

The Effect of Childhood Pain Experiences of Nursing Students on Fear of Pain in Adulthood

Hemşirelik Öğrencilerinin Çocukluk Çağındaki Ağrı Deneyimlerinin Yetişkinlik Çağındaki Ağrı Korkusuna Etkisi

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Abstract

Fear of pain develops from negative interpretations and thinking that pain is equivalent to causing harm. The aim of this study is to determine the effect of childhood pain experiences of nursing students' on pain fear in adulthood. The research is descriptive and cross-sectional and its sample consisted of 176 nursing students at a state university. An information form prepared by the researchers in line with the literature and the Fear of Pain Questionnaire-III were used to collect the data. When the pain experienced in the same medical procedures in childhood was compared with the pain they experienced at their current age, it was determined that 65.9% of the students experienced less pain now. The total score of the students on the Fear of Pain Questionnaire was 80.57 ± 19.77 . It has been determined that the painful experiences of students in childhood affect the fear of pain in adulthood ($p < 0.005$). Positive experiences of pain in childhood lead to less fear of pain in adulthood.

Keywords: Child, fear, pain, pain measurement, nursing student

Özet

Ağrı korkusu, olumsuz yorumlardan ve ağrının zarar vermekle eşdeğer olduğunu düşünmekten kaynaklanır. Bu araştırma, öğrenci hemşirelerin çocukluk çağı ağrı deneyimlerinin yetişkinlik çağındaki ağrı korkusuna etkisini belirlemek amacıyla yapılmıştır. Araştırma, tanımlayıcı ve kesitsel tipte olup örneklemini bir devlet üniversitesinde öğrenim gören 176 hemşirelik öğrencisi oluşturmuştur. Verileri toplamada, araştırmacıların literatür doğrultusunda hazırladığı bir bilgi formu ve Ağrı Korkusu Ölçeği-III kullanılmıştır. Çocukluk döneminde uygulanan aynı tıbbi işlemlerde yaşanan ağrılı deneyimler ile şimdiki yaşta yaşadıkları ağrı karşılaştırıldığında, öğrencilerin %65,9'unun şu an daha az ağrı yaşadığı belirlenmiştir. Ağrı Korkusu Ölçeği-III'ten öğrencilerin aldıkları toplam puan ortalaması $80,57 \pm 19,77$ 'dir. Öğrencilerin çocukluk çağında yaşadıkları ağrı deneyimlerinin yetişkinlik çağındaki ağrı korkusunu etkilediği saptanmıştır ($p < 0.005$). Çocuklukta yaşanan olumlu ağrı deneyimleri, yetişkinlikte daha az ağrı korkusu yaşanmasını sağlamaktadır.

Anahtar Kelimeler: Ağrı, ağrı ölçümü, çocuk, hemşirelik öğrencisi, korku

How to cite (Atıf için): Binay Yaz, Ş. & Başdemir, S. (2024). The effect of childhood pain experiences of nursing students on fear of pain in adulthood. Fenerbahçe Üniversitesi Sağlık Bilimleri Dergisi, 4(1), 67-75. DOI: 10.56061/fbujohs.1258472

Submission Date: 01.03.2023, Acceptance Date: 08.10.2023, Publication Date: 03.05.2024

1. Introduction

One of the most common causes of people seeking health care help is pain and has a wide impact on all aspects of life. The Joint Commission on Accreditation of Healthcare Organizations has stated pain as the “fifth vital sign” that should be followed in medical care (Büyükgönenç & Törüner, 2018). Pain is a multidimensional and complex sensation, it arises as a result of the interaction between the environment and the nervous system and is perceived by the individual. While positive pain experiences in the past prevent pain, negative pain experiences cause intense pain (Ünver & Turan, 2018; Kleye et al., 2023). Depending on their level of development, children cannot express pain verbally. In addition, it is indistinguishable whether his reactions to painful interventions are caused by pain or fear. These situations make the assessment of pain difficult (Büyükgönenç & Törüner, 2018).

The concept of fear of pain (algophobia) in the literature; means extreme fear of pain and painful sensation (Sarı, 2017). Pain is perceived as stress in the body and has undesirable physiological effects on many body systems. Pain in children often causes fear, anxiety, and stress (Büyükgönenç & Törüner, 2018). The fear of pain is linked to painful experiences the person has had in the past. If the pain cannot be adequately coped with, the individual may develop more fear of pain. When children experience recurrent and intractable pain, fear of pain may develop in children. Increasing pain severity also increases the anxiety of the person with pain stress (Sidar ve ark., 2013). There is also a relationship between individuals' pain beliefs and fear of pain (Kılıçarslan & Erek Kazan, 2021). Pain is a personal experience and is influenced by a variety of biological, psychological, and social factors. (IASP, 2021). It is predicted that pain experiences in childhood may cause a fear of pain and may affect the fear of pain and painful intervention processes in adulthood. Since nursing students' pain beliefs and fears may affect their approach to patients with pain, they should be evaluated in the education-teaching process, and their strategies for coping and approaching patients with pain should be determined and created (Kılıçarslan & Erek Kazan, 2021; Gao et al., 2023; Kleye et al., 2023; Yıldırım & Gerçeker, 2023). In the literature, no study has been found that examines nursing students' own pain experiences and fears of pain in childhood. Based on this information, it is aimed that the students who will fulfill the nursing profession will realize the relationship between the painful experiences they have had since their childhood and the fear of pain. At the same time, it will be ensured that students are made aware of this issue and that they learn about the fear of pain and related factors in pediatric patients. Thus, it is thought that when students start their profession, it may be beneficial in their approach to pediatric patients' pain.

2. Method

This research is descriptive and cross-sectional.

2.1. Aim of Study

The study was conducted to determine the effect of childhood pain experiences of student nurses on pain fear in adulthood.

2.2. Research Hypotheses

H₀: Nursing students' childhood pain experiences have no effect on adult pain fear.

H₁: Nursing students' childhood pain experiences have an effect on adult pain fear.

2.3. Population and Sample of the Research

The population of the descriptive and cross-sectional study consisted of all 1st, 2nd, 3rd and 4th grade students studying at a state university in Türkiye. 176 nursing department students who participated in the study voluntarily were included in the study. The number of participants to be sampled was calculated with the OpenEpi Info Statcalc program at a 95% confidence interval (Sullivan et al., 2021).

2.4. Data Collection and Data Collection Tools

2.4.1. Data Collection

Data were collected online and face-to-face between 29 September and 9 October 2021. As a data collection form, a student descriptive form was prepared in line with the literature and the Fear of Pain Scale-III was used. The questionnaire was transferred to the online platform via the Google Documents website. The link to the questionnaire was sent to the participants via WhatsApp. In addition, the printed version of the questionnaire was sent to the students who did not fill out the form, and they were allowed to participate in the questionnaire.

2.4.2. Data Collection Tools

2.4.2.1. Student Introductory Information form: There are questions about gender, age, education, family structure, family income, number of siblings, and childhood pain experiences. The data collection form prepared by the researchers consists of 10 questions (Kılıçarslan & Erek Kazan, 2021; Ünver & Turan, 2018).

2.4.2.2. Fear of Pain Questionnaire-III: McNeil and Rainwater developed the scale in 1998. (McNeil and Rainwater, 1998). It was adapted to our language by conducting a Turkish validity and reliability study by Ünver and Turan (Ünver & Turan, 2018). The questionnaire consists of 3 sub-dimensions. There are 10 items in all dimensions. The questionnaire items for fear of severe pain are 1,3,5,6,9,10,13,18,25,27; the scale items for mild fear of pain are 2,4,7,12,19,22,23,24,28,30; The questionnaire items for fear of medical pain are 8,11,14,15,16,17,20,21,26,29. It is graded with a Likert-type scoring from 1 to 5 (1-never, 2-somewhat, 3-quite, 4-a lot, 5-extremely) in the evaluation of the questionnaire's score that does not contain reverse expressions. It means that 1-fear is never heard, and 5-fear is heard excessively. A minimum of 30 points and a maximum of 150 points can be obtained in total. The lowest and highest score that can be obtained from the sub-dimensions is between 10-50. An increase in the score obtained from the scale means that the fear of pain increases. The Cronbach alpha reliability coefficient for the overall scale was found to be 0.938 (McNeil & Rainwater, 1998; Ünver & Turan, 2018). In this study, Cronbach's alpha value of the scale was found to be 0.924.

2.5. Ethical Considerations

The study was approved by Izmir Bakırçay University Non-Interventional Clinical Research Ethics Committee (Date, September 13, 2021; number, 2021/330). Written informed consent was obtained from the institution and students.

2.6. Limitations of the Research

The most important limitation of this research is that it was applied with a limited sample of nursing students studying at a state university.

2.7. Data Analysis and Evaluation

The data were evaluated using the IBM SPSS 26.0 package program. Data analysis was performed using descriptive statistics such as number, percentage, mean, and standard deviation. Student's t-test, one-way analysis of variance (ANOVA), and Tukey HSD test were used as post hoc test, as the data were by the normal distribution. The significance level was accepted as 0.05.

3. Results

The mean age of the participants was 19.80 ± 1.18 years, 74.4% were female and 52.3% were first-year nursing students. 41.5% of the participants stated that they had been hospitalized before, and 46.6% stated that they had fear of injectors/branules in their childhood. When the pain experienced during the same medical procedures in childhood was compared with the pain they experienced at their current age, 65.9% of the students stated that they experienced less pain now. The most common pain experiences in childhood were bloodletting/intravenous access by 43% of the students. 31.2% of the participants stated that the most applied method for pain control in childhood was hot-cold application, and 30.7% of them stated that it was a distraction (Table 1).

Table 1. Sociodemographic characteristics and experiences of the students on pain

Variables	$\bar{X} \pm SD$	
Age	19.80±1.18	
	N	%
Gender		
Female	131	74.4
Male	45	25.6
Education		
1st grade	92	52.3
2nd grade	9	5.1
3rd grade	61	34.6
4th grade	14	8.0
Have you been hospitalized before?		
Yes	73	41.5
No	103	58.5
Have you had an operation?		
Yes	50	28.4
No	126	71.6
Did you have a fear of needles (injector/branule) as a child?		
Yes	82	46.6
No	94	53.4

Table 1. Sociodemographic characteristics and experiences of the students on pain (Continued)

Do you currently have a fear of needles (injector/branule)?		
Yes	37	21.0
No	139	79.0
Comparison of childhood pain experience with current pain experience		
Less	116	65.9
Same	43	24.4
More	17	9.7
Total	176	100.0
The most common pain experience processes in childhood		
Bloodletting/intravenous route	148	43.0
Tooth extraction/treatment	82	23.8
IM injection	70	20.3
Fracture/dislocation	31	9.0
Suturing	13	3.9
Total	344*	100.0
The most used non-pharmacological pain method in childhood		
Hot-cold application	68	31.2
Divert attention	67	30.7
Relaxation	35	16.1
Music	20	9.2
Dreaming	17	7.8
Other	11	5.0
Total	218*	100.0

X: Mean, SD= Standard Deviation, *Multiple responses received.

The total score of the students on the Fear of Pain Questionnaire was 80.57 ± 19.77 . The mean fear of severe pain sub-dimension score was 31.96 ± 7.83 , the mean fear of mild pain sub-dimension score was 23.18 ± 6.79 , and the mean fear of medical pain sub-dimension score was 25.43 ± 8.06 (Table 2).

Table 2. Fear of Pain Questionnaire Scores

	N	$\bar{X} \pm SD$	Item	Med (Min-Max)
Fear of Pain Questionnaire	176	80.57 ± 19.77	30	81(30-139)
Fear of Severe Pain (Dimension 1)	176	31.96 ± 7.83	10	33(10-50)
Mild Fear of Pain (Dimension 2)	176	23.18 ± 6.79	10	23(10-46)
Fear of Medical Pain (Dimension 3)	176	25.43 ± 8.06	10	24(10-49)

X: Mean, SD= Standard Deviation, Med: Median, Min: Minimum, Max: Maximum

When the participants' pain-related experiences were compared with the Fear of Pain Questionnaire and its sub-dimensions, a statistically significant difference was found in the fear of pain scale score and all sub-dimensions of female students, and it was found to be higher. It was determined that the Fear of Pain Questionnaire score and the mean score of the medical sub-dimension of those who stated that they had fear of injectors/branules in their childhood were found to be significantly higher. When the pain experienced by students during the same medical procedures in childhood is compared with the pain they experience in their current age, the difference is statistically significant.

Fear of Pain Scale score and Medical Fear of Pain score were compared with pain experience and a statistically significant difference was found between them ($p < 0.005$). Tukey test was performed to determine which group caused this difference. It was determined that those who had equal pain experienced in childhood and adulthood had a higher fear of pain than those who had less pain experience (Table 3).

Table 3. Comparison of participants' Pain-Related Experiences with Fear of Pain Questionnaire and Sub-Dimensions (N=176)

Variables	N	Fear of Pain Questionnaire $\bar{X} \pm SD$	Fear of Severe Pain $\bar{X} \pm SD$	Mild Fear of Pain $\bar{X} \pm SD$	Fear of Medical Pain $\bar{X} \pm SD$
Gender					
Female	131	85.10±18.70	33.58±7.22	24.49±6.71	27.01±8.04
Male	45	67.40±16.81	27.22±7.66	19.35±5.49	20.82±6.19
p		<.001*	<.001*	<.001*	<.001*
Have you been hospitalized before?					
Yes	73	78.86±19.42	31.90±7.62	22.38±6.50	24.57±7.98
No	103	81.79±20.02	32.00±8.01	23.74±6.96	26.03±8.10
p		.335	.936	.190	.237
Have you had an operation?					
Yes	50	80.00±19.72	32.16±7.35	22.42±6.54	25.42±8.62
No	126	80.80±19.86	31.88±8.03	23.48±6.89	25.43±7.86
p		.809	.832	.350	.990
Did you have a fear of needles (injector/branule) as a child?					
Yes	82	86.30±18.72	34.03±7.22	24.29±6.67	27.97±8.05
No	94	75.57±19.39	30.14±7.92	22.21±6.77	23.21±7.42
p		<0.001*	0.001*	.042*	<0.001*
Comparison of childhood pain experience with current					
Less	116	77.93±19.45	31.04±7.82	22.63±6.78	24.25±7.35
Same	43	87.58±18.23	34.23±7.00	24.86±6.30	28.48±8.47
More	17	80.88±22.41	32.47±9.04	22.64±7.67	25.76±9.94
p		.023**	.070**	.176**	.012**

X: Mean, SD= Standard Deviation, * independent t-test, ** One-way ANOVA, Tukey HSD Test

4. Discussion

Fear of pain develops as a result of negative interpretations and thinking that pain is equivalent to causing harm (Turk & Wilson, 2010). In this study, the effect of childhood pain experiences of nursing students on pain fear in adulthood was investigated. The relationship between past pain experience and current fear of pain is statistically significant. It was concluded that those who stated that they had fear of injectors/branules in their childhood had a high fear of pain. Considering the relationship between student nurses' pain beliefs and their fear of pain, it was found that as students' pain beliefs

increased, their fear of severe pain decreased. (Kılıçarslan & Erek Kazan, 2021). Beliefs about pain formed through past experiences influence fear of pain.

Students who think that the cause of pain is injury or damage to the body experience less fear of mild and severe pain (Kılıçarslan & Erek Kazan, 2021). There is a negative linear relationship between age and fear of medical or dental pain and a positive linear relationship between fear of severe or mild pain. (Wright, 2018). In another study, it was determined that children who had dental experience had less anxiety and fear of pain than children who had never been to the dentist before (Lima et al., 2021). Since parents' beliefs and behaviors about the child's pain significantly affect the child's pain experience, establishing pain communication by healthcare professionals ensures a successful pain experience (Koechlin et al., 2020). It has been determined that more reference to positive emotions by parents in the development of children's pain memories is associated with more accurate and positively biased recall of pain (Noel et al., 2019). In this study, the fact that students stated that their pain experience at their current age is less compared to their past pain experience supports this situation.

In recent years, the focus has been on the use of non-pharmacological methods to reduce interventional pain in children. Various methods of distraction (watching cartoons, listening to music, using a kaleidoscope, using a card) among cost-effective pain reduction methods that are effective in reducing interventional pain and fear can also be used (İnal & Canbulat, 2015; Uman et al., 2013). In this study, it was determined that 31.2% of students used the hot-cold application method for pain control in childhood, and the distraction method was applied to 30.7% of them. In studies conducted with nursing students, it was determined that the most used non-pharmacological methods for coping with pain were hot-cold application (Babadağ & Balcı, 2017; Isık & Yanık, 2022; Karabulut et al., 2016; Kılıçarslan & Erek Kazan, 2021), then sleeping-resting (Isık & Yanık, 2022; Karabulut et al., 2016; Kılıçarslan & Erek Kazan, 2021), relaxation exercises and massage were the less used ones. In painful procedures to be performed on children, it is important to choose and apply the appropriate non-pharmacological method according to the age characteristics of the child, and to use these applications effectively, since the procedure to be performed can alleviate the pain.

Conclusion

Nursing students need to know the coping strategies and approaches for patients with pain by evaluating the concept of pain and fear of pain throughout the education process. In this study, it was determined that the painful experiences of the students in childhood affected their fear of pain in adulthood. Positive experiences of pain in childhood lead to less fear of pain in adulthood. Therefore, painful procedures should be managed to reduce the long-term negative effects of childhood pain. This study was conducted to evaluate past pain experiences and current fears of the pain of student nurses. Students need to be able to determine coping strategies based on their own experiences. The experiences of the students in their childhood will create awareness so that they can understand the child patient. It is suggested that this awareness should be created to enable the students of the nursing department to express their thoughts and fears about pain in pediatric patients and to make interventions appropriate for the age period of the child. It is thought that this study will contribute to

the literature, especially to determine the approaches of the student nurse to the painful patient in childhood and to support the evaluation of the child they care for together with the parents.

Authors Contributions

Topic selection: ŞBY; Design: ŞBY; Planning: ŞBY; Data collection: ŞBY, SB; Data analysis: ŞBY; Article writing: ŞBY,SB; Critical review: ŞBY,SB.

Conflict of Interest

There is no conflict of interest to declare by the author.

References

- Babadağ, B., & Balcı Alparşlan, G. (2017). The pain beliefs of nursing students. *Sted*, 26(6), 244–50.
- Büyükgönenç, L., & Törüner, E. (2018). Çocukluk Çağlarında Ağrı ve Hemşirelik Yönetimi. In Conk, Z., Başbakkal, Z., Bal Yılmaz, H., & Bolışık, B. (Eds.), *Pediatric Hemşireliği* (2nd ed., pp. 893–908). Akademisyen Kitabevi.
- Cousins, M., Lane-Krebs, K., Matthews, J., & Johnston-Devin, C. (2021). Student nurses' pain knowledge and attitudes towards pain management over the last 20 years: A systematic review. *Nurse Education Today*, 108, 105169. <https://doi.org/10.1016/j.nedt.2021.105169>
- Çelik, S., Baş, B.K., Korkmaz, Z.N., Karaşahin, H., & Yildirim, S. (2018). Determination of knowledge and behaviour of nurses about pain management. *Med J Bakirkoy*, 14(1), 17–23. <https://doi.org/10.5350/BTDMJB.20160905103604>
- Gao, Y., Xu, Y., Liu, N., & Fan, L. (2023). Effectiveness of virtual reality intervention on reducing the pain, anxiety and fear of needle-related procedures in paediatric patients: A systematic review and meta-analysis. *Journal of Advanced Nursing*, 79(1), 15-30.
- International Association for the Study of Pain. (2021, December 20). Definition of Pain. Available from: <https://www.iasp-pain.org/resources/terminology/#pain>
- Isık, M.T., & Yanık, T.Ç. (2022). Cultural perceptions of nursing students regarding pain and methods used for pain management. *Pain Management Nursing*, 23(5), 625-631. <https://doi.org/10.1016/j.pmn.2022.02.002>
- İnal, S., & Canbulat, N. (2015). Çocuklarda işlemsel ağrı yönetiminde dikkati başka yöne çekme yöntemlerinin kullanımı. *Güncel Pediatri*, 13(2), 116–21. <https://doi.org/10.4274/jcp.29292>
- Karaca Çiftçi, E., Aydın, D., & Karataş, H. (2016). Determining the reasons of anxiety and anxiety states of the parents with children undergoing a surgical intervention. *J Pediatr Res*, 3(1), 23–9. <https://doi.org/10.4274/jpr.63644>
- Karabulut, N., Gürçayır, D., & Aktaş, Y.Y. (2016). Non-pharmacological interventions for pain management used by nursing students in Turkey. *Kontakt*, 18(1), e22–e29. <https://doi.org/10.1016/j.kontakt.2015.12.001>
- Koechlin, H., Locher, C., & Prchal, A. (2020). Talking to children and families about chronic pain: The importance of pain education—An introduction for pediatricians and other health care providers. *Children*, 7(10), 179.
- Kılıçarslan, F.N., & Erek Kazan, E. (2021). Analysis of the relationship between pain beliefs and fears of pain of nursing students. *Journal of Health Sciences*, 30, 316-325. <https://doi.org/10.34108/Eujhs.1040425>
- Kleye, I., Sundler, A. J., Karlsson, K., Darcy, L., & Hedén, L. (2023). Positive effects of a child-centered intervention on children's fear and pain during needle procedures. *Paediatric and Neonatal Pain*, 5(1), 23-30.

- Lima, D.S.M., Barreto, K.A., Rank, R.C.I.C., Vilela, J.E.R., Correa, M.S.N.P., & Colares, V. (2021). Does previous dental care experience make the child less anxious? An evaluation of anxiety and fear of pain. *Eur Arch Paediatr Dent*, 22(2), 139–43. <https://doi.org/10.1007/s40368-020-00527-9>
- McNeil, D., & AJ, R. (1998). Development of the Fear of Pain Questionnaire-III. *J Behav Med*, 21(4), 389–409. <https://doi.org/10.1023/a:1018782831217>
- Noel, M., Pavlova, M., Lund, T., Jordan, A., Chorney, J., Rasic, N., ... & Graham, S. (2019). The role of narrative in the development of children's pain memories: influences of father–and mother–child reminiscing on children's recall of pain. *Pain*, 160(8), 1866-1875.
- Sarı, E. (2017). *Psikoloji*. (1. baskı) Antalya: Nokta E-Book Publishing.
- Sidar, A., Dedeli, Ö., & İşkesen, A.I. (2013). The relationship between anxiety, pain distress and pain severity before and after open heart surgery in patients. *J Med Surg Intensive Care Med*, 4(1), 1–8. <https://doi.org/10.5152/dcbymbd.2013.02>
- Sullivan, K.M., University E., Pezzullo, J.C., Dean, A.G., & Mir, R.A. (2021). OpenEpi: Sample Size for X-Sectional, Cohort, and Clinical Trials. Available from: <https://www.openepi.com/SampleSize/SSCohort.htm>
- Turk, D.C., & Wilson, H.D. (2010). Fear of pain as a prognostic factor in chronic pain: Conceptual models, assessment, and treatment implications. *Curr Pain Headache Rep*, 14(2), 88-95. <https://doi.org/10.1007/s11916-010-0094-x>
- Uman, L., Birnie, K., Noel, M., Parker, J., Chambers, C., McGrath, P., et al. (2013). Psychological Interventions for needle-related procedural pain and distress in children and adolescents. *Cochrane Database Syst Rev* (10). <https://doi.org/10.1002/14651858.CD005179.pub3>
- Ünver, S., & Turan, F.N. (2018). Turkish validity and reliability study of the Fear of Pain Questionnaire-III. 30(1), 18–27. <https://doi.org/10.5505/agri.2017.62681>
- Wright, C.D., & McNeil, D.W. (2021). Fear of pain across the adult life span. *Pain Med*, 22(3), 567–76. <https://doi.org/10.1093/pm/pnaa390>
- Yıldırım, B.G., & Gerçeker, G.Ö. (2023). The Effect of Virtual Reality and Buzzy on First Insertion Success, Procedure-Related Fear, Anxiety, and Pain in Children during Intravenous Insertion in the Pediatric Emergency Unit: A Randomized Controlled Trial. *Journal of Emergency Nursing*, 49(1), 62-74.