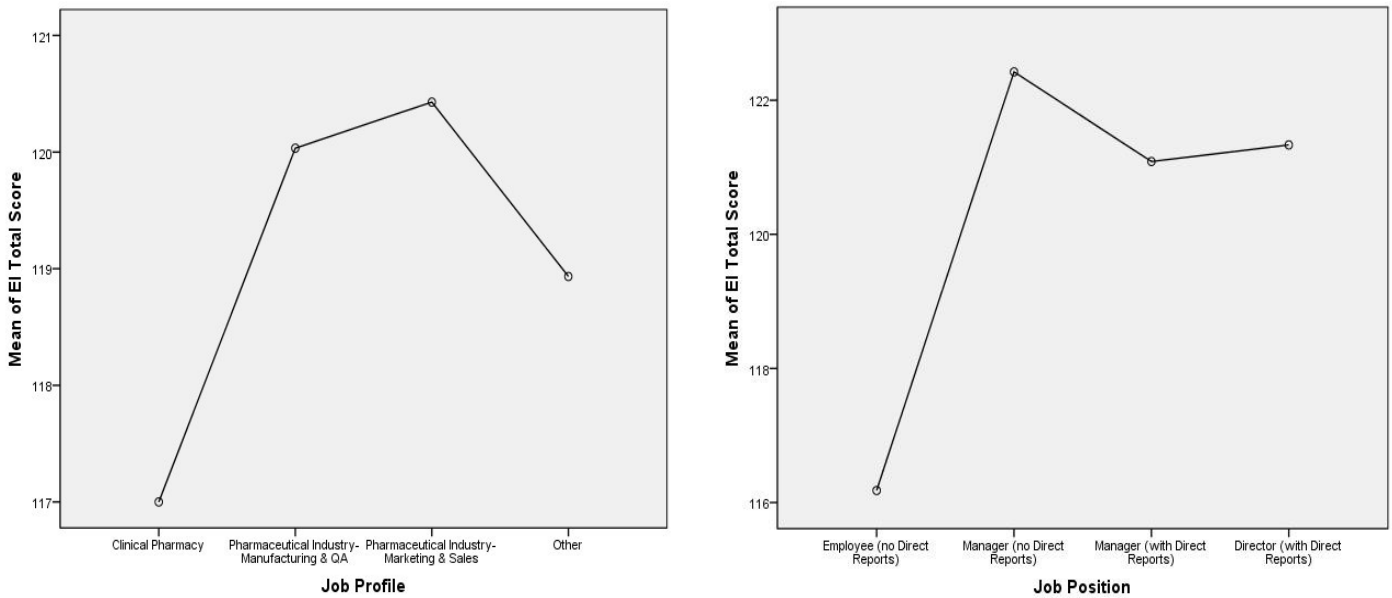
| Variable | Case (*n*=73) | Control (*n*=44) | Total (N=117) |
|---|---|---|---|
| **Gender*,** n (%) | | | |
| Female | 49 (67.12) | 38 (86.36) | 87 (74.36) |
| Male | 24 (32.88) | 6 (13.64) | 30 (25.64) |
| **Age**** in years, mean (SD), range | 37.99 (8.59),25-58 | 33.20 (6.79), 24-53 | 36.19 (8.26), 24-58 |
| **Experience*** in years, mean (SD), range | 12.22 (8.68), 2-34 | 8.47 (6.51, 1-28 | 10.81 (8.11), 1-34 |
| **Experience in current position,** n (%) | | | |
| ≤ 5 years | 52 (71.23) | 32 (72.73) | 84 (71.79) |
| 6-10 years | 14 (19.18) | 9 (20.45) | 23 (19.66) |
| ≥11 years | 7 (9.59) | 3 (6.82) | 10 (8.55) |
| **Years after graduation**,** mean (SD), range | 11.81 (7.71) 2-34 | 8.11 (6.09) 1-29 | 10.42 (7.34) 1-34 |
| **Specialization type,** n (%) | | | |
| Industrial Pharmacy and QP | 22 (30.14) | 21 (47.73) | 43 (36.75) |
| Pharmaceutical management and marketing | 51 (69.86) | 23 (52.27) | 74 (63.25) |
| **Job profile,** n (%) | | | |
| Clinical pharmacy | 13 (17.8) | 9 (20.4) | 22 (18.8) |
| Pharmaceutical industry-production and QA | 15 (20.5) | 15 (34.1) | 30 (25.6) |
| Pharmaceutical industry-marketing and sales | 27 (37.0) | 8 (18.2) | 35 (29.9) |
| Other | 18 (24.7) | 12 (27.3) | 30 (25.6) |
| **Number of Direct Reports*,** n (%) | | | |
| 0 | 44 (60.27) | 17 (38.64) | 61 (52.14) |
| 1-5 | 14 (19.18) | 17 (38.64) | 31 (26.50) |
| 6-10 | 9 (12.33) | 2 (4.55) | 11 (9.40) |
| 11-15 | 2 (2.74) | 1 (2.27) | 3 (2.56) |
| ≥16 | 4 (5.48) | 7 (15.91) | 11 (9.40) |

Note: Difference between groups, significance: *$P < 0.05$, **$P < 0.005$

**Table 2: Comparison of the emotional intelligence and perceived stress total and subdomain scores (mean±SD).**

| Construct Scores, Mean (SD) | Case (*n*=73) | Control (*n*=44) | Total (*N*=117) | Difference between groups, significance, and effect size |
|---|---|---|---|---|
| **EI** | **120.70 (12.17)** | **116.98 (13.92)** | **119.30 (12.92)** | t = 1.517, *p* = 0.132<br>d=0.288 |
| ESA | 16.11 (2.23) | 16.02 (2.44) | 16.08 (2.30) | U=1532, *p*=0.674<br>r=-0.039 |
| EE | 18.00 (2.75) | 17.00 (2.92) | 17.62 (2.85) | U=1282, *p*=0.067<br>r=-0.169 |
| EAO | 15.78 (2.42) | 15.82 (2.64) | 15.79 (2.49) | U=1601, *p*=0.977<br>r=-0.003 |
| ER | 20.32 (2.30) | 19.73 (2.72) | 20.09 (2.47) | U=1378, *p*=0.195<br>r=-0.120 |
| ESM | 18.95 (3.03) | 17.75 (3.69) | 18.50 (3.33) | U=1278, *p*=0.063<br>r=-0.172 |
| EMO | 16.08 (2.09) | 15.75 (2.20) | 15.96 (2.13) | U=1426, *p*=0.306<br>r=-0.095 |
| ESC | 15.47 (2.56) | 14.91 (3.01) | 15.26 (2.74) | U=1386, *p*=0.210<br>r=-0.116 |
| **PS** | **17.26 (6.90)** | **17.23 (5.73)** | **17.25 (6.46)** | t = 0.027, *p* = 0.979<br>*d* = 0.005 |
| Positive subscale | 4.89 (2.66) | 4.75 (2.20) | 4.84 (2.49) | U=1594, *p*=0.944<br>r=-0.007 |
| Negative subscale | 12.37 (4.75) | 12.48 (4.43) | 12.41 (4.61) | U=1587, *p*=0.912<br>r=-0.010 |

Note: EI normative mean (SD): 121.86 (13.84);[21] PS normative mean (SD): 16.39 (6.47).[25]




(A) (B)

**Figure 1:** Means of emotional intelligence scores (A) amongst participants' job profile groups (lowest scoring /*n*=22/ and highest scoring /*n*=35/ groups' difference of means t=-0.901, *p*=0.372, *d*=-0.265) and (B) amongst participants' job position groups (hierarchical position groups)-(lowest scoring /*n*=50/ and highest scoring /*n*=26/ groups' difference of means t=-1.796, *p*=0.077, *d*=-0.483).

**Table 3: Pearson and Spearman correlations between emotional intelligence and its subdomains and perceived stress (values for *r* and *ρ* correlation coefficients, respectively).**

| Construct correlated with PS | Case (*n*=73) | Control (*n*=44) | Total (N=117) |
|---|---|---|---|
| **EI** | **-0.599**** | **-0.477**** | **-0.543**** |
| ESA | -0.347** | -0.187 | -0.292** |
| EE | -0.163 | -0.366* | -0.247** |
| EAO | -0.387** | -0.115 | -0.291** |
| ER | -0.207 | -0.163 | -0.194* |
| ESM | -0.584** | -0.418** | -0.528** |
| EMO | -0.500** | -0.336* | -0.445** |
| ESC | -0.394** | -0.187** | -0.457** |

Note: **Correlation is significant at the 0.01 level (2-tailed). *Correlation is significant at the 0.05 level (2-tailed).

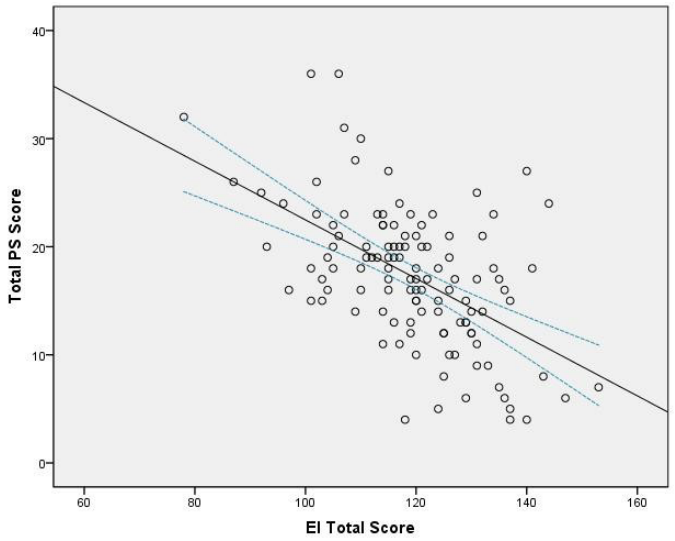



**Figure 2:** Pearson correlation between emotional intelligence and perceived stress with a 95% confidence interval means fit lines.

in our 1-way ANOVA analysis. The impact of age on EI has been studied and demonstrated but with no practical importance.[28] Factor 'hierarchical position' significantly impacted the mean EI levels. As expected, managers had higher EI means, than other employees, which aligns with earlier research.[5,21] However, further analysis of means between managers with direct reports (leaders) and without direct reports (direct reports are employees who report directly to respective managers), revealed higher EI levels in the non-leadership roles, which contradicts research in this area.[29,30] Our findings could be attributed to the lack of pharmacy leadership development programs, and represent an area for further research. PS levels did not differ between the study groups. However, the work experience levels significantly impacted PS, which is in line with the negative correlation between years of experience and stress found in another study.[7]

Although there was no statistically significant difference, EI means in clinical pharmacy practitioners were the lowest among all study participants. Despite EI contributing to the quality of care,[3,31] the obtained results align with our previous research.[17] They also correlate with the findings of the studies on clinical pharmacy education and practice in Europe.[15,32]

Somewhat higher EI means in the pharmaceutical industry marketing and sales subgroup might be attributed to their job-specific training, which belongs to "behavior modeling training" and may contribute to EI development.[33,34] This would need to be verified in a qualitative study.

A strong negative correlation between the EI and PS scores in both groups and the overall study population confirmed the hypothesis and previous study's findings that higher EI levels may have protective effects against occupational stress.[7,17] The highest inverse correlation between ESM and ESC subdomains and PS deserves further study in qualitative research, as the same findings derive from our study in clinical pharmacy practitioners.[17] Another study used an EI measuring instrument with four subdomains. It demonstrated the highest negative correlation between PS and "Regulation of Emotions",[7] which may correspond to the ESM and ESC subdomains of the Genos EI instrument. Emotional Self-Management "measures how successfully an individual manages their own emotions at work, with emphasis on successful adjustment to negative emotional states and to the engagement in activities to maintain a positive emotional state while at work". On the other hand, Emotional Self-Control "measures how appropriately an individual controls their strong emotions in the workplace with substantial focus on the demonstrable maintenance of focus or concentration on the task at hand in the face of emotional adversity".[28] Both of the described EI subdomains are particularly important for clinical pharmacy practitioners, given the nature of their work. They are very similar, though ESC assumes more reactive, and ESM more proactive behaviors.[28]

Further qualitative research would enable us to understand better pharmacists' perceptions of the EI's importance for their clinical or other areas of practice. It would further help understand the impact of particular EI subdomains and the appropriateness of

specific EI development strategies, approaches, and methods. Longitudinal studies and pre and post-EI intervention trials would add value to the body of evidence on the importance of EI development programs in different areas of pharmaceutical practice.

## CONCLUSION

The results of our study revealed no difference in EI and PS levels between post-graduate ASP students and alumni. These results could be a platform for consideration to program creators to test potential changes in content, teaching, and learning methodologies to support EI development. Strong inverse correlations between EI and PS may suggest that EI development strategies might enhance postgraduate students' and specialists' ability to recognize when affected by setbacks or stress and to build resilience and other effective coping strategies.

## ACKNOWLEDGMENT

The authors would like to thank all participating post-graduates and alumni for their time and contribution to this research.

## FUNDING

The work of VM, AMG, and IT was funded by the Ministry of Education, Science and Technological Development, the Republic of Serbia, through a Grant Agreement with the University of Belgrade-Faculty of Pharmacy No: 451-03-68/2022-14/200161. This research received no external funding.

## CONFLICT OF INTEREST

The authors have no conflicts of interest to declare.

## ABBREVIATIONS

**EI:** Emotional intelligence; **ESA:** Emotional self-awareness; **EE:** Emotional expression; **EAO:** Emotional awareness of others; **ER:** Emotional reasoning; **ESM:** Emotional self-management; **EMO:** Emotional management of others; **ESC:** Emotional self-control; **PS:** Perceived stress; **FIP:** International Pharmaceutical Federation; **GbCF:** Global Competency Framework. **SD:** Standard Deviation; **U:** Mann-Whitney U test; **t:** Independent Samples t-test.

## SUMMARY

Emotional Intelligence (EI) has been recognized to contribute to pharmacists' success and therefore has been included in the International Pharmaceutical Federation's Global Competency Framework. EI negatively correlated with perceived stress, thus suggesting that developing EI could be a good stress-coping strategy. No difference in EI levels was found between academic specialization post-graduate newly enrolled students and alumni. Conventional teaching and studying methods within academic specialization curricula, that are insufficiently behavior-modeling and practice-based, seem not to contribute significantly to EI development. Pre- and post-education program EI testing might be a useful approach to the program's quality improvements.

## REFERENCES

1. Dreischulte T, van den Bemt B, Steurbaut S, European Society of Clinical Pharmacy. European Society of Clinical Pharmacy definition of the term clinical pharmacy and its relationship to pharmaceutical care: a position paper. Int J Clin Pharm. 2022; 44(4): 837-42. doi: 10.1007/s11096-022-01422-7, PMID 35668277.
2. Tofade T, Arakawa N. Steps forward for the International Pharmaceutical Federation (FIP) Academic Pharmacy Section: president's message. Pharm Educ. 2022; 22(4): 34-41. doi: 10.46542/pe.2022.224.3441.
3. Ward A, Hall J, Mutch J, Cheung L, Cor MK, Charrois TL. What makes pharmacists successful? An investigation of personal characteristics. J Am Pharm Assoc (2003). 2019; 59(1): 23-29.e1. doi: 10.1016/j.japh.2018.09.001, PMID 30348509.
4. Parker JDA, Summerfeldt LJ, Walmsley C, O'Byrne R, Dave HP, Crane AG. Trait emotional intelligence and interpersonal relationships: results from a 15-year longitudinal study. Pers Individ Dif. 2021; 169: 110013. doi: 10.1016/j.paid.2020.110013.
5. Hall CM, Enright SM, White SJ, Allen SJ. A quantitative study of the emotional intelligence of participants in the ASHP Foundation's Pharmacy Leadership Academy. Am J Health Syst Pharm. 2015; 72(21): 1890-5. doi: 10.2146/ajhp140812, PMID 26490824.
6. Frenzel JE. Exploration of the entrepreneurial orientation and trait emotional intelligence in practicing pharmacists. J Am Pharm Assoc (2003). 2020; 60(5): 723-728.e2. doi: 10.1016/j.japh.2020.01.022, PMID 32113947.
7. Ruble MJ, Cole JD, Weiss SS, Clayton R, Weiss L. The relationship between pharmacist emotional intelligence, occupational stress, job performance, and psychological affective well-being. J Am Pharm Assoc (2003). 2022; 62(1): 120-4. doi: 10.1016/j.japh.2021.09.004, PMID 34583907.
8. Jennings S, Palmer BR. Enhancing sales performance through emotional intelligence development. Organ People. 2007; 14(2): 55-61.
9. The International Pharmaceutical Federation. FIP global Competeny framework. Version 2. FIP GbCF-Supporting the development of foundation and early career pharmacists; 2020. Available from: https://www.fip.org/file/5127 Accessed 18th January 2023.
10. Sarrionandia A, Ramos-Díaz E, Fernández-Lasarte O. Resilience as a mediator of emotional intelligence and perceived stress: A cross-country study. Front Psychol. 2018; 9: 2653. doi: 10.3389/fpsyg.2018.02653, PMID 30622503.
11. Foster K, Fethney J, Kozlowski D, Fois R, Reza F, McCloughen A. Emotional intelligence and perceived stress of Australian pre-registration healthcare students: A multi-disciplinary cross-sectional study. Nurse Educ Today. 2018; 66: 51-6. doi: 10.1016/j.nedt.2018.04.001, PMID 29665505.
12. International Pharmaceutical Federation (FIP). Nanjing Statements. Statements on pharmacy and pharmaceutical sciences education; Published 2017 [cited Jan 18 2023]. Available from: http://www.fip.org/files/fip/PharmacyEducation/Global_Conference_docs/Nanjing_Statements.pdf.
13. Law M, Seo SW, Kahaleh AA, Gleason SE, Tofade T. Evaluation of the crosswalk between the ACPE standards and the FIP Nanjing statements. Pharm Educ. 2020; 20(1): 52-5.
14. Nunes-da-Cunha I, Arguello B, Martinez FM, Fernandez-Llimos F. A comparison of patient-centered care in pharmacy curricula in the United States and Europe. Am J Pharm Educ. 2016; 80(5): 83. doi: 10.5688/ajpe80583, PMID 27402986.
15. Moura L, Steurbaut S, Salvesen Blix H, Addison B, Rabus S, Mota-Filipe H, *et al.* A cross-sectional survey to map Clinical Pharmacy Education and Practice in Europe. Int J Clin Pharm. 2022; 44(1): 118-26. doi: 10.1007/s11096-021-01321-3, PMID 34498216.
16. Senćanski D, Tadić I, Marinković V. Emotional intelligence and pharmaceutical care: A systematic review. J Am Pharm Assoc (2003). 2022; 62(4): 1133-1141.e2. doi: 10.1016/j.japh.2022.02.019, PMID 35341711.
17. Senćanski D, Marinković V, Tadić I. A cross-sectional study comparing emotional intelligence and perceived stress amongst community pharmacists delivering and not delivering a new service. Int J Clin Pharm Published online February 11, 2023. 2023; 45(5): 1136-43. doi: 10.1007/s11096-023-01542-8, PMID 36773208.
18. Faculty of Pharmacy, University of Belgrade. Academic specialization studies-study programs; Published 2017 [cited Jan 24 2023]. Available from: http://www.pharmacy.bg.ac.rs/en/studies/specialist-academic-studies/460/study-programs/Accessed.
19. Cohen J. Statistical power analysis for the Behavioral Science. 2nd ed. Hillsdale: Lawrence Erlbaum Associates. ISBN 0-8058-0283-5; 1988;284-8.
20. Russ L. Java applets for power and sample size. Department of statistics and actuarial science – University of Iowa; Published 2006 [cited Oct 18 2021]. Available from: http://homepage.stat.uiowa.edu/~rlenth/Power/index.html.
21. Palmer BR, Stough C, Harmer R, Gignac G. The genos emotional intelligence inventory: A measure designed specifically for workplace applications. In: Stough C, Saklofske D, Parker J, editors. Assessing Emotional Intelligence. Springer; 2009. p. 103-17. doi: 10.1007/978-0-387-88370-0_6.

22. Butler L, Park SK, Vyas D, *et al.* Evidence and strategies for inclusion of emotional intelligence in pharmacy education. Am J Pharm Educ 25. 2021: 8674. doi: 10.5688/ajpe8674.
23. Wild D, Grove A, Martin M, Eremenco S, McElroy S, Verjee-Lorenz A, *et al.* Principles of good practice for the translation and cultural adaptation process for patient-reported outcomes (PRO) measures: report of the ISPOR task force for translation and cultural adaptation. Value Health. 2005; 8(2): 94-104. doi: 10.1111/j.1524-4733.2005.04054.x, PMID 15804318.
24. Cohen S, Kamarck T, Mermelstein R. A global measure of perceived stress. J Health Soc Behav. 1983; 24(4): 385-96. doi: 10.2307/2136404, PMID 6668417.
25. Jovanović V, Gavrilov-Jerković V. More than a (negative) feeling: validity of the Perceived Stress Scale in Serbian clinical and non-clinical samples. Psihologija. 2015; 48(1): 5-18. doi: 10.2298/PSI1501005J.
26. SurveyMethods [cited Nov 26 2021]. Available from: https://surveymethods.com/.
27. Taber KS. The use of Cronbach's alpha when developing and reporting research instruments in science education. Res Sci Educ. 2018; 48(6): 1273-96. doi: 10.1007/s11165-016-9602-2.
28. Gignac GE. Genos emotional intelligence inventory. Genos Pty Ltd; 2010 [cited Jan 24 2023]. Available from: https://www.genosinternational.com/download-technical-manual/Accessed.
29. Goleman D. What makes a leader? Harv Bus Rev. 1998; 76(6): 93-102. PMID 10187249.
30. Lee E, Daugherty J, Hamelin T. Reimagine Health Care Leadership, Challenges and Opportunities in the 21st Century. J Perianesth Nurs. 2019; 34(1): 27-38. doi: 10.1016/j.jopan.2017.11.007, PMID 29908881.
31. Dugan JW, Weatherly RA, Girod DA, Barber CE, Tsue TT. A longitudinal study of emotional intelligence training for otolaryngology residents and faculty. JAMA Otolaryngol Head Neck Surg. 2014; 140(8): 720-6. doi: 10.1001/jamaoto.2014.1169, PMID 25011036.
32. Moura L, Viegas R, Steurbaut S, Alves da Costa F. Perceptions of European students' representative associations about clinical pharmacy undergraduate education. Pharm Educ. 2022; 22(1): 944-53. doi: 10.46542/pe.2022.221.944953.
33. Cherniss C, Goleman D. Training for emotional intelligence: A model. In: Cherniss C, Goleman D, editors. The emotionally intelligent workplace. San Francisco: Jossey-Bass - A Wiley Company; 2001. p. 209-33. ISBN 978-1118308790.
34. Gignac GE, Harmer RJ, Jennings S, Palmer BR. EI training and sales performance during a corporate merger. Cross Cult Manag. 2012; 19(1): 104-16. doi: 10.1108/13527601211195655.


**Cite this article:** Senćanski D, Marinković V, Georgiev AM, Tadić I. Emotional Intelligence and Perceived Stress in Pharmacists Completing Post-Graduate Specialization Programs: A Cross-Sectional Study. Indian J of Pharmaceutical Education and Research. 2024;58(2):671-8.