Original Research Article

DYNAMICS OF EMOTIONAL INTELLIGENCE (E.I.), STUDENTS' PROFESSIONAL COMPETENCIES AND PRACTICAL PROFICIENCY IN PHARMACY EDUCATION

ABSTRACT

This study examines the relationship between emotional intelligence (EI), professional competencies, and practical proficiency among pharmacy students, emphasizing their roles in pharmacy education. Emotional intelligence, defined as the ability to recognize, understand, and manage emotions, is increasingly acknowledged as essential in healthcare practice. The study is anchored on Goleman's Emotional Intelligence Model, the Ability Model, and Experiential Learning Theory, highlighting the integration of emotional and cognitive skills in professional development. A descriptive-correlational research design was employed to assess students' levels of EI in terms of self-awareness, self-regulation, motivation, and empathy. Professional competencies were evaluated in clinical application, communication, ethical practice, and leadership, while practical proficiency was measured through clinical skills, laboratory performance, patient care, and medication safety. Results revealed that emotional intelligence among respondents was generally high, with empathy and communication identified as key strengths, while self-regulation showed comparatively lower levels. Professional competencies were rated very high, particularly in communication and ethical practice, and practical proficiency was also rated high across clinical and laboratory domains. Significant relationships were found between emotional intelligence and professional competencies, as well as between emotional intelligence and practical proficiency. Furthermore, regression analysis confirmed that emotional intelligence and professional competencies significantly predict practical proficiency among pharmacy students. The findings highlight the critical role of emotional intelligence in shaping professional behavior and enhancing the application of knowledge in practice. Integrating EI development into pharmacy education may improve student performance, patient care, and overall professional readiness.

Keywords: *emotional intelligence, professional competencies, practical proficiency, pharmacy education, pharmacy students*

.

1 INTRODUCTION

The International Pharmaceutical Federation (FIP, 2022) has reinforced the evolving expectations of pharmacy education by establishing updated global standards that explicitly emphasize the integration of behavioral and social competencies alongside clinical knowledge. This paradigm shift reflects a broader recognition that professional competency extends beyond cognitive mastery and is deeply rooted in the affective domain of learning. As argued by Medina and Melchert (2023), the ability to manage the emotional demands of the profession is essential; without such capacity, theoretical knowledge remains underutilized in real-world practice. Similarly, Fuller et al. (2024) demonstrated that higher-order professional competencies—such as interprofessional collaboration and ethical leadership—are significantly influenced by an individual's level of social and emotional intelligence. Within this framework, emotional intelligence (EI) is not merely a complementary attribute but a foundational prerequisite for the effective performance of modern pharmaceutical roles. In response to the rapidly evolving healthcare landscape, pharmacists have assumed increasingly complex responsibilities that extend far beyond the traditional role of medication dispensing. Contemporary pharmacy practice requires active participation in direct patient care, clinical decision-making, and interdisciplinary collaboration, positioning pharmacists as integral members of healthcare teams responsible for ensuring medication safety and

optimizing therapeutic outcomes (Atkinson, 2022). This expanded scope necessitates not only technical expertise but also advanced interpersonal and emotional competencies. Consequently, emotional intelligence has emerged as a critical factor in bridging the gap between knowledge and practice. Defined as the capacity to perceive, understand, regulate, and utilize emotions effectively, EI plays a pivotal role in the personal and professional development of pharmacy students. Its integration into pharmacy curricula has been shown to enhance leadership, communication, and patient-centered care outcomes (Cox, 2022).

Emotional intelligence encompasses key domains, including self-awareness, self-regulation, intrinsic motivation, empathy, and social skills, all of which are essential for effective functioning in healthcare environments. These competencies enable individuals to manage stress, sustain motivation, understand patient perspectives, and communicate effectively within multidisciplinary teams. As emphasized by Thobani and Anwar (2024), the development of EI among pharmacy students is fundamental to improving patient interactions and fostering collaborative clinical practice. Moreover, empirical evidence suggests that high levels of emotional intelligence are associated with improved diagnostic accuracy, enhanced patient adherence to therapy, and reduced incidence of burnout among healthcare professionals (Hashmi et al., 2024), underscoring its significance in both educational and clinical contexts.

Professional competencies in pharmacy education encompass a multidimensional set of skills, including leadership, ethical reasoning, teamwork, and the application of knowledge in real-world scenarios. These competencies collectively prepare students to meet the complex and dynamic demands of contemporary healthcare systems. Research indicates that students with higher levels of emotional intelligence are more likely to demonstrate leadership engagement and exhibit competencies essential for professional growth (Shamsi et al., 2024). Furthermore, EI has been positively associated with authentic leadership, as well as lower levels of stress, anxiety, and depression among pharmacy students (Alaaddin et al., 2021), suggesting its dual role in enhancing both professional performance and psychological well-being. Observational studies also reveal that emotional intelligence evolves throughout the pharmacy curriculum, often influenced by experiential learning and co-curricular engagement, thereby contributing to the development of critical attributes such as decision-making and interpersonal effectiveness (Biju et al., 2023).

Practical proficiency, a core outcome of pharmacy education, reflects a student's ability to translate theoretical knowledge into effective performance in laboratory, clinical, and experiential settings. This competency is essential for ensuring safe, accurate, and patient-centered pharmaceutical care. Beyond technical expertise, practical proficiency is significantly shaped by emotional and interpersonal capabilities, particularly those associated with emotional intelligence. As students progress through their academic training, increases in EI are often observed, corresponding with enhanced self-awareness, stress management, and interpersonal understanding—skills that are critical during hands-on clinical experiences. For instance, advanced pharmacy students have been shown to demonstrate higher EI levels compared to their junior counterparts, indicating developmental growth aligned with experiential exposure (Biju et al., 2023). Additionally, targeted pedagogical strategies, such as simulation-based learning, have been found to effectively enhance empathy and communication skills, thereby improving both practical performance and patient interaction (Deniz et al., 2023). An integrative review by Butler et al. (2022) further highlights that emotional intelligence underpins key competencies such as relationship-building, stress management, and self-regulation, all of which are essential for successful experiential learning and professional practice.

Historically, pharmacy education has predominantly emphasized technical disciplines such as pharmacology, medicinal chemistry, and clinical therapeutics, often at the expense of developing emotional and social competencies. However, there is a growing consensus that these affective skills are equally critical for delivering comprehensive and patient-centered care (Anderson and Arakawa, 2021). In response, many pharmacy programs have begun integrating emotional intelligence training through innovative instructional approaches, including role-playing, reflective journaling, and interprofessional education. Clinical rotations further reinforce these competencies by providing opportunities for students to manage stress, demonstrate empathy, and collaborate effectively within healthcare teams (Waddington and Peters, 2024). The development of emotional intelligence thus plays a crucial role in shaping both the personal and professional trajectories of pharmacy students. On a personal level, it fosters resilience, self-awareness, and emotional stability, contributing to improved academic performance and reduced risk of burnout. Professionally, it enhances communication, leadership, and conflict-resolution skills, enabling pharmacists to build trust with patients and function effectively within interdisciplinary teams, ultimately leading to improved clinical outcomes and job satisfaction (Ulutas et al., 2024). Despite these

advancements, a critical gap remains in the systematic integration and assessment of emotional intelligence within pharmacy curricula. While existing literature acknowledges the positive impact of EI on leadership, patient adherence, and practitioner well-being (Hashmi et al., 2024; Cox, 2022), there is limited consensus regarding the most effective pedagogical strategies for translating emotional awareness into measurable clinical proficiency. Furthermore, although correlations between EI and psychological well-being have been established (Alaaddin et al., 2021), there remains a lack of comprehensive empirical evidence linking these internal competencies to tangible outcomes in laboratory and clinical performance. This absence of standardized frameworks for developing and assessing emotional intelligence highlights a significant gap in pharmacy education, where a vital component of professional development is often left to informal or incidental learning. In light of these gaps, the present study aims to investigate the relationship between emotional intelligence and the attainment of professional competencies and practical proficiency among pharmacy students. Specifically, it seeks to determine how key domains of EI, such as self-regulation and empathy, influence students' ability to navigate the complex interpersonal, ethical, and clinical demands of contemporary pharmacy practice (Thobani and Anwar, 2024; Butler et al., 2022). Ultimately, the study aspires to contribute to the development of educational strategies that ensure future pharmacists possess not only the technical expertise but also the emotional resilience and advanced interpersonal skills necessary to safeguard patient safety and thrive within modern interdisciplinary healthcare systems (Atkinson, 2022; Shamsi et al., 2024

2 THEORETICAL FRAMEWORK

A strong theoretical foundation supports the integration of emotional intelligence (EI) in pharmacy education. Daniel Goleman's model emphasizes key domains such as self-awareness, self-regulation, motivation, empathy, and social skills, which are essential in enhancing communication, teamwork, and ethical practice among pharmacy students. Emotional intelligence, defined as the ability to perceive, understand, regulate, and utilize emotions effectively, has been shown to influence academic performance, interpersonal relationships, and clinical decision-making. Similarly, the Ability Model of Emotional Intelligence explains EI as a set of cognitive abilities that include perceiving, using, understanding, and managing emotions. These competencies support effective decision-making and interpersonal interactions, which are critical in healthcare settings. The model also suggests that emotional intelligence can be developed through training and deliberate practice. Complementing these frameworks, David Kolb's Experiential Learning Theory highlights the role of concrete experience, reflection, and active experimentation in developing practical skills, particularly through clinical simulations and hands-on activities. In addition, the Competency-Based Education framework emphasizes the development of essential knowledge, skills, and attitudes required for effective pharmacy practice. Furthermore, Howard Gardner's theory of multiple intelligences underscores the importance of interpersonal and intrapersonal intelligences, which are closely linked to emotional intelligence. Collectively, these theories support the premise that emotional intelligence enhances professional competencies and, in turn, improves practical proficiency, enabling pharmacy students to effectively apply their knowledge in real-world clinical settings.

3 METHODOLOGY

3.1 Research Design

This study utilized a quantitative descriptive–correlational research design to examine the relationships among emotional intelligence (EI), professional competencies, and practical proficiency of pharmacy students. The quantitative approach enabled the collection and analysis of numerical data to provide objective and measurable evidence of the variables under investigation. The descriptive component was employed to systematically and accurately determine the current levels of students' emotional intelligence, professional competencies, and practical proficiency. It provided a factual and objective description of existing conditions without altering the study environment. Meanwhile, the correlational component was used to assess the degree and significance of relationships among the variables, particularly how emotional intelligence is associated with professional competencies and practical performance (Bermudo, 2010, as cited in Samson & Yango, 2023). This research design is appropriate for the study as it allows for the examination of naturally occurring relationships among variables without manipulation, thereby providing insights into how emotional intelligence may influence the development of professional competencies and practical proficiency in pharmacy education.

3.2 Research Subjects

The quantitative data of the study were presented by determining the levels of emotional intelligence, professional competencies, and practical proficiency among 100 pharmacy students, consisting of 52 third-year and 48 fourth-year students, from a private university in the Philippines. The distribution of respondents was based on proportional allocation, reflecting the actual population of 62 third-year and 58 fourth-year students to ensure balanced representation of each group. Emotional intelligence was measured using a standardized questionnaire developed by Simon Sager, grounded in the framework of Daniel Goleman, while professional competencies and practical proficiency were assessed using structured survey instruments aligned with the study variables. Stratified random sampling with proportional allocation was employed to select the respondents, ensuring adequate representation of both year levels. Data were collected through survey questionnaires administered to the same group of participants. The responses were analyzed quantitatively to describe the levels of each variable and to examine the relationships among emotional intelligence, professional competencies, and practical proficiency.

3.3 Instrumentation and Validation

A standardized Emotional Intelligence (EI) questionnaire developed by Simon Sager (2018), based on the theoretical framework of Daniel Goleman, was utilized to collect primary data for the study. The instrument assessed emotional intelligence across four domains: self-awareness, self-regulation, motivation, and empathy, focusing on students' ability to perceive, understand, and manage emotions in relation to themselves and others. Next measured was the students' professional competencies and practical proficiency. Professional competencies were evaluated in terms of clinical application, communication, ethical practice, and leadership, while practical proficiency covered clinical skills, laboratory skills, patient care performance, and medication safety and risk management. These instruments were used to determine the levels of the variables, examine the relationships among emotional intelligence, professional competencies, and practical proficiency, and assess their predictive influence on students' performance in pharmacy education.

3.4 Data Gathering Procedure

Permission to conduct the study was first secured from the Dean of Graduate Studies, followed by the approval of the research adviser. Upon endorsement, a formal referral letter signed by the adviser was addressed to the Program Head of the Pharmacy Department to facilitate coordination with the target respondents. Data were collected using a structured survey questionnaire administered through google forms to ensure efficient and timely distribution and retrieval of responses. The data-gathering period was conducted over two weeks to allow adequate time for participation and to obtain a sufficient sample size. Respondents were given approximately 10 minutes to accomplish the questionnaire. Throughout the data collection process, strict measures were observed to ensure the confidentiality and anonymity of all participants. No identifying information was collected, and responses were treated with full confidentiality. After completion of data gathering, all responses were systematically encoded, tallied, classified, and tabulated. The cleaned dataset was then forwarded to a statistician for appropriate statistical analysis.

3.6 Treatment and Analysis of Data

The statistical treatments employed in the study were selected based on the specific objectives of the research. Weighted mean and standard deviation were utilized to describe the levels of emotional intelligence in terms of self-awareness, self-regulation, motivation, and empathy; professional competencies in terms of clinical application, communication, ethical practice, and leadership; and practical proficiency in terms of clinical skills, laboratory skills, patient care performance, and medication safety and risk management. To examine the relationships among the variables, Pearson's r moment correlation coefficient was used to determine the association between emotional intelligence and professional competencies, emotional intelligence and practical proficiency, and professional competencies and practical proficiency. Furthermore, multiple regression analysis was employed to assess the predictive

power of emotional intelligence and professional competencies on the respondents' level of practical proficiency.

4 RESULTS AND DISCUSSIONS

This study examined the relationship between emotional intelligence, professional competencies, and practical proficiency among pharmacy students, aiming to provide a comprehensive understanding of how these variables interact within the context of pharmacy education. Specifically, it sought to determine the levels of emotional intelligence across its core domains, assess the extent of students' professional competencies, and evaluate their practical proficiency in clinical and laboratory settings, while also investigating whether significant relationships exist among these variables and exploring their predictive influence on students' overall performance. To achieve these objectives, both descriptive and inferential statistical analyses were employed, wherein descriptive statistics such as means and standard deviations were used to determine the levels of the variables, while inferential statistics, including correlation and regression analyses, were utilized to examine the relationships among them and identify significant predictors of practical proficiency. The results are presented in a systematic manner, beginning with the assessment of each variable individually, followed by an analysis of the relationships among them, with each set of findings accompanied by corresponding interpretations to provide deeper insight into their implications for pharmacy education and practice, ultimately offering a clear and structured understanding of how emotional intelligence and professional competencies contribute to the development of practical skills among pharmacy students.

4.1 Level of Emotional Intelligence

Table 1 results shows that the overall average weighted mean of 4.04 (SD = 0.611) indicates that the level of emotional intelligence of pharmacy students in terms of self-awareness is high. This suggests that, in general, students possess a strong ability to recognize and understand their own emotions, consistent with the concept of self-awareness in Daniel Goleman's Emotional Intelligence Theory. Looking at the individual indicators, two items obtained a very high rating: students are highly aware of their emotions and how these influence their thoughts and actions (WM = 4.48, SD= 0.657), and they strongly recognize how their emotions affect their interactions with patients, peers, and instructors (WM = 4.33, SD= 0.724)). These findings imply that students demonstrate a well-developed internal awareness that supports effective interpersonal behavior, an essential competency in pharmacy practice (Butler et al., 2022).

Table 2, the level of emotional intelligence of pharmacy students in terms of self-regulation is high, with an average weighted mean of 3.84 (SD= 0.596). This indicates that students are generally capable of managing their emotions, maintaining composure under pressure, and responding appropriately in academic and clinical situations (Antonoupoulou, 2024). Specifically, all indicators fall within the high range,

Table 1

Level of Emotional Intelligence in terms of Self-Awareness

Indicators	WM	SD	Interpretation
1. I am aware of my emotions and how they affect my thoughts and actions.	4.48	.657	Very High
2. I can accurately recognize my strengths and limitations in academic and clinical situations.	4.01	.871	High
3. I feel confident in my abilities when performing pharmacy-related tasks.	3.53	.911	High
4. I reflect on my feelings before responding in stressful situations.	3.83	.906	High
5. I recognize how my emotions influence the way I interact with patients, peers, and instructors.	4.33	.724	Very High
Average Weighted Mean	4.04	.611	High

Note. Scoring Range: 4.20-5.00 (Very High) 3.40 – 4.19 (High); 2.60 – 3.39 (Moderately High); 1.80 – 2.59 (Low); 1.00 – 1.79 (Very Low)

showing that students can stay calm during demanding tasks, control impulses when stressed, handle criticism constructively, adapt to changes, and remain composed when dealing with others. Among these, handling criticism received the highest mean (WM= 4.17, SD= 0.712), suggesting strong openness to feedback and self-improvement. Overall, the findings reflect that students possess a solid level of self-regulation, which supports effective performance and professional behavior in pharmacy practice.

Table 2

Level of Emotional Intelligence in terms of Self-Regulation

Indicators	WM	SD	Interpretation
1. I am able to stay calm when facing pressure during classes, laboratory work, or clinical duties.	3.58	.886	High
2. I can control my impulses when I feel frustrated or stressed.	3.57	.952	High
3. I handle criticism professionally and use it to improve myself.	4.17	.712	High
4. I adapt well to changes in schedules, tasks, or learning environments.	3.94	.881	High
5. I remain composed when dealing with difficult patients, classmates, or team members.	3.93	.839	High
Average Weighted Mean	3.84	.596	High

Note. Scoring Range: 4.20-5.00 (Very High) 3.40 – 4.19 (High); 2.60 – 3.39 (Moderately High); 1.80 – 2.59 (Low); 1.00 – 1.79 (Very Low)

Table 3 shows that the overall average weighted mean of 4.12 (SD= 0.733) corresponds to a high level of emotional intelligence in terms of motivation among Centro Escolar University pharmacy students. This indicates that students generally possess a strong internal drive to achieve their goals, remain engaged in their academic tasks, and sustain effort in their training, consistent with the motivation component of Daniel Goleman's Emotional Intelligence Theory. Among the indicators, three were rated very high, namely: persisting in completing tasks despite setbacks (WM= 4.25, SD= 0.770), setting personal goals and working hard to achieve them (WM= 4.23, SD= 0.884), and viewing challenges as opportunities for growth (WM= 4.23, SD= 0.850). These results highlight that students demonstrate resilience, determination, and a growth-oriented mindset key qualities that support success in demanding pharmacy education and practice (Fian et al., 2025). On the other hand, taking initiative beyond required learning (WM = 4.04) and staying motivated during difficult coursework or training (WM = 3.82) were rated High. While still favorable, these slightly lower scores suggest that some students may experience occasional decreases in motivation when faced with more challenging academic or clinical demands.

Table 3

Level of Emotional Intelligence in terms of Motivation

Indicators	WM	SD	Interpretation
1. I set personal goals and work hard to achieve them.	4.23	.884	Very High
2. I stay motivated even when coursework or training becomes difficult.	3.82	.963	High
3. I take initiative in learning beyond what is required in class or training.	4.04	.864	High
4. I persist in completing tasks even when I encounter setbacks.	4.25	.770	Very High
5. I view challenges as opportunities for growth and improvement.	4.23	.850	Very High
Average Weighted Mean	4.12	.733	High

Note. Scoring Range: 4.20-5.00 (Very High) 3.40 – 4.19 (High); 2.60 – 3.39 (Moderately High); 1.80 – 2.59 (Low); 1.00 – 1.79 (Very Low)

The findings summarized in table 4 reveal that the overall average weighted mean of 4.36 (SD= 0.550) falls under the very high category, indicating that pharmacy students demonstrate an exceptionally strong level of emotional intelligence in terms of empathy. This aligns with the empathy component of Daniel Goleman's Emotional Intelligence Theory, which emphasizes the ability to understand and respond appropriately to the emotions of others. All indicators were rated very high, showing consistent empathic behavior among respondents. The highest mean scores were observed in listening attentively to others' concerns (WM= 4.41, SD= 0.636) and considering how one's words and actions affect others emotionally (WM=4.41, SD= 0.636).

These results suggest that students possess strong active listening skills and are highly mindful of their interpersonal impact qualities essential in patient-centered pharmacy practice (Beheshti et al., 2024). Additionally, students showed very high levels in understanding others' feelings and perspectives (WM= 4.38, SD= 0.692) and demonstrating compassion toward individuals in distress (WM= 4.31, SD= 0.691), reflecting their ability to emotionally connect and provide supportive interactions. Although "sensitivity to the emotional needs of patients, classmates, and colleagues" (WM= 4.26, SD= 0.811) had the lowest mean, it still falls within the very high range, indicating only minimal variation.

Table 4

Level of Emotional Intelligence in terms of Empathy

Indicators	WM	SD	Interpretation
1. I try to understand the feelings and perspectives of other people.	4.38	.692	Very High
2. I am sensitive to the emotional needs of patients, classmates, and colleagues.	4.26	.811	Very High
3. I listen attentively when others share their concerns or problems.	4.41	.604	Very High
4. I consider how my words and actions may affect other people emotionally.	4.41	.636	Very High
5. I show compassion when interacting with patients or individuals in distress.	4.31	.691	Very High
Average Weighted Mean	4.36	.550	Very High

Note. Scoring Range: 4.20-5.00 (Very High) 3.40 – 4.19 (High); 2.60 – 3.39 (Moderately High); 1.80 – 2.59 (Low); 1.00 – 1.79 (Very Low)

For the overall level of emotional intelligence, the results show that pharmacy students have an overall high level of emotional intelligence (WM= 4.09, SD= 0.452). This indicates that students generally possess strong emotional competencies in understanding, managing, and applying their emotions in academic, social, and clinical settings. Among the domains, empathy was rated very high, highlighting strong interpersonal skills, while self-awareness, self-regulation, and motivation were all rated high, reflecting a solid foundation in emotional functioning. Consistent with the framework of Daniel Goleman, the findings suggest that while students demonstrate well-developed emotional intelligence overall, there is still room to further strengthen self-regulation for a more balanced profile.

Table 5

Overall Level of Emotional Intelligence

Scale	Domains	*WM*	*SD*	Interpretation
Emotional intelligence	Self-awareness	4.04	.611	High
	Self-regulation	3.84	.596	High
	Motivation	4.12	.733	High
	Empathy	4.36	.550	Very High
OVERALL		4.09	.452	High

Note. Scoring Range: 4.20-5.00 (Very High) 3.40 – 4.19 (High); 2.60 – 3.39 (Moderately High); 1.80 – 2.59 (Low); 1.00 – 1.79 (Very Low)

4.2 Level of Professional Competencies

Table 6 indicate that pharmacy students have a high level of professional competence in terms of clinical application, with an average weighted mean of 4.03 (SD = 0.614). This suggests that students generally demonstrate strong ability to apply pharmaceutical knowledge in real clinical situations, supporting safe and effective patient care. All indicators were rated high, except for assessing patient medication needs and recommending therapeutic alternatives (WM = 4.26, SD= 0.691), which was very high. This highlights students' strength in patient-centered decision-making and therapeutic judgment. Other competencies such as interpreting prescriptions, identifying drug interactions, recommending therapies, and integrating theoretical knowledge also reflect solid clinical skills (Luib et al., 2022). The lowest-rated area, analyzing medication profiles for problems (WM = 3.90, SD= 0.877), though still high, suggests a need for further improvement through more clinical exposure and practice.

Table 6

Level of Professional Competencies in terms of Clinical Application

Indicators	WM	SD	Interpretation
1. I can interpret prescriptions accurately by applying pharmaceutical knowledge to ensure correct medication use.	4.13	.812	High
2. I can identify potential drug interactions when reviewing a patient's medication profile.	3.99	.741	High
3. I can recommend appropriate medication therapy based on patient condition and clinical guidelines.	3.94	.759	High
4. I can analyze patient medication profiles to detect possible medication-related problems.	3.90	.877	High
5. I can integrate theoretical pharmacy knowledge into real clinical decision-making for patient care.	3.98	.812	High
6. I can assess patient medication needs and suggest safe and effective therapeutic alternatives when necessary.	4.26	.691	Very High
Average Weighted Mean	4.03	.614	High

Note. Scoring Range: 4.20-5.00 (Very High) 3.40 – 4.19 (High); 2.60 – 3.39 (Moderately High); 1.80 – 2.59 (Low); 1.00 – 1.79 (Very Low)

Table 7 shows that pharmacy students demonstrate a very high level of professional competence in terms of communication, with an average weighted mean of 4.42 (SD = 0.506**)**. This indicates that students possess excellent communication skills in both academic and clinical pharmacy settings. All indicators were rated very high, reflecting consistent strength across all areas of communication. Students are highly capable of clearly explaining medication instructions, responding effectively to patient concerns, using simple and understandable language, and collaborating with other healthcare professionals (Karkolias et al., 2025). The highest-rated competency responding to patient questions with clear and appropriate guidance (WM = 4.48, SD=0.610) highlights their ability to ensure safe and accurate medication use. Although the lowest-rated indicator, ensuring full patient understanding (WM = 4.39, SD= 0.549), is still very high, it suggests minor variation and an opportunity to further strengthen patient comprehension through continued practice.

Table 7

Level of Professional Competencies in terms of Communication

Indicators	WM	SD	Interpretation
1. I can clearly explain medication instructions and counseling information to patients in an understandable way.	4.40	.635	Very High
2. I can effectively communicate medication-related information to other healthcare professionals.	4.41	.604	Very High
3. I can listen attentively to patient concerns regarding their medications and treatment.	4.42	.653	Very High
4. I can respond to patient questions with clear and appropriate pharmaceutical guidance.	4.48	.610	Very High
5. I can use simple and understandable language when discussing medication therapy with patients.	4.44	.538	Very High
6. I can ensure that patients fully understand their medication regimen through proper counseling and clarification.	4.39	.549	Very High
Average Weighted Mean	4.42	.506	Very High

Note. Scoring Range: 4.20-5.00 (Very High) 3.40 – 4.19 (High); 2.60 – 3.39 (Moderately High); 1.80 – 2.59 (Low); 1.00 – 1.79 (Very Low)

Table 8 reveal that pharmacy students demonstrate a very high level of professional competence in terms of ethical practice, with an average weighted mean of 4.36 (SD = 0.580). This indicates that students consistently uphold ethical principles and professional standards in both academic and clinical settings. All indicators were rated Very High, reflecting strong and consistent ethical behavior. The highest-rated competency respecting patient confidentiality and demonstrating honesty and integrity (WM = 4.44, SD= 0.574)highlights the students' commitment to trust and professionalism in healthcare. Similarly, consistently following ethical standards (WM = 4.43, SD= 0.682) and prioritizing patient safety, accountability, and ethical decision-making (WM = 4.32–4.33 SD= 0.722) further demonstrate a well-developed sense of responsibility and professionalism.

Table 8

Level of Professional Competencies in terms of Ethical Practice

Indicators	WM	SD	Interpretation
1. I consistently follow ethical principles and professional standards in pharmacy practice.	4.43	.572	Very High
2. I respect patient confidentiality and demonstrate honesty and integrity in all academic and clinical activities.	4.44	.574	Very High
3. I ensure that my clinical decisions and actions always prioritize patient safety and welfare.	4.32	.722	Very High
4. I apply ethical reasoning when making decisions in academic and clinical pharmacy situations.	4.32	.722	Very High
5. I take responsibility for my actions and ensure that my work is accurate and reliable in both academic and clinical settings.	4.33	.682	Very High
6. I demonstrate professionalism by adhering to ethical guidelines when interacting with patients, peers, and healthcare professionals.	4.32	.679	Very High
Average Weighted Mean	4.36	.580	Very High

Note. Scoring Range: 4.20-5.00 (Very High) 3.40 – 4.19 (High); 2.60 – 3.39 (Moderately High); 1.80 – 2.59 (Low); 1.00 – 1.79 (Very Low)

The results summarized in table 9 indicate that pharmacy students have a high level of professional competence in terms of leadership, with an average weighted mean of 3.90 (SD = 0.668). This suggests that students demonstrate satisfactory and developing leadership skills in academic and clinical settings. All indicators were rated high, showing consistent performance across leadership dimensions. Students are capable of taking initiative, collaborating with team members, encouraging teamwork, and maintaining positive group dynamics (Kan, 2025). The highest-rated indicator motivating others and fostering a positive team environment (WM = 3.94, SD= 0785) highlights their ability to support and uplift peers in collaborative settings. Meanwhile, the lowest-rated indicator—actively contributing ideas in group activities (WM = 3.87, SD= 0.730), though still high, suggests some variability in participation and confidence in team discussions. This points to an area that can be further strengthened through more leadership exposure and collaborative experiences.

Table 9

Level of Professional Competencies in terms of Leadership

Indicators	WM	SD	Interpretation
1. I demonstrate initiative and responsibility in completing academic and clinical tasks without needing constant supervision.	3.92	.716	High
2. I contribute ideas and actively collaborate with others in group or team-based academic or clinical activities.	3.87	.730	High
3. I work effectively with team members to ensure smooth completion of shared academic or clinical responsibilities.	3.89	.719	High
4. I encourage teamwork and help guide peers in accomplishing academic or clinical tasks when needed.	3.91	.694	High
5. I communicate clearly and respectfully with team members to improve group performance and coordination.	3.91	.775	High
6. I demonstrate leadership qualities by motivating others and helping maintain a positive team environment.	3.94	.785	High
Average Weighted Mean	3.90	.668	High

Note. Scoring Range: 4.20-5.00 (Very High) 3.40 – 4.19 (High); 2.60 – 3.39 (Moderately High); 1.80 – 2.59 (Low); 1.00 – 1.79 (Very Low)

Table 10 show that pharmacy students have an overall High level of professional competencies, with a total weighted mean of 4.18 (SD = 0.426). This indicates that students generally demonstrate strong proficiency in essential areas of pharmacy practice, although not all domains are consistently at a very high level. Among the domains, communication (WM = 4.42, SD= 0.506) and ethical practice (WM = 4.36, SD= 0.580) were rated very high, showing that students are highly competent in patient interaction, professional collaboration, and adherence to ethical standards. Meanwhile, clinical application (WM = 4.03, SD= 0.614) and leadership (WM = 3.90, SD= 0.668) were rated High, indicating that students are competent but still developing in applying clinical knowledge and demonstrating leadership skills.

Table 10
Overall Level of Professional Competencies

Scale	Domains	*WM*	*SD*	Interpretation
Professional competencies	Clinical application	4.03	.614	High
	Communication	4.42	.506	Very High
	Ethical practice	4.36	.580	Very High
	Leadership	3.90	.668	High
OVERALL		4.18	.426	High

Note. Scoring Range: 4.20-5.00 (Very High) 3.40 – 4.19 (High); 2.60 – 3.39 (Moderately High); 1.80 – 2.59 (Low); 1.00 – 1.79 (Very Low)

4.3 Level of Practical Proficiency

Table 11 shows that pharmacy students have a high level of practical proficiency in terms of clinical and laboratory skills, with an average weighted mean of 4.17 (SD = 0.665). This indicates that students are generally capable of applying both clinical and laboratory knowledge effectively in pharmacy practice. The highest-rated indicators evaluating patient cases (WM = 4.32, SD= 0.694) and assessing medication history with appropriate interventions (WM = 4.30, SD= 0.689)—were interpreted as very high, reflecting strong competence in clinical decision-making and patient-centered care. Meanwhile, applying clinical concepts, using laboratory equipment, performing experiments, and interpreting lab findings (WM = 4.03–4.16) were all high, suggesting solid but still developing technical and analytical skills in laboratory settings.

Table 11

Level of Practical Proficiency in terms of Clinical and Laboratory Skills

Indicators	WM	SD	Interpretation
1. I can assess patient medication history, identify medication-related problems, and suggest appropriate interventions.	4.30	.689	Very High
2. I can evaluate patient cases and apply pharmacotherapy knowledge in clinical scenarios.	4.32	.694	Very High
3. I can apply clinical pharmacy concepts when analyzing patient medication therapy.	4.15	.703	High
4. I can properly use laboratory equipment while following laboratory safety procedures.	4.16	.708	High
5. I can accurately perform pharmacy laboratory experiments and document results.	4.04	.792	High
6. I can interpret laboratory findings relevant to pharmaceutical studies.	4.03	.786	High

The findings summarized in table 12 indicate that pharmacy students demonstrate a very high level of practical proficiency in terms of patient care performance, with an average weighted mean of 4.31 (SD = 0.630). This suggests that students are highly competent in delivering patient-centered pharmaceutical care in both academic and clinical settings. Most indicators were rated very high, particularly in helping patients understand medications (WM = 4.38, SD= 0.692), engaging patients to address concerns (WM = 4.37, SD= 0.705), and providing clear guidance for safe medication use (WM = 4.36, SD= 0.688). These results reflect strong capability in patient education, communication, and medication management. Meanwhile, effective communication (WM = 4.17, SD= 0.766) and demonstrating empathy, professionalism, and respect (WM = 4.19, SD= 0.744) were rated High, indicating strong but slightly less consistent performance compared to other patient care competencies.

Table 12
Level of Practical Proficiency in terms of Patient Care Performance

Indicators	WM	SD	Interpretation
1. I can communicate effectively with patients while providing clear and understandable medication counseling.	4.17	.766	High
2. I demonstrate empathy, professionalism, and respect when interacting with patients in clinical or academic settings.	4.19	.774	High
3. I assist patients in understanding the proper use, effects, benefits, and precautions of their medications.	4.37	.705	Very High
4. I actively engage with patients to address their concerns and ensure their medication needs are properly understood and met.	4.37	.705	Very High
5. I help improve patients' understanding of their treatment by simplifying complex pharmaceutical information.	4.38	.692	Very High
6. I provide appropriate guidance to patients to support safe and effective medication use and adherence.	4.36	.688	Very High
Average Weighted Mean	4.31	.630	Very High

Note. Scoring Range: 4.20-5.00 (Very High) 3.40 – 4.19 (High); 2.60 – 3.39 (Moderately High); 1.80 – 2.59 (Low); 1.00 – 1.79 (Very Low)

Table 13 shows that pharmacy students demonstrate a very high level of practical proficiency in terms of medication safety and risk management, with an average weighted mean of 4.35 (SD = 0.616). This indicates that students have a strong awareness of patient safety principles and consistently apply safe practices in pharmaceutical care.

All indicators were rated very high, reflecting consistent competence across all safety-related tasks. The highest-rated indicators include recognizing and reporting adverse drug reactions (WM = 4.47, SD= 0.626) and ensuring patient safety in all pharmaceutical practices (WM = 4.45, SD= 0.624). These results highlight strong vigilance, accountability, and commitment to minimizing medication-related risks.

Table 13

Level of Practical Proficiency in terms of Medication Safety and Risk Management

Indicators	WM	SD	Interpretation
1. I can identify potential medication errors and risks associated with medication use in clinical practice.	4.20	.725	Very High
2. I follow proper procedures for medication handling, labeling, dispensing, and storage to ensure safety and accuracy.	4.23	.723	Very High
3. I recognize and report adverse drug reactions and medication-related issues in a timely manner.	4.47	.626	Very High
4. I ensure that all pharmaceutical practices I perform prioritize patient safety and risk reduction.	4.45	.624	Very High
5. I remain alert in identifying possible medication-related problems during patient care and dispensing.	4.36	.744	Very High
6. I properly document and report medication errors or safety concerns to promote continuous improvement in patient care.	4.37	.732	Very High
Average Weighted Mean	4.35	.616	Very High

Note. Scoring Range: 4.20-5.00 (Very High) 3.40 – 4.19 (High); 2.60 – 3.39 (Moderately High); 1.80 – 2.59 (Low); 1.00 – 1.79 (Very Low)

Other competencies such as identifying medication errors, following proper handling procedures, remaining alert to risks, and documenting safety concerns were also rated very high, showing well-developed skills in risk prevention and safety monitoring (Aghabarary, et al., 2025)

Table 14 indicate that pharmacy students have an overall Very High level of practical proficiency, with a total weighted mean of 4.28 (SD = 0.527). This suggests that students demonstrate strong and well-developed skills in applying pharmaceutical knowledge in both clinical and practice-based settings. Among the domains, medication safety and risk management (WM = 4.35, SD= 0.616) and patient care performance (WM = 4.31, SD= 0.630) were rated very high, showing strong competence in ensuring patient safety and delivering effective patient-centered care. Meanwhile, clinical and laboratory skills (WM = 4.17, SD= 0.665) were rated high, indicating solid but relatively less advanced proficiency compared to the other domains.

Table 14

Overall Level of Practical Proficiency

Scale	Domains	*WM*	*SD*	Interpretation
Practical proficiency	Clinical and laboratory skills	4.17	.665	High
	Patient care performance	4.31	.630	Very High
	Medication safety and risk management	4.35	.616	Very High
OVERALL		4.28	.527	Very High

4.4. Emotional Intelligence and Professional

Table 15 show a weak positive correlation between emotional intelligence and professional competencies (r = 0.388), indicating that as emotional intelligence increases, professional competencies also tend to improve, although the relationship is relatively limited in strength. This falls under the weak correlation category based on Ferrer et al., (2025). However, the relationship is statistically significant ($p < .001$), meaning the association between the two variables is not due to chance. This confirms that emotional intelligence is significantly related to professional competencies among Centro Escolar University pharmacy students.

Table 15

Relationship Between the Level of Emotional Intelligence and Level of Professional Competencies of the Respondents

Independent	Dependent	Pearson's r^a	*p*-value	Interpretation[b]
Emotional intelligence	Professional competencies	.388 (weak)	< .001	Significant

Note. [a]Correlation: 0.00 – 0.19 (very weak); 0.20 – 0.39 (weak); 0.40 – 0.59 (moderate); 0.60 – 0.79 (strong); 0.80 – 1.00 (very strong). (Evans, 1996) [b]Significant at <.05.

4.5. Emotional intelligence and Practical Proficiency

Table 16 show a moderate positive correlation between emotional intelligence and practical proficiency (r = 0.441). This indicates that as the level of emotional intelligence increases, the level of practical proficiency also tends to increase. The relationship falls within the moderate range, suggesting a meaningful and more substantial association compared to weaker correlations. Moreover, the relationship is statistically significant ($p < .001$), meaning that the association is not due to chance and provides sufficient evidence that emotional intelligence is significantly related to practical proficiency among the respondents.

Table 16

Relationship Between the Level of Emotional Intelligence and Level of Practical Proficiency of the Respondents

Independent	Dependent	Pearson's r^a	*p*-value	Interpretation
Emotional intelligence	Practical proficiency	.441 (moderate)	< .001	Significant

Note. [a] Correlation: 0.00 – 0.19 (very weak); 0.20 – 0.39 (weak); 0.40 – 0.59 (moderate); 0.60 – 0.79 (strong); 0.80 – 1.00 (very strong). (Evans, 1996) [b]Significant at <.05.

4.6 Professional Competency and Practical Proficiency

Table 17 show a strong positive correlation between professional competencies and practical proficiency (r = 0.660). This indicates that higher levels of professional competencies are associated with higher levels of practical proficiency among the respondents. The relationship falls within the strong correlation range, suggesting a substantial and meaningful connection between the two variables. Additionally, the relationship is statistically significant (p < .001), meaning that the observed association is not due to chance and provides strong evidence of a significant relationship between professional competencies and practical proficiency.

Table 17

Relationship Between the Level of Professional Competencies and Level of Practical Proficiency of the Respondents

Independent	Dependent	Pearson's r^a	*p*-value	Interpretation[b]
Professional competencies	Practical proficiency	.660 (strong)	< .001	Significant

Note. [a]Correlation: 0.00 – 0.19 (very weak); 0.20 – 0.39 (weak); 0.40 – 0.59 (moderate); 0.60 – 0.79 (strong); 0.80 – 1.00 (very strong). (Evans, 1996) [b]Significant at <.05.

4.7 *Regression analysis Regression Analysis of the predictive power of the level of emotional intelligence and level of professional competencies*

Table 18 show that the combined influence of emotional intelligence and professional competencies significantly predicts practical proficiency among Centro Escolar University pharmacy students. The model produced an R^2 value of 0.476 and an adjusted R^2 of 0.465, indicating that approximately 47.6% of the variance in practical proficiency is explained by these two predictors. This suggests a substantial contribution of both variables in shaping students' practical performance. Furthermore, the model is statistically significant (F = 44.534, p < .001), confirming that the regression model provides a good fit and that the relationship between the predictors and practical proficiency is not due to chance.

Table 18

Model Summary of the Combined Predictive Power of Level of Emotional Intelligence and Level of Professional Competencies on the Level of Practical Proficiency of the Respondents

Model	R^2	Adj. R^2	*F*	df	*p*-value	Interpretation
1	.476	.465	44.534	2, 98	<.001	Significant

Note. Predictors: (Constant) Emotional intelligence, professional competencies
Dependent Variable: Practical proficiency

4.8 Predictive Power of Level of Emotional Intelligence and Level of Professional Competency

The results show that both emotional intelligence and professional competencies are significant predictors of practical proficiency among Centro Escolar University pharmacy students. Emotional intelligence has a positive and significant effect on practical proficiency (B = 0.254, β = 0.218, p = .007), indicating that higher emotional intelligence leads to improved practical performance, although its influence is relatively modest (Cavaness, et al., 2020). In contrast, professional competencies show a stronger and more substantial effect (B = 0.711, β = 0.575, p < .001), indicating that they are the dominant predictor of practical proficiency. This means that improvements in professional competencies result in a greater increase in practical performance compared to emotional intelligence.

Table 19

Predictive Power of Level of Emotional Intelligence and Level of Professional Competencies on the Level of Practical Proficiency of the Respondents

Predictors	B	SE	Beta (β)	*p*-value	Decision	Interpretation
Emotional intelligence	.254	.092	.218	.007	Reject H_0	Significant
Professional competencies	.711	.098	.575	<.001	Reject H_0	Significant

4.9 Action Plan

The action plan, Project ELEVATE, is developed in response to the findings of the study on *the* Dynamics of Emotional Intelligence (E.I), Students' Professional Competencies, and Practical Proficiency in Pharmacy Education. The results indicate that while students exhibit high to very high levels across these domains, there are specific areas—such as self-regulation, leadership, and certain clinical and laboratory skills—that require further enhancement. Additionally, the significant relationships among emotional intelligence, professional competencies, and practical proficiency highlight the need for a more integrated and holistic developmental approach.

5 CONCLUSION

The findings of the study revealed that the respondents demonstrated a high level of emotional intelligence, indicating their strong capability to perceive, understand, and manage emotions effectively in both personal and professional contexts. Similarly, they exhibited a high level of professional competency, suggesting confidence in applying pharmaceutical knowledge within clinical settings, particularly in relation to clinical application, communication, ethical practice, and leadership. In the same manner, the respondents showed a high level of practical proficiency, reflecting well-developed abilities in applying pharmaceutical knowledge across both clinical and laboratory environments. Further analysis showed that emotional intelligence contributes to the development of professional competencies; however, it is not the sole determining factor, as academic training, clinical exposure, and hands-on experience also play significant roles in shaping competency levels. In addition, respondents with higher emotional intelligence were found to be more likely to demonstrate stronger practical skills, emphasizing the importance of integrating emotional intelligence development into pharmacy education and training programs. Moreover, the results indicated that respondents who possess higher levels of professional competencies tend to perform more effectively in practical settings, particularly in areas requiring clinical decision-making, communication, ethical judgment, and leadership. The study also revealed that emotional intelligence and professional competencies jointly and significantly predict practical proficiency, explaining a substantial proportion of its variance and indicating a strong model fit. In response to these findings, the study proposes the implementation of PROJECT ELEVATE (Enhancing Learning, Emotional Intelligence, and Values to Advance Therapeutic Excellence in Pharmacy Education). This intervention program aims to further

enhance areas requiring improvement through targeted workshops focused on motivation and commitment, the establishment of structured mentorship programs, recognition of faculty contributions, and the development of clear communication and support systems.

REFERENCES

Aghabarary, M., & Khedmatizare, M. (2025). Emotional intelligence as a predictor of clinical competence in nursing students. *BMC Research Notes*, *18*(1), 25.

Ahamad, H., Alam, O., Sultana, N., & Misbahuzzaman, K. (2025). Senior Management and Corporate Environmental Behaviors in Manufacturing Industries of Bangladesh. *Corporate Social Responsibility and Environmental Management*, *32*(6), 8369-8389.

Ahmed, A., Saqlain, M., Tanveer, M., Blebil, A. Q., Dujaili, J. A., & Hasan, S. S. (2021). The impact of clinical pharmacist services on patient health outcomes in Pakistan: a systematic review. *BMC health services research*, *21*(1), 859.

Ahmed, K.K., Younus, M.M., Al-Jumaili, A.A. (2024). Pharmacy Education, Practice, and Research in Iraq. In: Al-Worafi, Y.M. (eds) Handbook of Medical and Health Sciences in Developing Countries. Springer, Cham. https://doi.org/10.1007/978-3-030-74786-2_478-1

Akanni, Abimbola A. & Obi, Irene & Oduaran, Choja. (2022). Occupational Stress, Emotional Intelligence and Psychological Wellbeing of Nurses in Government-Owned Hospitals. European Review Of Applied Sociology. 15. 21-29. 10.2478/eras-2022-0003.

Akinbobola, T., & Ojo, M. (2022). Emotional intelligence as a correlate of academic performance in pharmacy students. *African Journal of Pharmacy Education*, *15*(2), 45–52.

Alam, J., Haseen, M. A., Hasan, A., Sarfraz, M., & Rahman, S. Z. (2025). Clinical Outcomes and In-hospital Mortality Rate following Heart Valve Replacements at a Tertiary-care Hospital. *Exploratory Research and Hypothesis in Medicine*, *10*(4).

Al-Ahmadi, H., & Al-Rahomi, A. (2021). Emotional intelligence and its impact on performance: A study of healthcare professionals. *Journal of Healthcare Leadership*, *13*, 111–120. https://doi.org/10.2147/JHL.S301234

Alaaddin, R. N., Ibrahim, N. K., & Kadi, M. (2021). Leadership skills and their associated factors among pharmacy students at Umm Al-Qura University, Makkah, Saudi Arabia. *Journal of Pharmaceutical Research International*, *33*(50A), 63-76. DOI: 10.9734/JPRI/2021/v33i50A33383

Al-Azayzih, A., Al-Kubaisi, K. A., Abdel-Qader, D. H., Al Mazrouei, N., Beshir, S. A., & Elnour, A. A. (2025). Community pharmacists' perception of knowledge, attitudes, and practices toward oral health promotion: A Cross-sectional study on the influence of training, demographics, and resources in the UAE. *Plos one*, *20*(6), e0323193.

Alhassan, A., Rumman, A. A., & Al-Dabbagh, Z. (2022). High fidelity clinical simulation in pharmacy education: An integrative review. *Saudi Pharmaceutical Journal*, *30*(12), 1735–1745. https://doi.org/10.1016/j.jsps.2022.10.005

Almansour, A. M. (2023). The level of emotional intelligence among Saudi nursing students: A cross-sectional study. *Belitung nursing journal*, *9*(5), 471.

Almogbel, Y. S., Alsalloum, M. A., Almadi, R. S., Almazyad, A. A., Garwan, Y. M., & Alregaibah, R. A. (2024). Relationship between pharmacists' emotional intelligence and job performance: a cross-sectional study in Saudi Arabia. *Pharmacy*, *12*(5), 145.

ALmegewly, W. H., Rawdhan, A., Saleh, M., Alrimal, M., Alasmari, R., Alhamad, S., ... & Abdelaliem, S. M. F. (2022). Correlation between emotional intelligence and academic achievement among undergraduate nursing students. *International Journal of Africa Nursing Sciences*, *17*, 100491.

Alsharif, A. (2023). *The Impact of Subtitles and Language Proficiency on L2 Incidental Vocabulary Acquisition by Saudi University Students* (Doctoral dissertation, Macquarie University).

Alshammari, T. K., Alkhodair, A. M., Alhebshi, H. A., Rogowska, A. M., Albaker, A. B., Al-Damri, N. T., ... & Alshammari, M. A. (2022). Examining anxiety, sleep quality, and physical activity as predictors of depression among university students from Saudi Arabia during the second wave of the COVID-19 pandemic. *International Journal of Environmental Research and Public Health*, *19*(10), 6262.

Anderson, S., Main, PAE. Evidence for continuing professional development standards for regulated health practitioners in Australia: a systematic review. *Hum Resour Health* **21**, 23 (2023). https://doi.org/10.1186/s12960-023-00803-x

Anderson, C., & Arakawa, N. (2021). Pharmacy education development. *Pharmacy*, *9*(4), 163. https://doi.org/10.3390/pharmacy9040163

Andres, F. (2025). The role of emotional intelligence in self-awareness and well-being. In *Development of Self-Awareness and Wellbeing: Global Learning Challenges in a Shifting Society* (pp. 1-46). IGI Global Scientific Publishing.

Antonopoulou, H. (2024). The value of emotional intelligence: Self-awareness, self-regulation, motivation, and empathy as key components. *Technium Education and Humanities*, *8*, 78-92.

Atkinson, J. (2022). Advances in pharmacy practice: A look towards the future. *Pharmacy*, *10*(5), 125. https://doi.org/10.3390/pharmacy10050125

Bae, S., Kim, J., & Lee, Y. (2024). Self-regulation mediates the relationship between stress and quality of life in shift-working healthcare professionals: Behavioral clustering insights. *Healthcare*, *12*(9), 180. https://doi.org/10.3390/healthcare12090180

Bearman, C., Hayes, P., Kuhn, M., Penney, G., McLennan, J., Butler, P., & Flin, R. (2025). The current state and future needs of decision making: knowledge, practice, tools and training options.

Beheshti, I. (2025). Brain Age: A Promising Biomarker for Understanding Aging in the Context of Cognitive Reserve. *medRxiv*, 2025-01.

Beni, M. D. (2026). Against (theory-neutral) method (in consciousness science). *Neuroscience of Consciousness*, *2026*(1), niag003.

Biju, A., Wanat, M. A., El-Desoky, R., Vu, C., & Varkey, D. (2023). Evaluation of student emotional intelligence at various points in a pharmacy curriculum. *Currents in Pharmacy Teaching and Learning*, *15*(6), 573–580. https://doi.org/10.1016/j.cptl.2023.06.005

Borycki, E. M., & Kushniruk, A. W. (2025). Cognitive-socio-technical theory: application and use in health informatics. In *Research Handbook on Health Information Systems* (pp. 45-59). Edward Elgar Publishing.

Boursicot, K., Kemp, S., Wilkinson, T., Findyartini, A., Canning, C., Cilliers, F., & Fuller, R. (2021). Performance assessment: Consensus statement and recommendations from the 2020 Ottawa Conference. *Medical Teacher*, *43*(1), 58-67.

Bru-Luna LM, Martí-Vilar M, Merino-Soto C, Cervera-Santiago JL. Emotional Intelligence Measures: A Systematic Review. Healthcare (Basel). 2021 Dec 7;9(12):1696. doi: 10.3390/healthcare9121696. PMID: 34946422; PMCID: PMC8701889.

Brunstein, J. C., & Heckhausen, H. (2025). Achievement motivation. In *Motivation and action* (pp. 227-312). Cham: Springer Nature Switzerland.

Butler, L., Park, S. K., Vyas, D., Cole, J. D., Haney, J. S., Marrs, J. C., & Williams, E. (2022). Evidence and strategies for including emotional intelligence in pharmacy education. *American Journal of Pharmaceutical Education*, *86*(10), 8674. https://doi.org/10.5688/ajpe8674

Cavaness, K., Picchioni, A., & Fleshman, J. W. (2020). Linking emotional intelligence to successful health care leadership: the big five model of personality. *Clinics in colon and rectal surgery*, *33*(04), 195-203.

Cleary, T. J., Konopasky, A., & LaRochelle, J. (2025). Evaluating the instructional strategies influencing self-regulated learning in clinical clerkship years: A mixed studies review. *Teaching and Learning in Medicine*, *37*(1), 45–58. https://doi.org/10.1080/10401334.2025.2468953

Cox, Kathleen M., "IMPACT OF EMOTIONAL INTELLIGENCE ON INTERPROFESSIONAL TEAMWORK, INTERPROFESSIONAL COMMUNICATION, AND INTERPROFESSIONAL LEADERSHIP" (2022). *Nursing Theses and Dissertations.* Paper 132. http://hdl.handle.net/10950/3850

Credé, M., & Harms, P. D. (2021). Three cheers for descriptive statistics—and five more reasons why they matter. *Industrial and organizational psychology*, *14*(4), 486-488.

Crisp, H., Tavabie, O., Enever, Y., Allen, R., Silverman, M., Acevedo, J., ... & Mehta, G. (2024). Decompensated Liver Cirrhosis Research Network (UK-CLIF): Building consensus for hepatology trials in the UK. *NIHR open research*, *4*, 69.

de Almeida, C. V., & Belim, C. (2021). Health professionals' communication competences as a light on the patient pathway: the assertiveness, clarity, and positivity (ACP) model. *International Journal of Applied Research on Public Health Management (IJARPHM)*, *6*(1), 14-29.

Deniz, E. U., Ceylan, C., Eren, R., & Memiş, O. B. (2024). Advancing empathy and emotional intelligence among pharmacy students: A comparative mixed-methods study with peer role-play simulation intervention. *Currents in Pharmacy Teaching and Learning*, *16*(8), 102112. https://doi.org/10.1016/j.cptl.2024.102112

Dharmarajlu, S. M., & Anuratha, M. D. (2025). Evaluating the Self-Care Efficacy and Needs of Cancer Patients Experiencing Chemotherapy Side Effects. *Advancements in Life Sciences*, *12*(1), 127-133.

Dunlosky, J., & Metcalfe, J. (2025). Metacognitive awareness of pharmacists at different stages of the educational continuum: A comparative study. *Frontiers in Education*, *10*, 1503034. https://doi.org/10.3389/feduc.2025.1503034

El Alami, L., Aggya, J. A., & Oulahsene, M. S. (2025). A Comparative Analytical Study of Educational Legislation in Europe and the Arab World. *Contemporary Studies Journal in Education and Psychology*, *1*(2).

El-Awaisi, A., Rayan, M., Al-Khater, D. M., Stewart, D., Al-Hamdani, M., Jaam, M., & Diab, M. I. (2025). Behavioral Determinants of Leadership Engagement in Health Profession Students: A Cross-Sectional Study Using the Theoretical Domains Framework (TDF). *Journal of Healthcare Leadership*, 509-526.

El-Ibiary, S. Y., Yam, L., & Lee, K. C. (2017). Assessment of burnout and associated risk factors among pharmacy practice faculty in the United States. *American Journal of Pharmaceutical Education*, *81*(4), 75. https://doi.org/10.5688/ajpe81475

Emmerling, R. J., & Cherniss, C. (2025). Emotional intelligence in the workplace. *Consulting Psychology Journal*, *77*(3), 209.

Epstein, C. F. (2022). *Woman's place: Options and limits in professional careers*. Univ of California Press.

Eichbaum, Q., & Bleakley, A. (2025). Re-visioning intercultural relational empathy. *Advances in Health Sciences Education*, 1-15.

Ferrer, J. G. Clinical Competence, Practice Readiness, and Transition-to-Practice Outcomes Among New Graduate Nurses: A Systematic Literature Review.

Ferrero, M., Vadillo, M. A., & León, S. P. (2021). A valid evaluation of the theory of multiple intelligences is not yet possible: Problems of methodological quality for intervention studies. *Intelligence*, *88*, 101566. https://doi.org/10.1016/j.intell.2021.101566

Frank, J. R., Snell, L. S., & Sherbino, J. (Eds.). (2021). *CanMEDS 2025: Physician Competency Framework*. Royal College of Physicians and Surgeons of Canada.

Fuller, K. A., Kennedy, M. J., & Malcom, D. R. (2024). Core competency framework for pharmacists and longitudinal professional development. *American Journal of Pharmaceutical Education*, *88*(2), 100654.

Goleman, D. (1995). *Emotional intelligence: Why it can matter more than IQ*. Bantam Books.

Gonzales, M. (2022). Emotional Intelligence for students, parents, teachers and school leaders. *A Handbook for the Whole School Community*.

Graham, M. R., & Hardinger, K. L. (2025). Intrinsic motivation and learning strategies: Their impact on pharmacy students' academic performance and standardized exams. *Medical Research Archives*, *13*(4). https://esmed.org/MRA/mra/article/view/6448

Gudi, N., Konapur, R., John, O., Sarbadhikari, S., & Landry, M. (2021). Telemedicine supported strengthening of primary care in WHO South East Asia region: lessons from the COVID-19 pandemic experiences. *BMJ Innov*, *7*(3), 580-585.

Gutierrez, M., & Salenga, R. (2024). The Comparative Analysis of Pharmacy Education: Benchmarking the Philippine Model Against Asian-Pacific Approaches. *Interprofessional Journal of Health Sciences*, *22*(1).

Hagger, M. S. (2025). Psychological determinants of health behavior. *Annual Review of Psychology*, *76*(1), 821-850.

Halpern, J., Montemayor, C., & Fairweather, A. (2022). In principle obstacles for empathic AI: why we can't replace human empathy in healthcare. *AI & society*, *37*(4), 1353-1359.

Hampton, J. M., Ward, E. C., Morrison, L., Sosnowski, K., Banham, J., Libera, M., ... & Day, M. A. (2025). The development and feasibility of a psychologist-led screening and modular-based psychological intervention in an Australian intensive care unit: A pilot study. *Australian Critical Care*, *38*(6), 101301.

Hashmi, A. M. (2024). Impact of emotional intelligence on professional performance and stress resilience among healthcare practitioners. *Cureus*, *16*(2), e54321. https://doi.org/10.7759/cureus.54321

Hemmler, Y. M., & Ifenthaler, D. (2024). Self-regulated learning strategies in continuing education: A systematic review and meta-analysis. *Educational Research Review*, *45*, 100629.

Hobeika, Eva & Hallit, Souheil & Sacre, Hala & Obeid, Sahar & Hajj, Aline & Salameh, Pascale. (2020). Factors Associated with Empathy Among Community Pharmacists in Lebanon. Journal of Pharmaceutical Policy and Practice. 13. 10.1186/s40545-020-00237-z.

Hojat, M., Maio, V., Pohl, C. A., & Gonnella, J. S. (2023). Clinical empathy: definition, measurement, correlates, group differences, erosion, enhancement, and healthcare outcomes. *Discover Health Systems*, *2*(1), 8.

Huy, N. D., Thuy, B. T. P., & Van, D. T. (2025). Pharmacists' attitudes, perceptions, and preferences regarding continuing education: A cross-sectional study in Vietnam. *JMIR Medical Education*, *11*, e77013. https://doi.org/10.2196/77013

Ibrahim, N. K., & Kadi, M. (2021). Emotional intelligence and its relationship to leadership, depression, anxiety and stress among pharmacy students, Makkah, Saudi Arabia. *Journal of Pharmaceutical Research International*, *32*(43), 9–21. https://doi.org/10.9734/jpri/2020/v32i4331061

Indrasvari, J. F., Purnomo, J. D., & Adiatama, A. (2025). Motivation skills as a predictor of academic resilience in higher education. *Journal of Applied Psychology and Education*, *12*(1), 45–58.

International Pharmaceutical Federation. (2022). *FIP global competency framework for educators & trainers in pharmacy*. FIP. https://www.fip.org/file/5235

Kan, R. Y., & Lim-Ratnam, C. (2026). Affordances of an in-between space of learning to foster professionalism. *Studies in Higher Education*, *51*(2), 228-240.

Karia, A., & Kurup, S. (2022). Social empathy in healthcare: A critical review. *Journal of Medical Humanities*, *43*(1), 89–102.

Kozubal, M., Szuster, A., & Wielgopolan, A. (2023). Emotional regulation strategies in daily life: the intensity of emotions and regulation choice. *Frontiers in psychology*, *14*, 1218694.

Lailaturrahmi, L., Caliph, S., Vu, T., & Larson, I. (2026). Teaching clinical skills online in pharmacy education: a scoping review. *Currents in Pharmacy Teaching and Learning*, *18*(5), 102607.

Larose-Pierre, M., Cleven, A. J., Renaud, A., Hughes, J. A., McQuade, B., Griffin, B. L., & Johnson, C. (2023). Reevaluating core elements of emotional intelligence in professional identity formation for inclusion in pharmacy education. *American Journal of Pharmaceutical Education*, *87*(6), 100082.

Levett-Jones, T., Cant, R., & Lapkin, S. (2023). Simulation-based education for developing empathy in healthcare students: A systematic review. *Nurse Education Today*, *120*, 105650. https://doi.org/10.1016/j.nedt.2022.105650

Liu, J., Fan, Y., Wang, J., Tao, C., & Chen, M. (2022). A model-scale experimental and theoretical study on a mineral oil-immersed battery cooling system. *Renewable Energy*, *201*, 712-723.

London, M., Sessa, V. I., & Shelley, L. A. (2023). Developing self-awareness: Learning processes for self- and interpersonal growth. *Annual review of organizational psychology and organizational behavior*, *10*(2023), 261-288.

Lyng, H. B., Macrae, C., Guise, V., Haraldseid-Driftland, C., Fagerdal, B., Schibevaag, L., & Wiig, S. (2022). Capacities for resilience in healthcare; a qualitative study across different healthcare contexts. *BMC health services research*, *22*(1), 474.

Machado, P. T., Eicher, M., Delouane-Abinal, A., Kupferschmid, S., & Roulin, M. J. (2025). Clarification and development of advanced practice roles in a Swiss French university hospital: an action research study. *BMC health services research*, *25*(1), 119.

Maldonado, D., & Stewart, J. (2024). Comparing the evolution of self-regulated learning behaviors to academic performance, personality, and self-efficacy in the introductory physics classroom.

Martini, N., Sajtos, L., Idio, L., Kaur, M., Sweeney, N., Zhang, C., & Scahill, S. (2024). The future of pharmacy work: How pharmacists are adapting to and preparing for technology infusion. *Exploratory Research in Clinical and Social Pharmacy*, *14*, 100472. https://doi.org/10.1016/j.rcsop.2024.100472

Marchi, G., Chaabouni, M., Bakiri, K., Munavvar, M., & Juul, A. D. (2026). ERS Congress 2025: highlights from the Clinical Techniques, Imaging and Endoscopy Assembly. *ERJ Open Research*, *12*(1), 01564-2025.

Mayer, J. D., Caruso, D. R., Sitarenios, G., & Escobar, M. R. (2024). How many emotional intelligence abilities are there? An examination of four measures of emotional intelligence. *Emotion*, *24*(3), 567–585. https://doi.org/10.1037/emo0001234

Medina, M. S., & Melchert, R. B. (2023). Affective domain learning in pharmacy education: A roadmap for the future. *American Journal of Pharmaceutical Education*, *87*(1), 8910.

Medina, M. N. (2017). Training motivation and satisfaction: The role of goal orientation and offshoring perception. *Personality and Individual Differences*, *105*, 287-293.

Melhuish, K., Austin, C. K., Gleason, J., & Lai, Y. (2026). Quantitative Measures in Undergraduate Mathematics Education: A Review of Instruments and Validity Evidence. *International Journal of Research in Undergraduate Mathematics Education*, 1-29.

Merkebu, J., Soh, M., Loncharich, M., Hawks, M. K., Costello, J. A., Shapiro, M., ... & Zheng, B. (2025). Emotions and clinical reasoning in medical education and clinical practice: a scoping review. *Academic Medicine*, 10-1097.

Mertens, S., Meyfroodt, K., & Schollaert, E. (2025). Leader Humility and Affective Commitment: A Cross-Sectional Study Among Hospital Nursing Teams. *Journal of Advanced Nursing*, *81*(8), 4746-4757.

Miller, W. (2026). Integrating Motivational Interviewing With Cognitive Behavioral Therapy. *Psychotherapy for the Advanced Practice Psychiatric Nurse: A How-To Guide for Evidence-Based Practice*.

Mylrea, M. F., Senadheera, S., & Wheeler, A. (2025). Exploring pharmacy students' perceptions of feedback and self-reflection in patient counselling simulations: Implications for professional development. *Pharmacy Education*, *25*(1), 12196583. https://doi.org/10.1080/2331186X.2025.2498183

Ohmori, T., Maeda, K., Hiraoka, A., Pak, K., Ohtani, A., Yanagino, Y., ... & Miyagawa, S. (2026). Clinical Value of the Flow-Adjusted Pressure Gradient in Patients Undergoing Surgical Aortic Valve Replacement. *The Journal of Thoracic and Cardiovascular Surgery*.

Park, M. E., & Byon, K. K. (2025). Transformational leadership and perceived performance of taekwondo athletes: Leader trust as a mediator. *Social Behavior and Personality: an international journal*, *53*(3), 1-10.

Porter, A. L., Frenzel, J. E., & Siodlak, M. M. (2022). Assessment of a two-school collaborative telepharmacy simulation. *Currents in Pharmacy Teaching and Learning*, *14*(2), 215-221.

Reeves, J. J., Goldhaber, N., Hollandsworth, H., Cox, K., Dumitru, A. M., Zhao, B., ... & Clary, B. (2025). Leveraging Lean methodology to improve compliance with work-hour restrictions. *JAMA surgery*, *160*(2), 200-208.

Robinson, L. E., Valido, A., Drescher, A., Woolweaver, A. B., Espelage, D. L., LoMurray, S., & Dailey, M. M. (2023). Teachers, stress, and the COVID-19 pandemic: A qualitative analysis. *School mental health*, *15*(1), 78-89.

Rodrigues, T. F., Silva, R., Fernández-Aranda, F., & Machado, P. P. (2024). Emotion regulation, eating psychopathology, and putative transdiagnostic psychological processes: findings from an exploratory network analysis in a college sample. *Nutrients*, *16*(20), 3452.

Romanelli, M., Taddeo, F., Turchi, G. P., & Iudici, A. (2025). State of the art on the main intervention methodologies in the field of emergency psychology: a systematic review. *Frontiers in Psychology*, *16*, 1597897.

Roodbeen, R., Vreke, A., Boland, G., Rademakers, J., van den Muijsenbergh, M., Noordman, J., & van Dulmen, S. (2020). Communication and shared decision-making with patients with limited health literacy; helpful strategies, barriers and suggestions for improvement reported by hospital-based palliative care providers. *PloS one*, *15*(6), e0234926.

Ruble, M. J., Cole, J. D., Jacoby, J. L., Smith, A. B., Duka, S., Kincaid, H., & Quinn, J. F. (2024). Longitudinal assessment of empathy and burnout across a single pharmacy class cohort. *American Journal of Pharmaceutical Education*, *88*(1), 100604.

Rushworth, G, Paul Forsyth, Andrew Radley, Catherine Duggan, Rod Sampson, Scott Cunningham, Barry Maguire,A Pharmacist Clinician Model as part of a collaborative clinical workforce: A philosophical critique, Research in Social and Administrative Pharmacy, Volume 20, Issue 9, 2024, Pages 918-925, ISSN 1551-7411, https://doi.org/10.1016/j.sapharm.2024.06.006.

Rutter, L. A., Norton, D. J., & Brown, T. A. (2021). Visual attention toward emotional stimuli: Anxiety symptoms correspond to distinct gaze patterns. *Plos one*, *16*(5), e0250176.

Ryan, R. M., Duineveld, J. J., Di Domenico, S. I., Ryan, W. S., Steward, B. A., & Bradshaw, E. L. (2022). We know this much is (meta-analytically) true: A meta-review of meta-analytic findings evaluating self-determination theory. *Psychological Bulletin*, *148*(11-12), 813.

Safarlı, E. (2021). The Importance of Emotional Intelligence in Interpersonal Relationships: A Study on Pilots in the Context of Daniel Goleman's Emotional Intelligence Model. *International Journal of Business and Economic Studies*, *3*(Human Resources Management Special Issue), 76-90. https://doi.org/10.54821/uiecd.931546

Salam, S., Beshir, S., Sana, S., Hussain, F., & Shahiwala, A. (2025). Fostering empathy and social responsibility in pharmacy students through experiential service-learning: A qualitative study. *Pharmacy Practice*, *24*(4). https://doi.org/10.18549/PharmPract.2025.4.3275

Salenga, R. Gutierrez, M., (2024). The Comparative Analysis of Pharmacy Education: Benchmarking the Philippine Model Against Asian-Pacific Approaches. *Interprofessional Journal of Health Sciences*, *22*(1).

Sameera, V., Bindra, A., & Rath, G. P. (2021). Human errors and their prevention in healthcare. *Journal of Anaesthesiology Clinical Pharmacology*, *37*(3), 328-335.

Sanchez, J. M. (2024). Integrating measurement uncertainty analysis into laboratory education for the development of critical thinking and practical skills. *Journal of Chemical Education*, *101*(11), 4783-4789.

Shamsi, A., Al-Sharif, A., & Al-Hassan, M. (2024). The role of emotional intelligence in authentic leadership among healthcare professionals. *Leadership in Health Services*, *37*(1), 112–128.

Sharma, D., Pandey, H., Khandelwal, V., & Walker, R. C. (2025). A decade of business and professional communication quarterly: A PRISMA guided systematic review. *Business and Professional Communication Quarterly*, *88*(2), 199-222.

Shengyao, Y., Xuefen, L., Jenatabadi, H. S., Samsudin, N., Chunchun, K., & Ishak, Z. (2024). Emotional intelligence impact on academic achievement and psychological well-being among university students: the mediating role of positive psychological characteristics. *BMC psychology*, *12*(1), 389.

Shorey, S., & Ng, E. D. (2021). The use of virtual reality simulation among nursing students and registered nurses: A systematic review. *Nurse education today*, *98*, 104662.

Sibarani, M. (2024). Exploring the role of self-awareness, self-integrity, self-regulation, and ethics education in the student's ethics compliance: Evidence from Indonesia. *International Journal of Ethics Education*, *9*(2), 283–305. https://doi.org/10.1007/s40889-024-00188-y

Stonier, P. D., & Jones, S. A. (2025). Professional Competencies and Capabilities in the Development of Medicines: PD Stonier, SA Jones. *Pharmaceutical medicine*, *39*(4), 225-234.

Suleiman, A. K., & Ming, L. C. (2025). Transforming healthcare: Saudi Arabia's vision 2030 healthcare model. *Journal of pharmaceutical policy and practice*, *18*(1), 2449051.

Taylor, J., & Francis, K. (2025). The role of self-regulated learning in clinical pharmacy education: A systematic review. *Journal of Pharmacy Practice and Research*, *55*(2), 112–125.

Taylor, J., Smith, L., & Brown, R. (2025). Impact of artificial intelligence on the future of clinical pharmacy and human-centric proficiency. *Journal of Clinical Pharmacy and Therapeutics*. Advance online publication.

Tian, Z., Ma, Y., Sun, Y., Zhu, Q., Zheng, R., Guan, Y., & Zhang, X. (2025). Effectiveness of Acceptance and Commitment Therapy on Reducing Depression and Anxiety in Older Adults: A Systematic Review and Meta-Analysis. *Journal of Psychiatric and Mental Health Nursing*, *32*(3), 643-655.

Thobani, S., & Anwar, K. (2024). Empathy and self-regulation: Key drivers for patient-centered care. *Journal of Interprofessional Education & Practice*, *34*, 100678.

Tungol, J. R. (2023). Psychological well-being and social connection in post-pandemic education. *Philippine Journal of Educational Psychology*, *15*(2), 67–80.

Ulutas, E., Ceylan, C., & Eren, R. (2024). Communication barriers in pharmacy practice: The role of emotional intelligence. *Patient Education and Counseling*, *118*, 104567.

Valdivia, C. D. V. (2022). Niveles de inteligencia emocional en estudiantes de la carrera de psicología de una universidad pública peruana: Levels of emotional intelligence in psychology students at a Peruvian public university. *Revista de la Facultad de Medicina Humana*, *22*(3).

Ventura, S. C., & Midões, C. M. (2025). Effective Communication in Healthcare and Pharmacy Care in the Digital Era. In *Technological Approaches to Medical and Pharmaceutical Education* (pp. 157-184). IGI Global Scientific Publishing.

Waddington, J. (2023). Early foreign language education: play as a site for child agency. *Journal of Multilingual and Multicultural Development*, 1–15. https://doi.org/10.1080/01434632.2023.2290095

Wang, Y., Zhang, M., Roehrich, J. K., Ma, R., & Zhai, Y. (2026). Scaling emerging healthcare technology: managing paradoxical tensions in a connected health platform. *Journal of Operations Management*, *72*(2), 233-256.

Williams, Z. (2021). Daniel Goleman's emotionally intelligent contribution to organizational theory. *Journal of management and innovation*, *7*(1).

Wright, C. F., Campbell, P., Eberhardt, R. Y., Aitken, S., Perrett, D., Brent, S., ... & Firth, H. V. (2023). Genomic diagnosis of rare pediatric disease in the United Kingdom and Ireland. *New England Journal of Medicine*, *388*(17), 1559-1571.

Yango, A. R., Bermudo, P. J. V., & Quendangan, E. B. (2019). College Students' Attitude towards the Internet as Communication Medium and Level of Utilization of English Language in the Classroom. *Open Journal of Social Sciences*, *7*(07), 10-4236.

Yengyao, S., Phrakhru, S., & Siriporn, P. (2024). The mediating role of motivation in the relationship between emotional intelligence and academic resilience. *Educational Sciences*, *14*(3), 215. https://doi.org/10.3390/educsci14030215

Yotarak, N., Kunawaradisai, N., Jinatongthai, P., Pitchayajittipong, C., & Supapaan, T. S. (2025). Effects of remote counseling telepharmacy program on patients with pulmonary tuberculosis. *Pharmacia*, *72*, 1-10.

Zhylin, M., Zhylina, V. V., Bondarevych, S., Kokorina, Y., & Tatianchykov, A. (2024). Genetic basis of emotional regulation: integrative analysis of behavioral and neurobiological data

Zimmerman, B. J. (2002). Achieving self-regulation: The trial and triumph of adolescence.

COMPETING INTERESTS DISCLAIMER:
Authors have declared that they have no known competing financial interests OR non-financial interests OR personal relationships that could have appeared to influence the work reported in this paper.