ATATÜRK ÜNİVERSİTESİ YAYINLARI
ATATURK UNIVERSITY PUBLICATIONS

Research Article DOI: 10.62425/esbder.1849089

The Predictive Role of Temperament Traits in Fear of Injection Among Men: A Cross-Sectional Study

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ABSTRACT

Objective: This study aimed to examine the relationship between temperament traits and fear of injection among men and to determine the predictive role of temperament traits in fear of injection.

Methods: This cross-sectional study was conducted with 218 men who presented to the intramuscular injection unit of a tertiary hospital in Türkiye between July and August 2025. Data were collected using a Personal Information Form, the TEMPS-A Temperament Scale, and the Multidimensional Fear of Injection Scale. Descriptive statistics and Pearson correlation analysis were used to examine participant characteristics and relationships between temperament traits and injection fear. Hierarchical multiple linear regression analysis was performed to determine the independent predictive role of temperament traits after controlling for age, educational status, and employment status. Statistical significance was set at $p<.05$.

Results: The participants had a mean age of 30.61 ± 11.14 years, and 34.4% reported fear of injections. The mean Multidimensional Fear of Injection Scale score was 21.67 ± 5.52. Fear of injection was positively correlated with depressive (r=.337), cyclothymic (r=.405), irritable (r=.264), and anxious (r=.319) temperament traits (all $p<.001$), whereas hyperthymic temperament was not significantly correlated with injection fear. In the hierarchical regression analysis, the final model explained 21.0% of the variance in injection fear ($R^2=.210$, adjusted $R^2=.176$, $p<.001$), with temperament traits accounting for an additional 13.8% of the variance beyond sociodemographic characteristics ($\Delta R^2=.138$, $p<.001$). After controlling for the other variables, cyclothymic temperament was the only significant independent predictor of injection fear (B=.403, β=.229, 95% CI [.080, .726], $p=.015$).

Conclusion: Several affective temperament traits were associated with fear of injection among men; however, cyclothymic temperament was the only significant independent predictor after controlling for sociodemographic characteristics and other temperament dimensions. These findings highlight the importance of considering individual differences in emotional reactivity when assessing injection-related fear. Individualized and gender-responsive nursing approaches may facilitate the identification and support of men who are particularly vulnerable to injection fear.

Keywords: Fear of injection, affective temperament, cyclothymic temperament, men's health, nursing, TEMPS-A.

Received Date 29.12.2025
Accepted Date 24.09.2026
Publication Date 30.09.2026

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Cite this article: Sayar, S. E., Demir Barbak, Z., & Delice O. (2026). The Predictive Role of Temperament Traits in Fear of Injection Among Men: A Cross-Sectional Study. *Journal of Midwifery and Health Sciences, 9*(3), 225-233.

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Introduction

Nurses use hypodermic needles for intravenous, subcutaneous, intramuscular, and intradermal injections. The use of needles during invasive procedures can lead to fear in individuals. Injection fear can occur in all age groups, from children to adults, and has been reported to decrease with age. (McLenon & Rogers, 2019) Individuals who undergo repeated injection procedures are at a higher risk of experiencing injection fear. In a systematic review, Duncanson et al. (2021) found that the prevalence of needle fear increases with the frequency of invasive procedures in chronic illnesses, with prevalence rates ranging between 17–52% in cancer, 25–47% in chronic kidney failure, and 0.2–80% in diabetes.

Individuals with injection fear may experience anxiety and fear of death, accompanied by psychosomatic symptoms such as palpitations, sweating, and nausea (Kose & Mandiracioglu, 2007). Due to injection fear, individuals may avoid necessary procedures such as blood sampling and vaccination for diagnosis, treatment, and disease prevention (Orenius et al., 2018). Fear of blood, needles, and fainting may even hinder blood donation (Zucoloto et al., 2019).

Particularly during injection procedures, barriers such as needle fear can create serious problems with individual self-management and treatment adherence (Gençöz, 1998). A significant portion of adult individuals experience these fears, and while some manage to cope and integrate them into daily life, others remain ineffective in dealing with them. This situation negatively affects treatment success and adherence (Celik & Pınar, 2014). Effective management of these fears enables individuals to feel safer. When individuals are unable to manage this fear on their own, they may experience helplessness and heightened fear, reaching a crisis level. In reducing and controlling fear, nurses should collaborate with patients to support the development of self-confidence. Especially when fear is controlled, the patient's treatment adherence improves. To prevent the adverse outcomes of injection fear, nurses have conducted several studies addressing injection-related fear and developing strategies to reduce it. (Celik & Khorshid, 2015; Gerçeker et al., 2021) It can be argued that temperament characteristics particularly in individuals with high levels of anxiety and sensitivity may make injection fear more pronounced, as such individuals perceive the possibility of pain and discomfort more intensely and react more strongly to them.

Temperament is a concept long used to establish a conceptual link between individual characteristics and behavior. The foundations of the temperament concept are based on various theoretical perspectives. (Strelau, 2002). While Rothbart and Derrybery (1981) emphasize reactivity and self-regulation in defining temperament, Buss and Plomin (1984) highlight its hereditary basis; Rothbart and Bates (2006). argue that temperament consists of biologically rooted individual differences in emotions, behaviors, and attentional processes that emerge during early infancy. Currently, there is broad agreement that temperament consists of individual differences that develop early in life and remain relatively stable throughout the lifespan (Ma, 2006). As a comprehensive concept, "temperament" refers to behavior patterns or response styles that originate from a person's inherent nature and influence emotional responses and interactions with the environment (Santrock, 2012).

Although fear of injection can occur in both sexes, previous evidence indicates that needle fear is generally reported more frequently among women than men (McLenon & Rogers, 2019). However, a lower reported prevalence among men does not necessarily imply that injection-related fear is clinically unimportant in this group. Gender-related norms may influence the expression of fear, emotional vulnerability, and help-seeking behaviors among men. In particular, traditional masculine norms emphasizing self-reliance, emotional control, and avoidance of vulnerability have been associated with reduced willingness to seek professional support and may contribute to the underrecognition of fear-related experiences among men (Kim & Yu, 2023; Mokhwelepa & Sumbane, 2025; Üzümçeker, 2025). Recent evidence also emphasizes the importance of gender-responsive approaches in healthcare, as masculinities may influence men's help-seeking, engagement with healthcare services, and interactions with healthcare professionals (Seidler et al., 2024).

Fear of needles is clinically relevant because it may contribute to the avoidance or delay of vaccination, blood sampling, and other necessary preventive and therapeutic procedures (McLenon & Rogers, 2019). Individual differences in emotional reactivity may also influence responses to potentially threatening medical procedures. Temperament represents relatively stable patterns of emotional reactivity and includes depressive, cyclothymic, hyperthymic, irritable, and anxious dimensions (Vahip et al., 2005). Previous research has demonstrated that temperament characteristics may be associated with anxiety responses to medical procedures, suggesting that

identifying temperament-related vulnerability may facilitate individualized approaches to fear and anxiety management (Chow et al., 2019). Nevertheless, the relationship between affective temperament traits and fear of injection specifically among men remains insufficiently understood. Examining this relationship may help healthcare professionals identify men who are more vulnerable to injection-related fear and provide individualized communication and supportive interventions during procedures involving injections.

Therefore, this study aimed to examine the relationship between temperament traits and fear of injection among men and to determine the predictive role of temperament traits in fear of injection.

The study sought to answer the following research questions:

1. Is there a significant relationship between temperament traits and fear of injection among men?
2. Which temperament traits are associated with fear of injection among men?
3. Do temperament traits significantly predict fear of injection after controlling for relevant sociodemographic characteristics?

Methods

Study Setting

The research was carried out in the injection outpatient clinic of Erzurum City Hospital. The injection clinic is located within the emergency department of the hospital and provides services seven days a week between 08:00 and 24:00. In this clinic, medications prescribed to patients are administered by nurses.

Population and Sample

The study population consisted of 29,678 individuals who applied to the injection outpatient clinic of Erzurum City Hospital between July 1 and August 31, 2025. According to the sample size calculation performed with the G*Power program, assuming a medium effect size (effect size=0.5) for differences in parameter means, an alpha significance level of 0.05, and 95% power, the required sample size was calculated as 209 participants (Salant & Dilman, 1994; Çokluk et al., 2012).

Inclusion and Exclusion Criteria

Men aged 18 years or older who presented to the intramuscular injection unit during the study period, were able to communicate in Turkish, and voluntarily agreed to participate in the study were eligible for inclusion. Individuals who were unable to complete the data collection forms or who had communication difficulties that prevented them from responding to the questionnaires were excluded from the study.

Data Collection

Data were collected using a Personal Information Form, the TEMPS-A Temperament Scale, and the Multidimensional Injection Fear Scale.

Personal Information Form

The Personal Information Form was developed by the researchers based on previous studies examining needle/injection fear and individual factors associated with fear responses (Duncanson et al., 2021; McLenon & Rogers, 2019; Orenius et al., 2018). The form consisted of 10 questions assessing age, educational status, marital status, employment status, number of children, place of residence, perceived economic status, chronic disease status, self-perceived temperament/personality characteristics, and self-reported fear of injection. The form was used to describe the sociodemographic and selected individual characteristics of the participants.

TEMPS-A The TEMPS-A Temperament Scale was developed by Akiskal et al. (1998) to assess predominant affective temperament and its subtypes. The Turkish validity and reliability study was conducted by Vahip et al. (2005). It is a self-administered Likert-type instrument in which individuals respond “true” or “false” based on their entire life experiences. The scale includes five subdimensions: depressive, cyclothymic, hyperthymic, irritable, and anxious temperaments. The cutoff scores for depressive (18 items), cyclothymic (19 items), hyperthymic (20 items), irritable (18 items), and anxious (24 items) subtypes are 13, 18, 20, 13, and 18, respectively. Scores above these cutoff points indicate that the individual predominantly exhibits that temperament type. In this study, the Cronbach’s alpha coefficient for TEMPS-A was 0.90. In the present study, Cronbach’s alpha coefficients were .735 for the depressive, .729 for the cyclothymic, .691 for the hyperthymic, .696 for the irritable, and .864 for the anxious temperament subscales.

Multidimensional Injection Fear Scale was developed by Hako et al. (2022) to evaluate individuals’ injection fear. The Turkish validity and reliability study was conducted by Salik and Kisecik Şengül (2024). The scale consists of 13 items and four subdimensions (direct fear, indirect fear, physical reaction, avoidance). It is a 5-point Likert-type scale, with responses ranging from 1 (no fear) to 5 (highest fear). Total scores range between 13 and 65, with higher scores

indicating higher levels of injection fear. The original scale has a Cronbach's alpha coefficient of 0.89, indicating high reliability. In the present study, Cronbach's alpha coefficient for the Multidimensional Fear of Injection Scale was .829.

Data Collection Procedure

Data were collected through face-to-face interviews conducted by the researcher between July and August 2025. The data collection tools were administered in the waiting area of the injection clinic after patients received their IM injections in the prone position. The questionnaire form and scales were completed by the participants through a question–answer method within approximately 10–15 minutes.

Ethical Considerations

Prior to conducting the study, verbal and written informed consent was obtained from all participants. Ethical approval for the study was obtained from the Erzurum Faculty of Medicine Scientific Research Ethics Committee (Ethics Committee Approval No. 2025/112, dated April 9, 2025). The study was conducted in accordance with the principles of the Declaration of Helsinki. Prior to participation, all men were informed about the purpose, scope, and confidentiality of the study, and both written and verbal informed consent were obtained from those who voluntarily agreed to participate.

Statistical Analysis

Data were analyzed using the SPSS 27.0 (IBM SPSS Corp., Armonk, NY, USA) software package. The significance level was set at $p<.05$. Descriptive statistics (mean, standard deviation, frequency, percentage) were used to determine participants' characteristics and mean scale scores. Normality of the data distribution was assessed using skewness and kurtosis values. According to Kim (2013), skewness and kurtosis values within the range of +1.5/–1.5 indicate normal distribution, and the current data met this criterion; therefore, parametric tests were used (Kim, 2013). Descriptive statistics (mean, standard deviation, frequency, and percentage) were used to summarize participant characteristics and scale scores. Pearson correlation analysis was performed to examine the relationships between affective temperament traits and fear of injection. Subsequently, hierarchical multiple linear regression analysis was conducted to determine the independent predictive role of temperament traits in fear of injection. Additionally, Pearson correlation analysis was used to examine the relationship between the scales. To examine the relationships between temperament traits and fear of injection, Pearson correlation analysis was performed. A hierarchical multiple linear regression analysis was subsequently conducted to determine the independent predictive role of temperament traits in fear of injection. The total Multidimensional Fear of Injection Scale score was entered as the dependent variable. In the first block (Model 1), age, educational status, and employment status were entered as control variables. Educational status was dummy-coded, with primary school as the reference category, and employment status was dummy-coded, with unemployed participants as the reference category. In the second block (Model 2), depressive, cyclothymic, hyperthymic, irritable, and anxious temperament scores were added to the model. The change in explained variance between the models was evaluated using ΔR^2 and the F-change statistic. Unstandardized regression coefficients (B), standard errors (SE), standardized regression coefficients (β), 95% confidence intervals (CI), and p values were reported. The change in explained variance between the models was evaluated using ΔR^2 and the F-change statistic. Unstandardized regression coefficients (B), standard errors (SE), standardized regression coefficients (β), 95% confidence intervals (CI), and p values were reported. Statistical significance was set at $p<.05$.

Results

The descriptive characteristics of the male participants included in the study are presented in Table 1. The mean age of the participants was 30.61±11.14 years. It was determined that 75.7% of the men had a university-level education or higher, 53.7% were single, and 48.2% had a moderate income level. Additionally, 53.2% of the participants were employed, 58.7% had no children, 76.1% resided in the city center, 85.3% had no chronic illness, and 65.6% reported that they were not afraid of the injection procedure (Table 1).

The scale mean scores of the men included in the study are presented in Table 2. In the study, the participants' mean score on the Multidimensional Injection Fear Scale was found to be 21.67±5.52. The mean scores for the TEMPS-A Temperament Scale subdimensions were 5.52±4.10 for the depressive subdimension, 9.20±5.30 for the cyclothymic subdimension, 10.04±4.59 for the hyperthymic subdimension, 5.06±4.55 for the irritable subdimension, and 7.74±6.21 for the anxious subdimension (Table 2).

A hierarchical multiple linear regression analysis was performed to identify the predictors of fear of injection (Table 3). Model 1, which included age, educational status, and employment status, was statistically significant

(F=4.144, *p*=.003) and explained 7.2% of the variance in fear of injection scores (R^2=0.072; adjusted R^2=0.055). After adding temperament traits, the total variance explained increased to 21.0% in Model 2 (R^2=0.210; adjusted R^2=0.176), and the final model was statistically significant (F=6.159, *p*<.001).

Table 1.
Sociodemographic Characteristics of the Participants

Characteristics	X±SD / n (%)
Age (Mean ± SD)	30.61 ± 11.14 (18-67)
Educational Status	
Primary Education	14 (6.4%)
Secondary Education	39 (17.9%)
Undergraduate and Above	165 (75.7%)
Marital Status	
Married	101 (46.3%)
Single	117 (53.7%)
Perceived Income Status	
Income less than expenses	21 (9.6%)
Income equal to expenses	105 (48.2%)
Income more than expenses	92 (42.2%)
Employment Status	
Employed	116 (53.2%)
Unemployed	102 (46.8%)
Number of Children	
1 child	38 (17.4%)
2 children	25 (11.5%)
3 or more children	27 (12.4%)
No children	128 (58.7%)
Place of Residence	
City	166 (76.1%)
District	35 (16.1%)
Village	17 (7.8%)
Chronic disease	
Yes	32 (14.7%)
No	186 (85.3%)
Injection fear	
Yes	75 (34.4%)
No	143 (65.6%)

The addition of temperament traits resulted in a significant 13.8% increase in the explained variance (ΔR^2=0.138, ΔF=7.283, *p*<.001). After controlling for the other variables in the model, cyclothymic temperament was the only significant independent predictor of fear of injection (B=0.403, β=0.229, 95% CI: 0.080–0.726, *p*=.015).

Higher cyclothymic temperament scores were associated with higher fear of injection scores. None of the other temperament traits or sociodemographic variables made a statistically significant independent contribution to the final model (*p*>.05).

Discussion

The findings indicate that several affective temperament traits are associated with injection fear among men. After accounting for the other variables in the model, cyclothymic temperament was the only trait with a statistically significant independent association. This pattern points to the possible relevance of emotional variability in understanding injection fear, although the cross-sectional design does not establish causation.

Fear of injections and needles remains an important clinical issue because it may interfere with individuals' willingness to undergo necessary diagnostic, preventive, and therapeutic procedures. In an international adult survey, Alsbrooks and Hoerauf (2022) demonstrated that needle phobia was a prevalent but frequently overlooked problem and was associated with avoidance of healthcare procedures. The authors also identified general anxiety, anticipated pain, and previous experiences as factors related to needle fear. More recently, research examining interventions for adults with needle fear has continued to emphasize its potential consequences for vaccination, blood testing, and other necessary medical procedures (Caltabiano et al., 2025). Therefore, injection fear in adulthood should not be regarded merely as transient discomfort during an invasive procedure but as a phenomenon that may influence healthcare engagement.

The associations of depressive, anxious, and irritable temperament with injection fear are consistent with differences in emotional responses to anticipated discomfort. Anxiety and expected pain have also been linked to needle fear (Alsbrooks & Hoerauf, 2022). However, these traits did not independently predict fear in the adjusted model; their bivariate associations may partly reflect overlap with other temperament dimensions.

Cyclothymic temperament was the only temperament dimension that remained significantly associated with injection fear after adjustment for the other measured variables. It is characterized by shifts in mood, emotional variability, and heightened affective reactivity (Akiskal et al., 1998; Vahip et al., 2005). These characteristics could make uncertainty and anticipated discomfort around an injection more difficult to manage. This is a possible explanation for the observed association, rather than evidence that cyclothymic temperament causes injection fear.

The difference between the correlations and the adjusted regression results suggests that shared variation among temperament traits matters when interpreting injection fear. Thus, the observed associations with depressive, anxious, and irritable traits should not be presented as independent effects.

Hyperthymic temperament showed no statistically significant association with injection fear in this sample. Its characteristic energy and confidence (Akiskal et al., 1998; Vahip et al., 2005) do not, on these data, establish a protective effect.

The inclusion of only men in the present study provides an important perspective for interpreting injection fear. Needle fear has often been reported more frequently among women; however, a lower reported prevalence among men does not necessarily mean that fear is clinically unimportant in this population. Gender norms may influence how men recognize, express, and communicate fear and emotional vulnerability.

Table 2.
Distribution of Participants' Scale Mean Scores

Scales	Number of Items	Score Range	Mean ± SD	Cronbach's Alpha	Skewness	Kurtosis
Multidimensional Injection Fear Scale	13	13-65	21.67±5.52	0.82	1.181	.913
TEMPS-A Temperament Scale						
Depressive	18	0-18	5.52±4.10	0.84	.820	.397
Cyclothymic	19	0-19	9.20±5.30		.080	.928
Hyperthymic	20	0-20	10.04±4.59	0.82	.362	.192
Irritable	18	0-18	5.06±4.55	0.88	.947	.227
Anxious	24	0-24	7.74±6.21	0.91	.660	.320

Recent evidence supports this interpretation. Seidler et al. (2024), in a scoping review of 97 studies, emphasized that masculinities influence men's help-seeking behavior and engagement with healthcare and identified tailored communication, appropriately structured care, and therapeutic alliance as important strategies for engaging men in healthcare.

Table 3.
Hierarchical Multiple Linear Regression Analysis of Predictors of Fear of Injection Among Men (n = 218)

Variables	B	SE	β	t	*p*	95% CI for B
Age	−0.079	0.068	−0.094	−1.158	.248	−0.213 to 0.055
Secondary school[1]	−5.887	5.329	−0.085	−1.105	.271	−16.392 to 4.618
High school or above[1]	−6.178	3.184	−0.163	−1.940	.054	−12.455 to 0.099
Employed[2]	1.116	1.413	0.060	0.790	.431	−1.670 to 3.903
Depressive temperament	0.196	0.210	0.086	0.934	.352	−0.218 to 0.610
Cyclothymic temperament	**0.403**	**0.164**	**0.229**	**2.458**	**.015**	**0.080 to 0.726**
Hyperthymic temperament	0.091	0.133	0.045	0.687	.493	−0.171 to 0.353
Irritable temperament	0.097	0.175	0.047	0.555	.579	−0.248 to 0.442
Anxious temperament	0.121	0.128	0.081	0.947	.345	−0.131 to 0.373

Model 1: $R^2 = 0.072$, Adjusted $R^2 = 0.055$, $F = 4.144$, $p = 0.003$.

Model 2: $R^2 = 0.210$, Adjusted $R^2 = 0.176$, $F = 6.159$, $p < 0.001$.

Change statistics: $\Delta R^2 = 0.138$, $\Delta F = 7.283$, $p < 0.001$. **Note. B** = unstandardized regression coefficient; SE = standard error; β = standardized regression coefficient; CI = confidence interval. Model 1 included age, educational status, and employment status. Model 2 additionally included depressive, cyclothymic, hyperthymic, irritable, and anxious temperament traits. [1]Reference category: Primary school. [2]Reference category: Unemployed. A p value < 0.05 was considered statistically significant.

Pearson correlation analysis showed that fear of injection was positively and significantly correlated with depressive (r = .337, *p* < .001), cyclothymic (r = .405, *p* < .001), irritable (r = .264, *p* < .001), and anxious (r = .319, *p* < .001) temperament traits. No statistically significant correlation was found between hyperthymic temperament and fear of injection (r = .130, p = .056) (Table 4).

More recent evidence further strengthens this explanation. In a meta-analysis involving 35 samples, Üzümçeker (2025) found that stronger endorsement of traditional masculinity

was associated with more negative attitudes toward professional psychological help-seeking and greater help-seeking self-stigma. Although these findings concern psychological help-seeking rather than injection fear specifically, they may provide a relevant framework for understanding why some men may minimize, conceal, or hesitate to communicate fear during invasive procedures.

Table 4.
Relationship Between the Multidimensional Fear of Injection Scale and TEMPS-A Temperament Scale in Men

Scales	Depressive	Cyclothymic	Hyperthymic	Irritable	Anxious
Multidimensional Injection Fear Scale	r=0.337* *p*=.001	r=0.405* *p*=.001	r=0.130 *p*=.056	r=0.264* *p*=.001	r=0.319* *p*=.001

*$p<.01$

Consequently, healthcare professionals should not assume that the absence of an explicit verbal expression of fear indicates that a male patient is comfortable with an injection procedure. Gender-responsive communication may facilitate the recognition of fear and encourage patients to communicate their concerns.

For nursing practice, the finding concerning cyclothymic temperament suggests paying attention to patients who describe rapidly changing feelings, heightened emotional responses, or difficulty tolerating uncertainty before an injection. Nurses can ask about anticipated fear, previous needle experiences, and pain expectations, and respond with a clear explanation, time for questions, and support tailored to the patient. These observable features may guide communication; the findings do not justify using temperament scores as a routine screening test.

Individualized interventions may also be considered for patients experiencing substantial needle fear. Alsbrooks and Hoerauf (2022) emphasized that needle fear is frequently insufficiently addressed despite its potential impact on patient care. Emerging interventions also indicate that technology-supported approaches may have potential. For example, Caltabiano et al. (2025) investigated virtual reality-delivered exposure among adults with needle fear, reflecting growing interest in individualized and exposure-based approaches to this problem. Although further evidence is required before such interventions can be routinely recommended, these developments support the importance of identifying individuals with pronounced injection fear and tailoring support according to their needs. Temperament explained an additional 13.8% of the variation in injection fear after the sociodemographic variables were entered, leaving much of the variation unexplained. Experiences with needles, anticipated pain, and anxiety may also matter (Alsbrooks & Hoerauf, 2022).

Because these factors were not systematically assessed, future studies should examine them alongside temperament and test whether the present association is replicated.

Conclusion and Recommendations

Among the measured temperament traits, cyclothymic temperament was the only one independently associated with injection fear in the adjusted analysis. Its characteristic mood shifts and heightened emotional reactivity may help explain why uncertainty and anticipated discomfort surrounding an injection are especially salient for some men. The cross-sectional findings warrant cautious interpretation and do not establish a causal effect.

During injection procedures, nurses can ask about changing or intense emotional responses, anticipated pain, previous negative experiences, and avoidance, then offer clear explanations and individualized support. These suggestions address features relevant to cyclothymic temperament without requiring a formal temperament assessment.

Future longitudinal and multicenter studies should examine whether emotional variability contributes to injection fear alongside prior experiences and anxiety.

Limitations

Previous hospitalization, traumatic experiences involving injections or other needle-related procedures, and pre-existing anxiety problems were not systematically assessed in this study. Therefore, the potential influence of these factors on fear of injection could not be controlled for and should be considered when interpreting the findings.

Ethics Committee Approval: Ethics committee approval was received for this study from the ethics committee of Erzurum Faculty of Medicine Scientific Research Ethics Committee (Date: April 9, 2025, Number: 04/112).
Informed Consent: Written and verbal informed consent was obtained from all participants.
Peer-review: Externally peer-reviewed.
Author Contributions: S.E.S., Z.D.B.; Design – S.E.S.; Data Collection and/or Processing – Z.D.B.; Analysis and/or Interpretation – Z.D.B., O.D.; Literature Review – S.E.S.; Writing – S.E.S.; Critical Review – S.E.S.; Z.D.B., O.D.
Conflict of Interest: The authors have no conflicts of interest to declare.
Financial Disclosure: The authors declared that this study has received no financial support.
Use of Artificial Intelligence: Artificial intelligence was used for the translation.

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