

## Association Between Adverse Childhood Experiences and Psychological First Aid Self-Efficacy Among Paramedics and Paramedic Students

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### Abstract

**Objective:** This study investigated the relationship between adverse childhood experiences, specifically childhood abuse and neglect, and the self-efficacy of psychological first aid (PFA) among paramedics and paramedic students involved in emergency medical services. **Method:** This cross-sectional study comprised 204 participants, including 149 paramedic students and 55 practicing paramedics, from a province in Eastern Türkiye. Adverse childhood experiences related to abuse and neglect were evaluated using the Childhood Trauma Questionnaire (CTQ), which assesses emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect. Additional data were gathered through a General Information Form and the Psychological First Aid Application Self-Efficacy Scale. Statistical analyses were performed using SPSS v.23, incorporating descriptive statistics, the Mann–Whitney U test, the Kruskal–Wallis H test, and Spearman’s rank correlation analysis. **Results:** Participants exhibited generally low levels of childhood trauma as measured by the Childhood Trauma Questionnaire (CTQ) and high levels of Psychological First Aid (PFA) self-efficacy. A statistically significant negative correlation was observed between PFA self-efficacy and total CTQ scores ( $r = -0.271$ ,  $p < 0.01$ ). Significant negative correlations were also identified between PFA self-efficacy and CTQ sub-dimensions, including emotional abuse, physical abuse, emotional neglect, and physical neglect ( $p < 0.05$ ). Furthermore, participants with lower income levels demonstrated significantly higher CTQ scores compared to those with middle- or high-income levels ( $p < 0.05$ ). **Conclusion:** Elevated levels of adverse childhood experiences, particularly in the neglect and abuse domains, were significantly associated with lower psychological first aid self-efficacy among emergency care personnel and students. These findings highlight the need for tailored psychosocial support interventions and trauma-informed educational programs in emergency medical training curricula.

**Keywords:** Childhood trauma, Emergency health services, Paramedic, Psychological first aid, Self-efficacy

### 1. Introduction

Prehospital emergency health services constitute a vital element of healthcare systems, providing immediate medical and psychosocial interventions in life-threatening and unpredictable circumstances (Carleton et al., 2019). As frontline professionals in these environments, paramedics are routinely exposed to traumatic events, severe injuries, and emotional interactions. These conditions require not only clinical proficiency, but also resilience, rapid decision-making, emotional regulation, and effective interpersonal communication (Taylor et al. 2023). The psychological demands of prehospital care underscore the importance of identifying factors that may influence paramedics’ professional functioning and perceived competence. Childhood trauma, particularly experiences of abuse and neglect, is widely recognized as a significant early-life risk factor affecting mental health and psychosocial functioning in adulthood. In the present study, childhood trauma was operationalized using the Childhood Trauma Questionnaire (CTQ), which assesses emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect. Empirical evidence indicates that exposure to such traumatic experiences is associated with long-term alterations in stress reactivity, emotional regulation, cognitive appraisal, and coping strategies (Daines et al., 2021; Kayman et al., 2021). Individuals with a history of childhood trauma exhibit higher rates of anxiety, depression, and post-traumatic stress symptoms, which may impair adaptive functioning in high-stress occupational settings (Jenness et al., 2019; Alzahrani et al., 2025). From a psychological perspective, early traumatic experiences can profoundly impact foundational beliefs regarding self-competence and perceived control. Contemporary trauma research demonstrates that childhood maltreatment is linked to disruptions in self-concept development, diminished perceived control,

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and long-term alterations in emotion regulation processes (McLaughlin et al., 2014; Alzahrani et al., 2025). Challenges in emotion regulation and increased sensitivity to stress may subsequently influence professional self-perception and performance under pressure. Neurobiological and longitudinal findings further indicate that early adversity contributes to heightened stress reactivity and maladaptive coping responses in adulthood, particularly in high-demand occupational environments (Jenness et al., 2019; Colich et al., 2020). These mechanisms are especially relevant in emergency medical services, where practitioners are required to provide not only physical care but also psychosocial support to individuals experiencing acute distress. In high-intensity healthcare settings, impaired emotion regulation and reduced perceived competence have been associated with lower occupational confidence and increased psychological strain (Nair & Meirmanov, 2024). Psychological First Aid (PFA) constitutes a structured, evidence-informed methodology aimed at mitigating immediate distress, enhancing safety and stabilization, and fostering adaptive coping mechanisms following exposure to traumatic events. International guidelines underscore PFA as an essential competency for first responders, including paramedics, owing to its significance in early psychological stabilization and prevention of long-term mental health complications (Everly, 2020). In prehospital settings, paramedics frequently serve as initial professionals to engage with trauma survivors; thus, their proficiency in applying PFA principles, such as ensuring safety, providing emotional support, facilitating practical assistance, and connecting individuals to social resources, is crucial to comprehensive emergency care (Wang et al., 2024). In addition to benefiting patients, the effective application of PFA has been linked to enhanced responder confidence, perceived competence, and professional resilience (Ceylan & Durar, 2025; Nair & Meirmanov, 2024; Peng et al., 2024). Successful implementation of PFA requires confidence in one's ability to assess needs, communicate empathetically, provide practical assistance, and facilitate coping strategies. Therefore, self-efficacy, the belief in one's capacity to organize and execute actions necessary to manage specific situations, plays a crucial role in the execution of PFA.

Recent research suggests that heightened PFA self-efficacy is associated with improved disaster preparedness, adaptive coping strategies, and professional performance among healthcare providers (Nair & Meirmanov, 2024; Peng et al., 2024). Conversely, factors that negatively impact emotional stability and self-perceived competence may diminish professionals' confidence in delivering psychosocial interventions. Although childhood trauma has been extensively linked to mental health outcomes and general psychosocial functioning, its potential relationship with professional self-efficacy, particularly in high-risk healthcare occupations, remains insufficiently explored. This disparity is notably evident among paramedics and paramedic students who operate in high-pressure settings and may simultaneously contend with personal vulnerability and professional obligations. Examining the potential association between childhood trauma, as assessed by the Childhood Trauma Questionnaire (CTQ), and self-efficacy in PFA could facilitate the identification of psychosocial risk factors impacting professional competence. Such findings may contribute to the formulation of preventive strategies, supportive interventions, and educational programs aimed at enhancing both mental well-being and occupational efficacy within emergency medical services. Drawing upon the theoretical framework and extant literature, this study evaluated the following hypotheses:

- H1: Elevated levels of childhood trauma, as indicated by the CTQ total score, are correlated with diminished self-efficacy in PFA.
- H2: The income level of participants, along with their history of mental health issues and treatment, is correlated with significant variations in both the total and sub-dimension scores of the Childhood Trauma Questionnaire (CTQ).
- H3: The participants' history of mental health issues and treatment is correlated with notable variations in their self-efficacy regarding psychological first aid (PFA).

This study was designed to (1) examine the variations in CTQ total and sub-dimension scores, as well as psychological first aid self-efficacy levels, in relation to sociodemographic and professional characteristics, and (2) investigate the relationship between childhood trauma, as measured by the CTQ, and psychological first aid self-efficacy among paramedics and paramedic students.

## 2. Material and Methods

### 2.1. Study Design and Participants

This study employed a cross-sectional descriptive methodology. The study population comprised students enrolled in first- and emergency-aid programs at a university located in eastern Türkiye during the 2022–2023

academic year ( $n = 200$ ) and paramedics working in the same province. A non-probability convenience sampling method was utilized. Instead of performing an a priori sample size calculation or power analysis, a census-based approach was implemented to encompass the entire accessible population within the study context. Consequently, all eligible students and paramedics available during the data collection period were invited to participate. This approach was chosen to enhance representativeness within the accessible population. The inclusion criteria were as follows: (i) being either a student enrolled in the first aid and emergency aid program or a professionally employed paramedic, (ii) providing voluntary informed consent, and (iii) being active in the study province during the data collection period. Participants who submitted incomplete questionnaires or withdrew from the study without completing the forms were excluded. Of the total accessible population, a final sample of 204 participants was obtained, comprising 149 students (73%) and 55 paramedics (27%). Although efforts were made to reach the entire accessible population, the higher proportion of students in the sample may limit the generalizability of the findings, particularly in comparisons between professional groups. Prior to the commencement of the study, ethical approval was secured from the Iğdır University Scientific Research Ethics Committee (Approval Date: 12.01.2023; Approval Number: 2023/1). The participants were comprehensively informed about the study's objectives, duration, and their right to withdraw at any time. Data collection was executed through Google Forms, incorporating the "Informed Consent Form," "General Information Form," "Childhood Trauma Questionnaire," and "Psychological First Aid Application Self-Efficacy Scale." These instruments were completed digitally; students predominantly participated in a classroom environment, and paramedics completed them at their respective work units.

## **2.2. Data Collection Tools**

### **2.2.1. General Information Form**

This form included seven questions about gender, age, occupation, educational status, income status, whether participants had any previous mental health issues, and reasons for choosing the paramedic profession (Kayman et al., 2021).

### **2.2.2. Childhood Trauma Questionnaire (CTQ)**

The Turkish adaptation of the Childhood Trauma Questionnaire, revised by Şar et al. (2020), was employed to evaluate adverse childhood experiences occurring before the age of 20 years. This instrument comprises a 33-item, 5-point Likert-type self-report scale (1 = never, 5 = very often) assessing six dimensions: emotional abuse, physical abuse, sexual abuse, emotional neglect, physical neglect, and overprotection-overcontrol (5 items each), along with a 3-item minimization/denial validity scale. The 3 minimization items are not included in the total trauma score. Therefore, the total CTQ-33 score is calculated based on the 30 trauma items, yielding a possible score range from 30 to 150, where higher scores indicate increased exposure to childhood trauma. In the current study, the internal consistency coefficient for the overall scale was  $\alpha = .92$ . Cronbach's alpha values for the subdimensions ranged from .77 to .91, signifying reliability from acceptable to excellent.

### **2.2.3. Psychological First Aid Application Self Efficacy Scale**

The Psychological First Aid Application Self-Efficacy Scale, developed by Bayageldi and Şimşek (2021), was employed to evaluate participants' perceived competence in administering psychological first aid. This scale comprises 35 items, each rated on a 5-point Likert scale, with higher scores denoting greater self-efficacy. The original study demonstrated excellent internal consistency ( $\alpha = .95$ ) and robust test-retest reliability ( $r = .93$ ). In the current study, the internal consistency coefficient was  $\alpha = .97$ , indicating excellent reliability.

## **2.3. Data Analysis**

The study utilized the Statistical Package for the Social Sciences (SPSS) version 23.0 for data analysis. The normality of the data distribution was evaluated using the Kolmogorov-Smirnov test. The findings revealed that the data were not normally distributed ( $p < .05$ ); consequently, nonparametric statistical tests were applied. The Mann-Whitney U test was employed to compare two independent groups, whereas the Kruskal-Wallis H test was utilized for comparisons involving three or more groups. In instances where the Kruskal-Wallis test indicated statistically significant outcomes, pairwise comparisons were performed using the Dunn-Bonferroni

post hoc test to mitigate Type I error. The Bonferroni correction was applied to adjust the significance level for multiple comparisons. Spearman's rank correlation coefficient was employed to investigate the relationships between variables. The threshold for statistical significance was established at  $p \leq .05$ . While a census-based sampling strategy was employed to encompass the entire accessible population, a post-hoc power analysis was performed using the G\*Power 3.1 software to assess the adequacy of the final sample size ( $N = 204$ ). The analysis revealed that the achieved statistical power surpassed the recommended threshold of 0.80 for detecting medium effect sizes at  $\alpha = .05$ .

### 3. Results

Table 1 displays the demographic characteristics of the individuals participating in the study. Accordingly, 46.1% and 53.9% of the participants were male and female, respectively, and their age average was  $22.93 \pm 5.247$ . Approximately 27% of the study participants were paramedic employees, whereas 73% were paramedic students. Regarding the participants' educational status, 86.3 % had an associate degree, and only 9.8% had a bachelor's degree or higher. Almost 55.9% of the participants stated that their income was less than their expenses, 33.8% responded that their income-expense ratio was equal, and only 10.3% indicated that their income was higher than their expenses. Considering the past mental health issue histories, about 5.9% of the participants reported having a mental problem before and received psychological treatment, 27.9% responded as having a mental health issue in the past but received no support, and 66.2% claimed to experience no problems mentally. Finally, 79.4% of the participants said they selected the paramedic profession willingly, whereas 11.3% indicated they did choose it unwillingly. About 9.3% of the participants responded to this query as 'undecided.'

**Table 1.** Frequency and percentage distribution of demographic characteristics of individuals participating in the study

|                                                                              |                                                                        | n                 | %            |
|------------------------------------------------------------------------------|------------------------------------------------------------------------|-------------------|--------------|
| <b>Gender</b>                                                                | Female                                                                 | 110               | 53,9         |
|                                                                              | Male                                                                   | 94                | 46,1         |
| <b>Profession</b>                                                            | Paramedic Employee                                                     | 55                | 27,0         |
|                                                                              | Paramedic Student                                                      | 149               | 73,0         |
| <b>Educational Status</b>                                                    | High School                                                            | 8                 | 3,9          |
|                                                                              | Associate Degree                                                       | 176               | 86,3         |
|                                                                              | Bachelor's degree and Higher                                           | 20                | 9,8          |
| <b>Income Status</b>                                                         | Lower Income than Expenses                                             | 114               | 55,9         |
|                                                                              | Income Equal to Expenses                                               | 69                | 33,8         |
|                                                                              | Higher Income than Expenses                                            | 21                | 10,3         |
| <b>Have you ever experienced a mental health issue and received support?</b> | I experienced mental health issues and received psychological support. | 12                | 5,9          |
|                                                                              | I experienced mental health issues and received no support.            | 57                | 27,9         |
|                                                                              | I experienced no mental health issues.                                 | 135               | 66,2         |
| <b>Have you willingly considered the paramedic profession?</b>               | Yes                                                                    | 162               | 79,4         |
|                                                                              | No                                                                     | 23                | 11,3         |
|                                                                              | Undecided                                                              | 19                | 9,3          |
| <b>Age (Mean <math>\pm</math> SS)</b>                                        |                                                                        | 22,93 $\pm$ 5,247 |              |
| <b>Total</b>                                                                 |                                                                        | <b>204</b>        | <b>100,0</b> |

Table 2 presents the statistical data pertaining to the mean score, standard deviation, and minimum and maximum scores derived from the Childhood Trauma Questionnaire (CTQ), its sub-dimensions, and the 'Psychological First Aid Application Self-Efficacy' scale. The analysis yielded a total mean score of  $48.53 \pm 15.00$  for the CTQ. According to the Turkish validation study of the CTQ (Şar et al., 2012), total scores below 56 are generally categorized within the 'none-to-low' trauma range. Consequently, the participants' mean score suggests that their levels of childhood trauma were low. In terms of the sub-dimensions, 'emotional neglect' and 'sexual abuse' exhibited the highest ( $10.91 \pm 4.31$ ) and lowest ( $5.66 \pm 2.38$ ) mean scores, respectively. Furthermore, the total mean score of the 'Psychological First Aid Application Self-Efficacy' scale was  $144.00 \pm 21.68$ . Considering the scale's potential range of 34 to 170, the observed mean score is situated toward the higher end of the distribution.

**Table 2.** Minimum, maximum, mean, and standard deviation values calculated from the scales and their sub-dimensions used in the study

| Scales                                            | Sub-dimensions         | Min./Max. Score | X ± SD         |
|---------------------------------------------------|------------------------|-----------------|----------------|
| CTQ                                               | Emotional abuse        | 5.00-25.00      | 7.08 ± 3.49    |
|                                                   | Physical abuse         | 5.00-25.00      | 5.95 ± 2.29    |
|                                                   | Physical neglect       | 5.00-20.00      | 8.94 ± 3.27    |
|                                                   | Emotional neglect      | 5.00-25.00      | 10.91 ± 4.31   |
|                                                   | Sexual abuse           | 5.00-25.00      | 5.66 ± 2.38    |
|                                                   | Overprotection-control | 5.00-25.00      | 10.00 ± 3.99   |
|                                                   | Total score            | 30.00-150.00    | 48.53 ± 15.00  |
| Psychological First Aid Application Self Efficacy | Total score            | 35.00-175.00    | 144.00 ± 21.68 |

Table 3 presents a comparative analysis of mean scores for childhood traumas (CTQ), its sub-dimensions, and the "Psychological First Aid Application Self-Efficacy Scale," categorized according to participants' demographic characteristics. The findings are summarized below by key variables:

- **Mental Health History and Treatment:** Across all sub-dimensions of childhood trauma, including Emotional Abuse, Physical Abuse, Physical Neglect, Emotional Neglect, and Sexual Abuse, as well as the total Childhood Trauma Questionnaire (CTQ) score, a statistically significant difference was identified based on participants' history of mental health issues and treatment ( $p < .05$ ). Participants who had previously experienced mental health issues and received treatment, as well as those who experienced issues but did not receive support, reported significantly higher mean scores compared to those with no history of mental health issues. Furthermore, a similar significant difference was observed concerning the "Psychological First Aid Application Self-Efficacy Scale" ( $p < .05$ ), where participants who had received mental health treatment demonstrated significantly higher self-efficacy scores than the other groups.
- **Income Status:** Income status emerged as a significant determinant of the "Physical Neglect" and "Overprotection-control" sub-dimensions, as well as the overall Childhood Trauma Questionnaire (CTQ) score ( $p < .05$ ). In these categories, participants whose income was less than their expenses consistently exhibited significantly higher mean scores than those whose income was equal to or exceeded their expenditures.

**Table 3.** Comparison of the mean scores on the psychological first aid application self-efficacy scale, the CTQ scale, and its sub-dimensions about demographic characteristics of the participants

| Variables                              | Emotional Abuse | Physical Abuse | Physical Neglect | Emotional Neglect | Sexual Abuse | Overprotection-control | CTQ Total   | PFAASS       |
|----------------------------------------|-----------------|----------------|------------------|-------------------|--------------|------------------------|-------------|--------------|
|                                        | X±SS            | X±SS           | X±SS             | X±SS              | X±SS         | X±SS                   | X±SS        | X±SS         |
| <b>Gender</b>                          |                 |                |                  |                   |              |                        |             |              |
| Female                                 | 7.17±3.93       | 5.94±2.10      | 8.81±3.26        | 10.77±4.39        | 5.78±2.63    | 10.07±4.27             | 48.56±16.74 | 145.56±20.15 |
| Male                                   | 6.96±2.91       | 5.95±2.50      | 9.07±3.30        | 11.07±4.23        | 5.51±2.04    | 9.91±3.67              | 48.50±12.76 | 142.18±23.31 |
| <b>Significance level <sup>a</sup></b> | $p > 0.05$      | $p > 0.05$     | $p > 0.05$       | $p > 0.05$        | $p > 0.05$   | $p > 0.05$             | $p > 0.05$  | $p > 0.05$   |
| <b>Occupation</b>                      |                 |                |                  |                   |              |                        |             |              |
| Paramedic Employee                     | 6.40±2.01       | 5.85±1.72      | 9.12±3.33        | 10.50±3.97        | 5.52±1.46    | 10.03±3.61             | 47.45±11.73 | 138.69±21.79 |
| Paramedic Student                      | 7.32±3.87       | 5.98±2.47      | 8.86±3.26        | 11.06±4.43        | 5.70±2.64    | 9.98±4.14              | 48.93±16.06 | 145.96±21.37 |
| <b>Significance level <sup>a</sup></b> | $p > 0.05$      | $p > 0.05$     | $p > 0.05$       | $p > 0.05$        | $p > 0.05$   | $p > 0.05$             | $p > 0.05$  | $p > 0.05$   |
| <b>Educational Status</b>              |                 |                |                  |                   |              |                        |             |              |
| (1) High School                        | 7.75±3.37       | 5.62±1.06      | 9.12±3.39        | 11.50±5.20        | 5.50±.925    | 10.50±5.09             | 50.00±16.73 | 149.00±17.76 |
| (2) Associate Degree                   | 6.96±3.33       | 5.95±2.30      | 8.80±3.16        | 10.82±4.32        | 5.62±2.18    | 9.84±3.79              | 48.01±14.21 | 143.67±21.66 |
| (3) Bachelor's Degree and Higher       | 7.85±4.81       | 6.05±2.56      | 10.05±4.12       | 11.40±4.00        | 6.00±4.02    | 11.20±5.15             | 52.55±20.53 | 144.90±23.88 |
| <b>Significance level <sup>b</sup></b> | $p > 0.05$      | $p > 0.05$     | $p > 0.05$       | $p > 0.05$        | $p > 0.05$   | $p > 0.05$             | $p > 0.05$  | $p > 0.05$   |
| <b>Income Status</b>                   |                 |                |                  |                   |              |                        |             |              |

| Variables                                                                  | Emotional Abuse             | Physical Abuse | Physical Neglect     | Emotional Neglect    | Sexual Abuse         | Overprotection-control | CTQ Total            | PFAASS               |
|----------------------------------------------------------------------------|-----------------------------|----------------|----------------------|----------------------|----------------------|------------------------|----------------------|----------------------|
|                                                                            | X±SS                        | X±SS           | X±SS                 | X±SS                 | X±SS                 | X±SS                   | X±SS                 | X±SS                 |
| (1) Less Income than Expense                                               | 7.33±3.79                   | 6.21±2.76      | 9.56±3.40            | 11.49±4.33           | 5.93±2.996           | 10.43±4.13             | 50.97±16.34          | 143.86±22.23         |
| (2) Income Equal to Expense                                                | 6.26±1.80                   | 5.46±1.14      | 8.33±3.03            | 10.11±4.01           | 5.27±1.22            | 9.01±3.52              | 44.46±11.19          | 142.37±21.22         |
| (3) Higher Income than Expense                                             | 8.38±5.20                   | 6.14±2.10      | 7.52±2.58            | 10.38±4.85           | 5.38±.80             | 10.85±4.23             | 48.66±16.13          | 150.09±19.95         |
| Significance level <sup>b</sup>                                            | p>0.05                      | p>0.05         | p<0.05<br>1>2<br>1>3 | p>0.05               | p>0.05               | p<0.05<br>1>2          | p<0.05<br>1>2        | p>0.05               |
| Have you ever experienced a mental health issue and received support?      |                             |                |                      |                      |                      |                        |                      |                      |
| (1) I experienced mental health issues and received psychological support. | 10.08±7.66                  | 7.25±4.24      | 9.08±4.73            | 12.16±6.17           | 7.91±5.74            | 13.83±6.93             | 60.33±32.95          | 157.91±18.83         |
| (2) I experienced mental health issues but received no support.            | 7.78±3.58                   | 6.21±2.14      | 9.87±3.64            | 12.03±4.45           | 5.92±2.45            | 10.38±3.80             | 52.22±14.46          | 138.85±23.13         |
| (3) I experienced no mental health issues.                                 | 6.51±2.63                   | 5.72±2.08      | 8.52±2.89            | 10.32±3.96           | 5.34±1.66            | 9.49±3.54              | 45.92±11.81          | 144.94±20.73         |
| Significance level <sup>b</sup>                                            | p<0.05<br>1>2<br>1>3<br>2>3 | p<0.05<br>1>3  | p<0.05<br>1>3<br>2>3 | p<0.05<br>1>3<br>2>3 | p<0.05<br>1>2<br>1>3 | p<0.05<br>1>2<br>1>3   | p<0.05<br>1>3<br>2>3 | p<0.05<br>1>2<br>1>3 |
| Have you willingly considered the paramedic profession?                    |                             |                |                      |                      |                      |                        |                      |                      |
| (1) Yes                                                                    | 7.00±3.61                   | 5.88±2.38      | 8.92±3.41            | 10.83±4.27           | 5.55±2.25            | 9.72±4.04              | 47.93±15.25          | 145.30±22.11         |
| (2) No                                                                     | 6.78±2.29                   | 5.73±1.57      | 8.39±2.808           | 10.47±4.74           | 5.69±1.81            | 11.00±3.84             | 48.08±12.84          | 143.91±19.09         |
| (3) Undecided                                                              | 8.10±3.61                   | 6.73±2.20      | 9.68±2.51            | 12.10±4.09           | 6.47±3.67            | 11.10±3.55             | 54.21±14.78          | 133.00±18.45         |
| Significance level <sup>b</sup>                                            | p>0.05                      | p>0.05         | p>0.05               | p>0.05               | p>0.05               | p>0.05                 | p>0.05               | p>0.05               |
| Age                                                                        |                             |                |                      |                      |                      |                        |                      |                      |
| r                                                                          | -.047                       | -.017          | .073                 | -.034                | .025                 | .046                   | .023                 | -.120                |
| Significance level                                                         | p>0.05                      | p>0.05         | p>0.05               | p>0.05               | p>0.05               | p>0.05                 | p>0.05               | p>0.05               |

Remark:  $r_s$  = Spearman Rank Correlation.  $a$  = Mann Whitney U Test,  $b$  = Kruskal Wallis H Test, CTQ = Childhood Traumas Questionnaire, PFAASS = Psychological First Aid Application Self-Efficacy Scale

Table 4 delineates the findings of the Spearman Rank correlation analysis, which investigates the associations between the "Childhood Trauma Questionnaire (CTQ)," its sub-dimensions, and the "Psychological First Aid Application Self-Efficacy Scale." A statistically significant negative correlation of weak-to-moderate strength was identified between the total Childhood Trauma Questionnaire (CTQ) score and the Psychological First Aid Self-Efficacy Scale score [ $r(204) = -.271$ ;  $p < .05$ ]. According to Cohen's (1988) criteria, this coefficient suggests a small-to-medium effect size. Consequently, as participants report lower levels of childhood trauma, their perceived self-efficacy in administering psychological first aid tends to increase. In relation to the sub-dimensions, significant negative and weak correlations were observed between the Psychological First Aid Application Self-Efficacy Scale and: Emotional Abuse [ $r(204) = -.180$ ;  $p < .05$ ], Physical Abuse [ $r(204) = -.147$ ;  $p < .05$ ], Physical Neglect [ $r(204) = -.258$ ;  $p < .05$ ], Emotional Neglect [ $r(204) = -.251$ ;  $p < .05$ ]. The associations with Physical Neglect and Emotional Neglect exhibited a low-to-moderate magnitude, whereas the correlations with Emotional Abuse and Physical Abuse were of weak strength. No statistically significant relationship was identified between the Psychological First Aid Application Self-Efficacy Scale and the sub-dimensions of Sexual Abuse [ $r(204) = -.030$ ;  $p > .05$ ] or Overprotection-Control [ $r(204) = -.113$ ;  $p > .05$ ]. These coefficients suggest negligible to very weak associations.

**Table 4.** Correlation test results for the scale relationship used in the study

|                            | 1      | 2      | 3      | 4      | 5     | 6     | 7      | 8 |
|----------------------------|--------|--------|--------|--------|-------|-------|--------|---|
| (1) Emotional Abuse        | 1      |        |        |        |       |       |        |   |
| (2) Physical Abuse         | ,587*  | 1      |        |        |       |       |        |   |
| (3) Physical Neglect       | ,365*  | ,420*  | 1      |        |       |       |        |   |
| (4) Emotional Neglect      | ,601*  | ,437*  | ,635*  | 1      |       |       |        |   |
| (5) Sexual Abuse           | ,378*  | ,407*  | ,235*  | ,226*  | 1     |       |        |   |
| (6) Overprotection-control | ,578*  | ,344*  | ,443*  | ,585*  | ,275* | 1     |        |   |
| (7) CTQ Total              | ,749*  | ,595*  | ,737*  | ,854*  | ,406* | ,791* | 1      |   |
| (8) PFAASS                 | -,180* | -,147* | -,258* | -,251* | -,030 | -,113 | -,271* | 1 |

Note: \*= $p < 0.05$ , CTQ = Childhood Traumas Questionnaire, PFAASS = Psychological First Aid Application Self-Efficacy Scale

#### 4. Discussion

This study examined the intricate relationship between childhood traumas and the self-efficacy of paramedics and paramedic students in administering psychological first aid (PFA) within pre-hospital emergency health services. The analysis revealed a total mean score of  $48.53 \pm 15.00$  for childhood traumas (CTQ). According to the Turkish validation study of the CTQ (Şar et al., 2012), total scores below the clinical threshold are categorized within the "none-to-low" trauma range, indicating that the participants' mean scores suggest a relatively low level of exposure. This finding aligns with several national and international studies (Arabacı et al., 2021; Mehmet & Gürsoy, 2023; Şar et al., 2020). However, variations in prevalence rates across the literature (Karatekin & Hill, 2019) suggest that such data are highly sensitive to cultural contexts, measurement tools, and the willingness of participants to disclose sensitive information. The low scores in our sample may also reflect a "healthy worker effect," wherein individuals with lower trauma burdens are more likely to pursue and sustain demanding medical professions that require high emotional resilience.

A notable contribution of this study is the affirmation of elevated PFA self-efficacy among paramedics ( $144.00 \pm 21.68$ ), aligning with the findings of Zhiheng et al. (2012) and Zakaria et al. (2017). This elevated perceived efficacy is particularly critical, as high levels of PFA self-efficacy have been demonstrated to reinforce psychological resilience, thereby directly strengthening critical problem-solving skills under stressful clinical and emergency conditions (Durar et al., 2026). Unlike general healthcare providers, paramedics function during the critical "golden hour" of a crisis, where immediate psychological intervention is as essential as physical stabilization. The high self-efficacy scores reported herein suggest that PFA is perceived not merely as an ancillary skill but as a fundamental professional competency. This is further corroborated by the observation that nearly half of the participants reported implementing PFA at least once in their professional careers, indicating a robust translation of perceived self-efficacy into clinical practice.

Our study notably identified a significant correlation between a history of mental health treatment and elevated scores on the Childhood Trauma Questionnaire (CTQ). While this finding may initially seem anticipated, it necessitates a more nuanced interpretation. One plausible explanation is that individuals who have sought professional psychological support may have encountered more severe or cumulative traumatic experiences, thereby prompting help-seeking behavior. In this context, higher CTQ scores may indicate the greater severity of trauma exposure among those requiring clinical intervention. Alternatively, the therapeutic process itself may enhance awareness and recognition of past traumatic experiences. Individuals undergoing psychological treatment may develop a heightened understanding of their childhood adversities, acquire the terminology to identify these experiences as traumatic, and feel more at ease reporting them in self-report measures. Consequently, higher CTQ scores among those receiving support may partially reflect improved recall, reinterpretation, or acknowledgment of trauma, rather than solely greater objective exposure. Due to the cross-sectional nature of this study, it is not possible to establish causal relationships. It remains uncertain whether elevated levels of trauma prompted individuals to seek treatment or if participation in treatment influenced the reporting of traumatic experiences. Future longitudinal research is necessary to elucidate the temporal relationship between trauma exposure, help-seeking behavior, and patterns of trauma reporting. Moreover, the increased psychological awareness observed among individuals with a history of treatment may contribute to variations in Psychological First Aid (PFA) self-efficacy. Those who have participated in mental health services may possess heightened sensitivity to emotional distress, crisis reactions, and coping mechanisms, which could influence both their self-perception and professional responsiveness in crisis intervention settings. The primary finding of this study is the significant negative correlation between experiences of emotional and

physical abuse or neglect and self-efficacy in psychological first aid (PFA). Early adverse experiences may hinder the development of self-esteem and perceived competence, both of which are crucial for the effective delivery of PFA. Furthermore, chronic stress during childhood may lead to emotional dysregulation in adulthood, potentially diminishing confidence in managing others' distress. It is noteworthy that the Sexual Abuse sub-dimension did not exhibit a significant association with PFA self-efficacy. This lack of association may be attributed to the relatively low variance in sexual abuse scores or potential underreporting, given the sensitive and culturally taboo nature of the subject. Furthermore, the psychological effects of sexual trauma may manifest through more complex or indirect pathways that were not directly captured in this study. Future research should aim to further investigate these mechanisms. Although this study offers valuable insights, it has limitations that merit consideration. The cross-sectional design limits the ability to establish causal relationships between childhood traumas and self-efficacy, as the findings reflect associations at a specific point in time rather than definitive causality. Additionally, the retrospective nature of the queries may have introduced recall bias, potentially affecting the accuracy of reported early experiences. Nevertheless, the study's strength lies in its unique focus on paramedics—a group frequently exposed to secondary trauma—and its use of anonymous online administration to reduce social desirability bias. Given that childhood traumas are a foundational factor in numerous mental health challenges, it is crucial to enhance the coping skills of paramedics by addressing their own trauma histories. Incorporating trauma-informed supervision into training and fostering supportive environments for mental health can mitigate the adverse effects of early adversity on professional performance, thereby improving the quality of care provided to emergency victims.

#### **4.1. Limitations and Strengths**

The current study is constrained by several significant limitations. Primarily, the sample was composed exclusively of students and paramedics from a single province in eastern Türkiye. This geographical limitation restricts the generalizability of the findings to other regions, professional groups, or cultural contexts. Second, participants may have underreported their childhood traumas, despite efforts to mitigate social desirability bias through the use of anonymous online data collection methods. Given that the data were derived solely from self-report questionnaires, the findings are constrained by the subjective nature of participants' responses. Additionally, as the assessment of childhood trauma was conducted retrospectively, recall bias may have affected the accuracy or completeness of the reported experiences. An important limitation of this study is its cross-sectional design, which prevents the establishment of causal relationships between childhood trauma and self-efficacy in psychological first aid. As a result, the findings reflect associations observed at a single point in time and should be interpreted with caution. Notwithstanding these limitations, this study makes a significant contribution to the literature by uniquely investigating the association between childhood trauma and psychological first aid self-efficacy among paramedics engaged in pre-hospital health services. Furthermore, the employment of anonymous, online-based questionnaires likely facilitated more candid participation and enhanced the reliability of responses.

#### **5. Conclusion and Recommendations**

This study identified a modest negative correlation between childhood trauma and self-efficacy in the application of psychological first aid (PFA) among paramedics and paramedic students. Although participants reported relatively low levels of childhood trauma, their perceived self-efficacy in PFA was high. The findings revealed that this inverse relationship was driven primarily by physical neglect, emotional neglect, emotional abuse, and physical abuse, whereas sexual abuse and overprotection-control showed no statistically significant association with PFA self-efficacy. While lower reported trauma scores are associated with higher self-efficacy, exposure to childhood trauma is merely one of many factors contributing to professional confidence in PFA application.

Given that paramedics directly engage with human life in high-pressure environments, even minor impacts from childhood traumas necessitate professional attention. Instead of attempting to "replace" past experiences, institutional initiatives should prioritize fostering psychological resilience and providing targeted support to mitigate the long-term effects of early adversity on mental health. Based on these findings, it is advisable to integrate trauma-informed support programs and resilience-building modules specifically into the curricula and professional development frameworks of emergency medical services. Such targeted interventions may subsequently enhance paramedics' professional confidence and mental well-being by addressing the enduring effects of childhood traumas.

Future research should employ longitudinal and interventional methodologies with larger and more diverse samples to enhance the understanding of the complex developmental trajectory of these phenomena. Additionally, future studies might investigate other contributing factors, such as clinical experience and formal psychological first aid (PFA) training, which may interact with trauma history to affect self-efficacy. Specific efforts should focus on developing standardized PFA training protocols that consider the psychological background and individual resilience levels of healthcare professionals operating in pre-hospital settings.

### Authors' Contributions

E.D: Conceptualization, Funding acquisition, Conception and design of study, Writing - original draft, Writing - review & editing.

F.K: Conceptualization, Funding acquisition, Writing - original draft, Writing - review & editing.

All authors have read and approved the final version of the manuscript and agree to be accountable for all aspects of the work.

### Ethical Approval and Consent to Participate

This study was conducted in accordance with the principles of the Declaration of Helsinki and approved by the Iğdır University Scientific Research Ethics Committee (Approval Date: 12.01.2023; Approval Number: 2023/1). Written informed consent was obtained from all participants.

### Conflict of Interest

The authors declare that there is no conflict of interest.

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