

# The Correlation between the Problem-Solving Skills and the Levels of Emotional Intelligence and Compassion of Midwifery Students

## Ebelik Öğrencilerinin Problem-Çözme Becerileri ile Duygusal Zeka ve Merhamet Düzeyleri Arasındaki İlişki

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**Cite this article as:** İbici Akça E, Gökbulut N. The correlation between the problem-solving skills and the levels of emotional intelligence and compassion of midwifery students. J Acad Res Nurs. 2025;11(2):103-10

### ABSTRACT

**Objective:** The present study was conducted to determine the relationship between midwifery students' problem-solving skills and their emotional intelligence and compassion levels.

**Methods:** A relational screening model was used for the study. The sample of this study consisted of 712 midwifery students studying in all midwifery departments in Türkiye between June and August 2022. Data of the study was collected with the Personal Information Form, Problem-Solving Inventory (PSI), Revised Schutte Emotional Intelligence Scale (RSEIS), Compassion Scale (CS). Descriptive statistics, Pearson correlation test, and multiple linear regression analysis were used in the statistical analysis of the data.

**Results:** There is a negative and statistically significant moderate correlation between the students' PSI, RSEIS, and CS total mean scores ( $p < 0.001$ ). In addition, there is a statistically significant moderate correlation between students' RSEIS and CS total mean scores ( $p < 0.001$ ).

**Conclusion:** It has been determined that as the emotional intelligence and compassion levels of the students increase, their problem-solving skills increase. In addition, as students' emotional intelligence levels increase, their compassion levels also increase.

**Keywords:** Compassion, emotional intelligence, midwifery students, problem-solving

### ÖZ

**Amaç:** Bu araştırma, ebelik öğrencilerinin problem çözme becerileri ile duygusal zeka ve merhamet düzeyleri arasındaki ilişkiyi belirlemek amacıyla yapılmıştır.

**Yöntem:** Araştırmada ilişkisel tarama modeli kullanılmıştır. Bu araştırmanın örneklemini, Haziran-Ağustos 2022 tarihleri arasında Türkiye'de tüm ebelik bölümlerinde öğrenim gören 712 ebelik öğrencisi oluşturmuştur. Veriler; Kişisel Bilgi Formu, Problem Çözme Envanteri (PÇE), Gözden Geçirilmiş Schutte Duygusal Zeka Ölçeği (DZÖ) ve Merhamet Ölçeği (MÖ) ile toplanmıştır. Verilerin istatistiksel değerlendirmesinde tanımlayıcı istatistikler, Pearson korelasyon testi ve çoklu doğrusal regresyon analizi kullanılmıştır.

**Bulgular:** Öğrencilerin PÇE toplam ile DZÖ toplam ve MÖ toplam puan ortalamaları arasında negatif yönde istatistiksel olarak anlamlı orta düzeyde bir ilişki bulunmuştur ( $p < 0,001$ ). Ayrıca öğrencilerin DZÖ toplam ile MÖ toplam puan ortalamaları arasında pozitif yönde istatistiksel olarak anlamlı orta düzeyde bir ilişki bulunmuştur ( $p < 0,001$ ).

**Sonuç:** Öğrencilerin duygusal zeka düzeyleri ile merhamet düzeyleri arttıkça problem çözme becerilerinin arttığı belirlenmiştir. Ayrıca öğrencilerin duygusal zeka düzeyleri arttıkça merhamet düzeyleri de artmaktadır.

**Anahtar kelimeler:** Merhamet, duygusal zeka, ebelik öğrencileri, problem-çözme

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Received Date: 14.09.2023 Accepted Date: 11.07.2025

Publication Date: 11.08.2025



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## INTRODUCTION

Problem-solving is a very complex process that includes cognitive skills, emotional and behavioral features, and it is closely related to many concepts <sup>(1)</sup>. Developing problem-solving skills is a logical and organized approach that can help a person cope with stressful situations. The high psychological resilience, self-confidence, and problem-solving skills of midwifery students play an important role in increasing the quality of health care and fulfilling their responsibilities toward patients <sup>(2)</sup>. It has been reported in the literature that the problem-solving skills of midwives, who use their emotional intelligence, would be helpful in solving the problems that may occur while performing pregnancy, birth, and postpartum care <sup>(3)</sup>.

Emotional intelligence includes factors such as emotional awareness, adjustment of emotions, use of emotions (having internal motivation, empathy), and interpersonal relationship skills <sup>(4)</sup>. Emotional intelligence is an important skill for midwives and nurses, so that it can help them to work professionally in various fields and contexts, to deal with their colleagues, patients, and their families from a successful and different perspective <sup>(5,6)</sup>. The main purpose of midwifery is to help patients cope with their problems, and meet their own needs by identifying the individuals they serve, in an appropriate way of communication and interaction based on mutual trust <sup>(7)</sup>. Midwives have an important role not only in health counseling and education for women, but also for the whole family and society. They are responsible for protecting and improving maternal and child health, and providing high-quality care and information for the patient <sup>(8)</sup>. Effective interpersonal relationships, helping and counseling skills are the foundation of qualified midwifery care. Midwives should use their skills of emotional intelligence effectively in order to both ensure professional success and maximize the quality of care received by women and their families by providing effective midwifery care <sup>(8,9)</sup>. Another factor that increases the quality of care in midwifery is compassion-based practices <sup>(10)</sup>. Compassion is a fundamental value in health services, and it is explained as practices that can handle people's pain, sadness, and stress with kindness, expand their comfort zone, and alleviate their pain. Compassion requires respecting and valuing people as individuals <sup>(11)</sup>. Providing compassionate midwifery care to women is a basic human right <sup>(10)</sup>. The importance of the concept of compassion for health services should be discussed and developed in student life <sup>(12)</sup>. Karakaya et al. <sup>(8)</sup>, in their study examining the relationship between emotional intelligence and communication skills of midwifery undergraduate students, determined that as the emotional intelligence levels of midwifery students increased, their communication skills also increased in direct proportion <sup>(8)</sup>. Çevik Durmaz et al. <sup>(13)</sup> reported that students with high communication skills also had high levels of problem-solving skills. In addition, Ahmady and Shahbazi <sup>(14)</sup> revealed that nursing students who received social problem-solving training improved their cognitive problem-solving, critical thinking, and decision-making skills. It has been reported in the literature

that midwifery students have high levels of compassion <sup>(12,15)</sup>, compassionate care is a basic human right <sup>(10)</sup>, attention is drawn to the importance of midwifery lecturers educating prospective midwives on compassion, and the integration of compassion into midwifery education <sup>(15-17)</sup>. Although problem-solving, emotional intelligence, and compassion levels of midwifery students were discussed separately <sup>(8,12,13,15)</sup>, no study was found in which the relationship between midwifery students' problem-solving skills and the levels of emotional intelligence and compassion were analyzed together. In addition, the main goal in the healthcare system is for midwives to be able to empathize so that they can establish a good relationship with patients, develop emotional intelligence skills, and solve the individual's problem as soon as possible <sup>(18,19)</sup>. Within the framework of this research, it is aimed to contribute to the relevant literature by evaluating the relationship between problem-solving skills, which are thought to be effective in the evaluation of the care given by prospective midwives, and the levels of emotional intelligence and compassion.

## MATERIAL AND METHOD

### Design and Objective of the Research

This study was conducted to determine the relationship between midwifery students' problem-solving skills and the levels of emotional intelligence and compassion. Relational screening model was used in the study. Relational screening model is a model, it is aimed to determine whether there is a relationship between two or more variables or the extent of the relationship <sup>(20)</sup>.

### Location and Time of the Research

The research was conducted with midwifery students studying in all midwifery departments in Türkiye between June and August 2022.

### Population and Sample of the Research

The population of the research consists of midwifery students studying in all state universities in Türkiye. Midwifery undergraduate education is available at 46 state universities in Türkiye [Council of Higher Education (CoHE) of the Republic of Türkiye] <sup>(21)</sup>. Also, there are seven geographical regions in Türkiye. Of the provinces where midwifery undergraduate education is given, 8.7% of them are located in the Aegean region, 15.2% of them are located in the Mediterranean region, 15.2% of them are located in the Eastern Anatolia region, 8.7% of them are located in the Southeastern Anatolia region, 15.2% of them are located in the Black Sea region, 17.4% of them are located in the Marmara region, and %19.6 of them are located in the Central Anatolia region, according to Türkiye's CoHE <sup>(21)</sup>. The G\*Power 3.1.9.2 program was used to determine the sample size <sup>(22)</sup>. The minimum number of individuals to be included in the study was calculated based on a study that examined the relationship between the students' emotional intelligence levels and their problem-solving skills <sup>(23)</sup>. Since the minimum number of individuals to be included in the sample of this study would be based on the basic statistical correlation, it

was found that the sample should be 647 individuals when the correlation is 0.16,  $\alpha=0.05$ , and the power is 99%. Considering the possible data losses (10%), it was aimed to reach 711 students. The study was completed with 712 midwifery students who met the inclusion criteria. In order to reach the number of samples, the snowball sampling method, which is one of the purposeful sampling methods, was used. The snowball sampling method is also known as the Chain method. This method is preferred in cases where it is difficult to reach the target audience <sup>(24)</sup>. Participants were reached through social networking sites. In addition, the students participating in the research suggested different social networking groups of midwifery students to the researchers, including their and their friends' social networking groups. Therefore, data collection was continued until a sufficient number of samples was reached in the study. Students who had smartphones, had an internet connection, studied at a midwifery department in any region of Türkiye, and voluntarily agreed to participate in the research were included in the study.

### Data Collection Tools

Data of the study was collected with the Personal Information Form, Problem-Solving Inventory (PSI), Revised Schutte Emotional Intelligence Scale (RSEIS), and Compassion Scale (CS).

#### Personal Information Form

It is a form consisting of 16 questions developed by the researchers in line with the literature in order to determine the socio-demographic and occupational characteristics of the students <sup>(19,23,25-27)</sup>.

#### The Problem-Solving Inventory (PSI)

The PSI was developed by Heppner and Petersen <sup>(28)</sup> to measure the problem-solving skills of healthcare professionals and was adapted into Turkish by Şahin et al. <sup>(29)</sup>. The inventory is in the form of 35-items, six-point Likert-type inventory that measures individuals' perceptions of their problem-solving skills. The items of the inventory are scored as (1: always, 2: I mostly act like this, 3: I often act like this, 4: I sometimes act like this, 5: I rarely act like this, 6: I never act like this). During scoring, items 9, 22, and 29 are excluded from scoring, and items 1, 2, 3, 4, 11, 13, 14, 15, 17, 21, 25, 26, 30, and 34 are reverse scored. The range of points that can be obtained from the inventory varies between 32 and 192. High scores obtained from the inventory indicate that the individual perceives himself/herself as inadequate in problem-solving skills. The Cronbach's alpha coefficient of the original inventory was 0.90, and the Cronbach's alpha coefficient of the Turkish validity and reliability study was 0.88 <sup>(28,29)</sup>. In the current study, the Cronbach's alpha coefficient of the inventory was found to be 0.90.

#### The Revised Schutte Emotional Intelligence Scale (RSEIS)

The Emotional Intelligence Scale was developed by Schutte et al. <sup>(30)</sup> in order to measure the skills of individuals constituting emotional intelligence, and it was revised by Austin et al. <sup>(31)</sup>. The

RSEIS was adapted to Turkish by Tatar et al. <sup>(32)</sup>. The scale is in the form of 41-items and five-point Likert type. Items are scored as (1: strongly disagree to 5: strongly agree). Items 3, 4, 6, 8, 10, 12, 13, 14, 17, 20, 22, 23, 24, 25, 26, 28, 34, 35, 39, 40, and 41 are reverse coded in the scale. The range of points that can be obtained from the scale varies between 41 and 205. The Cronbach's alpha coefficient of the Turkish validity and reliability study of the scale was calculated as 0.82 <sup>(30,32)</sup>. In the current study, the Cronbach's alpha coefficient of the scale was found to be 0.88.

#### The Compassion Scale (CS)

The CS was developed by Pommier <sup>(33)</sup>, and its Turkish validity and reliability study was conducted by Akdeniz and Deniz <sup>(34)</sup>. The scale is in the form of a five-point Likert-type with 24 items in total. Items are scored as (1: never, 2: rarely, 3: sometimes, 4: often, 5: always). Items 1, 2, 3, 5, 7, 10, 12, 14, 18, 19, 22, 23 are reverse coded in the scale. The range of points that can be obtained from the scale varies between 24 and 120. As the total score obtained from the scale increases, the level of compassion also increases. The Cronbach's alpha coefficient of the Turkish validity and reliability study of the scale was found to be 0.85 <sup>(33,34)</sup>. In the current study, the Cronbach's alpha coefficient of the scale was found to be 0.93.

### Data Collection

In order to reach students studying in midwifery departments in Türkiye, students were contacted via social networking sites (WhatsApp groups of Midwifery-Related Associations, Facebook and Instagram Midwifery Student groups, etc.). The questionnaires were collected by utilizing the Google forms application. Google forms application, which is a cloud-based data management tool, was used for designing and developing web-based questionnaires. An automatic web URL is generated for the survey with this method <sup>(35)</sup>. A web-based online survey link was sent to the students who were reached through social networking sites. Information about the research and a consent form to participate in the study were included on the cover page of the online questionnaire. It was ensured that the students participating in the survey could only give one answer. Answering the questions took an average of 15 minutes for each student.

### Statistical Analysis

The Statistical Package for Social Sciences for Windows was used for coding and analyzing the data. Whether the variables showed normal distribution or not was determined by the Kolmogorov-Smirnov test. Additionally, it was determined that the data showed normal distribution. In the statistical analysis, descriptive statistics (number, percentage distributions, mean, standard deviation), and the Pearson correlation test were used. Multiple linear regression analysis was used to determine the relationships between dependent and independent variables. No multicollinearity problem was detected between independent variables variance inflation factors <10. The results were analyzed at a 95% confidence interval, with a statistical significance of  $p<0.05$ .

## Ethical Considerations

Approval was obtained from the İnönü University Health Sciences Non-Interventional Clinical Research Ethics Committee (approval no.: 2022/3598, date: 07.06.2022) to conduct the study. The students were informed about the research, and those who volunteered to participate were included in the research after they declared that they volunteered through the Google forms application.

## RESULTS

The mean age of the students was  $20.54 \pm 2.05$  (minimum: 17, maximum: 39). 44.1% of the students were in their first year, 69.5% of them were Anatolian high school graduates, 80.6% of them had nuclear families, 78.5% of them had a moderate economic level, 49.9% of them spent most of their life in the province and 95.5% of them were unemployed. 47.8% of the students stated that the education level of their mother was primary school, and 34.3% of the students stated that the education level of their father was primary school (Table 1).

It was determined that 29.4% of the students studied midwifery in the Eastern Anatolia region of Türkiye, 73.6% of them chose the midwifery department intentionally, 91.3% of them liked the department and 93.5% did not take any courses from the previous years. It was determined that 69.2% of the students regarded their empathy skills as high, 98.5% of them found themselves compassionate, and 98.6% of them thought it was required to be compassionate for the midwifery profession (Table 2).

The total mean score of the students from PSI was  $89.49 \pm 20.93$ , the total mean score of the students from the RSEIS was  $155.39 \pm 17.87$ , and the total mean score of the students from the CS was  $99.39 \pm 16.09$  (Table 3).

In Table 4, the correlation between the students' PSI, RSEIS, and CS total mean scores was examined. There was a negative and statistically significant moderate correlation between the students' PSI, RSEIS, and CS total mean scores ( $p < 0.001$ ). In addition, a statistically significant moderate correlation was found between students' RSEIS and CS total mean scores ( $p < 0.001$ ). According to these results, as the RSEIS and CS total mean scores of students increased, the PSI total mean score decreased, and as the RSEIS total mean score increased, the CS total mean score also increased (Table 4).

In Table 5, a multiple linear regression analysis was performed in which the students' PSI total mean score was the dependent variable, and the students' RSEIS and CS total mean scores were the independent variables. In the established model, it was seen that the coefficient of determination, which is  $R^2$ , which shows how much of the dependent variable is explained by the independent variables, is 0.384. In other words, 38.4% of the change in students' PSI total mean score is explained by the independent variables in the established model. The result of the F statistic, which was used to test whether the model was significant as a whole, presented that the model was significant as a whole ( $F = 222.425$ ,  $p < 0.001$ ) (Table 5).

**Table 1. Distribution of the Students' Socio-demographic Characteristics (n=712)**

Socio-demographic characteristics	n	%
<b>Year</b>		
1 <sup>st</sup>	314	44.1
2 <sup>nd</sup>	202	28.3
3 <sup>rd</sup>	123	17.3
4 <sup>th</sup>	73	10.3
<b>High school graduated</b>		
Normal high school	35	4.9
Anatolian high school	495	69.5
Medical vocational high school	103	14.5
Basic high school	11	1.5
Science high school	36	5.1
Religious vocational high school	25	3.5
Open education high school	7	1.0
<b>Family type</b>		
Nuclear family	574	80.6
Extended family	138	19.4
<b>Income level</b>		
High	57	8.0
Moderate	559	78.5
Low	96	13.5
<b>The place of residency where participants spent most of their life</b>		
Village	126	17.7
District	231	32.4
Province	355	49.9
<b>Employment status</b>		
Employed	32	4.5
Unemployed	680	95.5
<b>Educational level of the mother</b>		
Illiterate	83	11.7
Literate	48	6.7
Primary school	340	47.8
Middle school	103	14.5
High school	110	15.4
University or higher	28	3.9
<b>Educational level of the father</b>		
Illiterate	25	3.5
Literate	23	3.2
Primary school	244	34.3
Middle school	145	20.4
High school	185	26.0
University or higher	90	12.6
<b>Students' mean age: <math>20.54 \pm 2.05</math> (min: 17, max: 39)</b>		
<b>Total</b>	<b>712</b>	<b>100.0</b>

In the multiple regression model, it was found that the RSEIS and CS variable and the constant term had a statistically significant effect on the PSI total mean score ( $p < 0.001$ ). In other words, the RSEIS and CS variables had an effect on the change of students' PSI total mean score. A 1-unit change in the RSEIS total mean

score would cause a 0.484-unit ( $\beta_1$ ) decrease in the PSI total mean score. A 1 standard deviation change in the RSEIS total mean score would cause a negative 0.413 standard deviation ( $\beta_2$ ) decrease in the PSI total mean score. A 1-unit change in the CS total mean score would cause a negative 0.384-unit ( $\beta_1$ ) decrease in the PSI total mean score. A change of 1 standard deviation in the total score of CS would cause a negative 0.295 standard deviation ( $\beta_2$ ) decrease in the PSI total mean score. It was found that 38.4% of the PSI total mean score was explained by the RSEIS and CS independent variables.

## DISCUSSION

Today, the focus is on strengthening midwifery education in improving the quality of midwifery care services <sup>(36)</sup>. In the study, it was determined that as the emotional intelligence and compassion levels of the students increased, their problem-solving skills increased. In addition, it was determined that as the emotional intelligence levels of the students increased, their compassion levels also increased. The results obtained from the research are extremely important in terms of understanding the effects of problem-solving and emotional intelligence skills and compassion on midwifery education and healthcare quality, designing different strategies in midwifery education to develop these skills, and increasing the quality of future midwifery care.

The midwifery profession is a practice-based profession in which clinical teaching, learning, and assessment are the basic requirements <sup>(37)</sup>, and problem-solving skills and emotional intelligence are among the important factors that directly or indirectly facilitate the clinical performance of students <sup>(38)</sup>. In the literature, it is stated that individuals with high emotional intelligence have better problem-solving skills <sup>(39)</sup>. In this study, a negative and statistically significant correlation was found between the students' PSI and RSEIS total mean scores. Furthermore, as students' emotional intelligence levels increased, their problem-solving skills increased (Table 4). In addition, it was determined that a 1-unit increase in the RSEIS total mean score in the established model caused a 0.484-unit decrease in the PSI total mean score (Table 5). In the study conducted by Augusto Landa et al. <sup>(25)</sup>, it was found that nurses with high emotional intelligence skills had high levels of problem-solving skills, and Yılmaz Karabulutlu et al. <sup>(23)</sup> stated in their study that as the emotional intelligence level of the students increased, their problem-solving skills also increased <sup>(23,25)</sup>. The results of the current research support the literature.

**Table 2. Distribution of the Occupational Characteristics of the Students (n=712)**

Occupational characteristics	n	%
<b>Geographical region of the university where the participants studied in Türkiye</b>		
Aegean region	92	12.9
Marmara region	52	7.3
Black Sea region	59	8.3
Central Anatolia region	156	21.8
Mediterranean region	78	11.0
Southeast Anatolia region	66	9.3
Eastern Anatolia region	209	29.4
<b>The status of intentionally choosing the department</b>		
Those who intentionally chose the department	524	73.6
Those who unintentionally chose the department	188	26.4
<b>The status of liking the department</b>		
Those who liked the department	650	91.3
Those who did not like the department	62	8.7
<b>The status of taking lessons from the previous years</b>		
Those who were taking lessons from the previous years	46	6.5
Those who were not taking lessons from the previous years	666	93.5
<b>The level of empathy skills</b>		
High	493	69.2
Medium	211	29.6
Low	8	1.2
<b>The status of being compassionate</b>		
Compassionate	701	98.5
Uncompassionate	11	1.5
<b>Considering compassion is required for the midwifery profession</b>		
Required	702	98.6
Unrequired	10	1.4
<b>Total</b>	<b>712</b>	<b>100.0</b>

**Table 3. Descriptive Statistics of Students' PSI, RSEIS, and CS Total Mean Scores (n=712)**

Scales	$\bar{X} \pm SD$	Min-max values that were taken	Min-max values that could be taken
PSI Total	89.49±20.93	41-157	32-192
RSEIS Total	155.39±17.87	67-195	41-205
CS Total	99.39±16.09	40-120	24-120

$\bar{X}$ : Mean, SD: Standard deviation, PSI: Problem-solving inventory, RSEIS: Revised Schutte Emotional Intelligence Scale, CS: Compassion Scale



In addition, it is possible to say that midwifery students who know their own emotions and who can understand the emotions of others may reach the solutions to the problems they encounter more easily.

Compassion is considered a fundamental element of patient-centered care <sup>(40)</sup>, which is the main determinant of qualified care <sup>(41)</sup>. Emotional intelligence is often associated with the concepts of care, compassion, and clinical performance <sup>(42)</sup>. In the present study, as students' emotional intelligence levels increased, their compassion levels increased. In the literature review, no study was found that directly investigated the relationship between emotional intelligence and compassion of midwifery students. However, in their study with university students, Akdeniz and Deniz <sup>(43)</sup> stated that students with high levels of compassion also had high emotional intelligence. In addition, there are studies that have indicated that emotional intelligence is related to prosocial behaviors <sup>(44,45)</sup> and that it is related to socially supportive behaviors <sup>(46)</sup> as it is to compassion. In addition, it is stated that there is a positive correlation between self-compassion and emotional intelligence <sup>(47)</sup>. Individuals who can be aware of the sadness of others by using their emotional intelligence may be more willing to help others <sup>(43)</sup>. In line with all these results, it is thought that the results of the research are similar to the literature and it can be said that the applications that improve the emotional intelligence skills of the students would also contribute to the increase of the sense of compassion.

Compassion is at the heart of supportive and holistic midwifery care, which is among the professional roles of midwives <sup>(48)</sup>.

**Table 4. The Relationship Between Students' PSI, RSEIS, and CS Total Mean Scores**

SCALES	PSI	RSEIS	CS
<b>PSI</b>			
r	-	-	-
p	-	-	-
<b>RSEIS</b>			
r	-0.568	-	-
p	<b>0.000*</b>	-	-
<b>CS</b>			
r	-0.511	0.523	-
p	<b>0.000*</b>	<b>0.000*</b>	-

r: Pearson correlation test, PSI: Problem-solving inventory RSEIS: Revised Schutte Emotional Intelligence Scale, CS: Compassion Scale, \*p<0.001

The effective use of problem-solving skills by midwives and nurses while giving care to healthy and sick individuals is an important factor in increasing the quality of care <sup>(49)</sup>. According to Gilbert's <sup>(50)</sup> definition, compassion is the effort to solve a problem and the willingness to help other people or themselves in problematic situations. In the current study, it was determined that as the level of compassion of the students increased, their problem-solving skills increased. However, in the established model, it was determined that a 1-unit increase in the CS total mean score caused a 0.384-unit decrease in the problem-solving inventory total mean score. In line with these results, it can be said that the compassion-based care approach can positively affect the problem-solving skills of midwifery students.

In the model established in the research, the total mean scores obtained from the RSEIS and CS explained 38.4% of the total mean score obtained from the PSI. This result has presented that emotional intelligence and compassion are effective variables in developing problem-solving skills in students.

### Study Limitations

One of the strongest aspects of the research is the participation of midwifery students studying in every region of Türkiye and the sample size. In addition, the data of the study was collected by valid and reliable measurement tools and experienced researchers. Thus, the results of the current study can be used to present to policymakers, administrators, and educators in midwifery care services so that new and more efficient approaches can be planned to develop the problem-solving and emotional intelligence skills and compassion levels of midwifery students. Despite all these strengths of the study, some limitations of the study need to be acknowledged. Firstly, the data of the study was collected using a self-administered online questionnaire, which is known to be subject to respondent bias. Secondly, because of conducting the research online, students who did not have smartphones or internet connections could not participate in the research, and the inability to verify the students participating in the research are among the limitations of. Although this research presents the correlation between problem-solving skills and emotional intelligence and compassion levels of midwifery students studying in Türkiye, the results are limited only to the students participating in the research, since the snowball sampling method and social networking sites regularly used by midwifery students were utilized in the research; therefore, the results cannot be generalized to all midwifery students.

**Table 5. The Results of Multiple Linear Regression Analysis of the Factors Associated with the Problem-Solving Inventory**

Variables	$\beta_1$	$\beta_2$	t-test	p <sup>1</sup>	Confidence intervals		R <sup>2</sup>	F-test	p <sup>2</sup>
					Lower bound	Upper bound			
<b>Constant</b>	202.859		36.754	<b>0.000</b>	192.022	213.695			
<b>RSEIS</b>	-0.484	-0.413	-11.969	<b>0.000</b>	-0.564	-0.405	0.384	222.425	<b>0.000</b>
<b>CS</b>	-0.384	-0.295	-8.537	<b>0.000</b>	-0.472	-0.295			

$\beta_1$ : Non-standardized regression coefficients,  $\beta_2$ : Standardized regression coefficients, p<sup>1</sup><0.001, t-test result for the significance of the regression coefficients, R<sup>2</sup>: Explanatory coefficient, p<sup>2</sup><0.001, F-test result for the significance of the model, RSEIS: Revised Schutte Emotional Intelligence Scale, CS: Compassion Scale

## CONCLUSION

In the study, it was found that as the emotional intelligence levels of the students increased, their level of compassion increased, and it was determined that problem-solving skills improved as emotional intelligence and compassion levels increased. At the same time, as a result of the regression analysis, it has been concluded that emotional intelligence and compassion are effective variables in developing problem-solving skills in students.

In the research, it is emphasized that students' problem-solving and emotional intelligence skills and feelings of compassion should be focused on in order to increase the quality of health care and to train more qualified healthcare professionals. In line with these results, it is recommended to use different teaching strategies (simulation, role-play, etc.) that may improve students' problem-solving and emotional intelligence skills throughout their education life, and to integrate the compassion-based approach, which is the main element of individual-centered care, into midwifery education in increasing the quality of midwifery care. It is also recommended to examine the correlation between the problem-solving skills and emotional intelligence and compassion levels of midwives working in the field in order to monitor and increase the quality of healthcare services.

### Ethics

**Ethics Committee Approval:** The study was approved by the İnönü University Health Sciences Non-Interventional Clinical Research Ethics Committee (approval no.: 2022/3598, date: 07.06.2022).

**Informed Consent:** All participants were informed and written informed consent was obtained.

**Acknowledgement:** We thank all participants who participated in the research.

### Footnotes

#### Author Contributions

Concept: EİA; Design: EİA; Data Collection or Processing: EİA, NG; Analysis or Interpretation: EİA, NG; Literature Search: EİA, NG; Writing: EİA, NG.

**Conflict of Interest:** The authors declare that there are no conflict of interests.

**Funding:** The authors received no financial support for the research.

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