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RESEARCH

Relationship between pain coping strategies in parents with migraine and their children: A study focusing on adolescence

Migren tanılı ebeveynler ve çocuklarında ağrıyla başa çıkma stratejileri arasındaki ilişki: Ergenlik dönemi odaklı bir inceleme

Ozan Kayar[1], Gülen Güler Aksu[2], Fevziye Toros[2], Aynur Özge[3]

[1]Çankırı Karatekin University, Department of Psychology, Faculty of Letters, Çankırı, Türkiye
[2]Mersin University, Faculty of Medicine, Department of Child and Adolescent Psychiatry, [4]Department of Neurology, Mersin, Türkiye

Abstract

Purpose: This study aims to scrutinize how the relationships between parents' and adolescents' coping strategies with migraine through correlational analysis of quantitative data as well as supporting qualitative information.

Materials and Methods: This research included 70 parents and their adolescent children diagnosed with migraine after neurological evaluation. Besides the sociodemographic data, the commonly used pain coping methods by participants were examined with the Headache Questionnaire. The groups' pain coping strategies were measured with the sub-dimensions of the Pain Coping Questionnaire.

Results: Positive and significant relationships were found between parents and adolescents in terms of the use of functional behavioral (r=.29, p=.015) and cognitive coping strategies (r=.29, p=.015). Both groups were similar in their frequency rates of preferring ineffective attack treatment and inappropriate analgesic usage. The significant correlations found between the scores of groups' for coping with pain by seeking ineffective medical remedies supported our qualitative results (r=.35, p=.003).

Conclusion: The possible roles of parents' knowledge and practices regarding pain management on their children with similar headache complaints may be variable in itself, depending on some developmental and individual issues with the onset of adolescence period.

Keywords: Adolescent, migraine, pain management, parent

Öz

Amaç: Bu araştırma migren tanısı olan ebeveynlerin ve ergenlerin ağrıyla başa çıkma stratejileri arasındaki ilişki durumlarını hem nicel veriler arasındaki ilişkilerin analizi hem de destekleyici bazı nitel verilerin karşılaştırılması yoluyla incelemeyi amaçlamaktadır.

Gereç ve Yöntem: Çalışmamıza yapılan nörolojik değerlendirme sonrası migren tanısı konulan 70 ebeveyn ve ergen çocukları dahil edildi. Katılımcıların sosyodemografik verilerinin yanı sıra yaygın olarak kullandıkları ağrıyla başa çıkma yöntemleri Baş Ağrısı Anketi ile incelendi. Grupların ağrıyla başa çıkma stratejileri ise Ağrıyla Başa Çıkma Ölçeği'nin alt boyutları yoluyla ölçüldü.

Bulgular: Ebeveynler ve ergenler arasında işlevsel nitelikteki davranışsal (r=.29, p=.015) ve bilişsel başa çıkma (r=.29, p=.015) stratejilerinin kullanımı açısından olumlu yönde ve anlamlı ilişkilerin olduğu bulundu. Her iki grubun etkin olmayan atak tedavisini ve uygun olmayan analjezik kullanımını tercih etme sıklıklarına yönelik sonuçlar birbirine oldukça yakındı. Ebeveynlerin ve ergenlerin etkin olmayan tıbbi çareler arayarak başa çıkma puanları arasında rastlanan anlamlı ilişkiler, mevcut nitel verileri destekler nitelikteydi (r=.35, p=.003**Sonuç:** Ebeveynlerin ağrı yönetimine ilişkin bilgi ve uygulamalarının kendileriyle benzer baş ağrısı yakınmaları olan çocukları üzerinde oynadığı olası rollerin, ergenlik dönemi söz konusu olduğunda gelişimsel ve bireysel bazı hususlara bağlı olarak kendi içinde değişken nitelikte olabileceğini düşündürmektedir.

Anahtar kelimeler: Ağrı yönetimi, ebeveyn, ergen, migren

Address for Correspondence: Ozan Kayar, Department of Psychology, Çankırı Karatekin University, Çankırı, Türkiye
E-mail: pskozan@gmail.com
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INTRODUCTION

Even though the definition is complex, migraine is generally defined as a disorder characterized by recurrent attacks of headache, which is commonly associated with nausea, vomiting, photophobia and phonophobia, and is involved in top 10 reasons for a disabled status[1]. In a meta-analysis study, where primary prevalence of headache in children and adolescents was assessed, it was reported that the approximate prevalence of a headache was 54.4% whereas for migraine the average was 9.1%[2]. Furthermore, the research has revealed a gradual and rapid increase in the frequency of migraine incidence during adolescence period[3].

Coping is related to overcoming the pain cognitively or behaviorally and reflects either functional (effective) or non-functional (passive) styles[4]. The researches in the field indicate that pain related coping strategies used during childhood tend to change towards the adolescence[4,5]. It is of paramount importance to pay attention to coping strategies applied during adolescence as the methods are used to cope with pain become permanent behavioral patterns and are carried over to adulthood[6]. The recent researches on migraine in adults indicate that the use of non-functional coping styles (internalization, catastrophizing, helplessness etc.) is associated with more frequent and acute migraine attacks as well as being a potential risk factor for the development of chronic migraine and additional mental disorders[7,8].

It is highlighted that familial transmission has a significant role in the occurrence of headaches, especially migraine type headaches[9]. Moreover, how parents with migraine diagnosis cope with pain might be particularly important as it is argued that such parents serve as the basic model for pain management on their children who also experience similar types of headaches[8]. However, it is seen in the literature that the researchers mostly centered upon the relationships between the strategies used by parents and children with different types of chronic pain in the process of coping with pain[10-12]. Moreover, these studies that examined the parent-child relations focused primarily on non-functional coping strategies such as catastrophizing or using painkillers rather than the use of functional coping methods for the pain[13-14].

Based on the information and the gaps observed in the literature, this study aims to enhance our understanding with regards to intergenerational transmission of coping process for migraine type headaches through social learning mechanisms. In current pain models based on social learning theories, it is pointed out that the process of learning pain-related behaviors and beliefs can occur through observation of someone else's behavior and reinforcement of the behavior by others[15]. In this context, the main hypothesis of the study is that there are relationships between both functional and dysfunctional methods to cope with migraine attacks adopted by the parents and their adolescent children who share the same environment. Furthermore, in this study, the quantitative measurements obtained from the participants were also supported by qualitative data, which questioned the most frequently used pain coping methods of both groups. In this way, it is aimed to have a more comprehensive perspective on the focused relationships.

MATERIALS AND METHODS

Sample

In the study, the G*power 3.1 program was used to determine an acceptable sample size and the power of the study was calculated as 72 with 0.80 effect size, 0.05 type-I error and 90% confidence interval. The primary sample of the study included 78 adolescents who were diagnosed with episodic migraine and 81 parents with migraine diagnosis of different types. All subjects were diagnosed after a neurological evaluation based on The International Classification of Headache Disorders 3rd edition (ICHD-3) diagnostic criteria. However, after the initial analysis of the data set, 8 adolescents and 11 parents were dropped due to either missing information on the scales, or not fitting the inclusion or exclusion criteria. Hence, the study sample comprised 70 participants in the adolescent group and 70 related parents.

The inclusion and exclusion criteria for this study are as follows: approval of parents regarding their children's participation; cognitive capabilities of adolescents and parents as being suitable for participation; no additional medical condition that accounts for a headache; absence of a major head trauma or post-traumatic stress disorder following a major trauma and no hospital treatment in the past month due to aforementioned reasons (considering both parents and adolescents); absence of a drug or substance misuse that accounts for a headache.

Measures

Sociodemographic Questionnaire

This questionnaire was used to assess information acquired from adolescents who are diagnosed with migraine; such as gender, economic level, and parents' education and marital status.

Headache Questionnaire (HQ)

In addition to parents and adolescents' neurological evaluation, their commonly used pain coping methods were assessed by a neurology specialist according to the questionnaire constituted by Ozge et al.[16]. This included revised questions based on the diagnostic criteria of ICHD-3.

Pain Coping Questionnaire (PCQ)

To determine the participants' coping strategies for the pain, a Turkish translation of the PCQ was used. The questionnaire developed by Kleinke[17] to assess pain-specific emotional and behavioral patterns, was translated into Turkish by Karaca, Demir, Aşkın and Şimşek[18]. It examined coping styles for organic or psychogenic pain of patients with different pain complaints. 29 questions were answered on a 4-point Likert Scale with points ranging from 0 to 3 for each item. The questionnaire included four sub-scales: self-management (SM), conscious coping attempts (CCA), coping with helplessness (CwH) and seeking medical remedies (SMR). Total points were calculated by the addition of points acquired from each respective sub-scale. There was no cut-off point for points acquired from sub-scales. In the reliability study of the original scale, the internal consistency measured by the Cronbach Alpha coefficient was reported to be 0.75. In this study, the internal consistency of all sub-dimensions was acceptable for both groups, and the Cronbach's alpha values of them were 0.78, 0.73, 0.72, and 0.74 for adolescents, and 0.77, 0.71, 0.74 and 0.75 for parents, respectively.

Procedure

Ethical approval for the study was obtained from Mersin University Social Sciences and Humanities Ethics Committee (date of approval: 04.02. 2019, protocol code: 018). The study was carried out in the Child and Adolescent Headache Out-patient Clinic, which has been serving as a separate unit for about ten years within the Child and Adolescent Psychiatry Outpatient Clinic, Mersin University, Faculty of Medicine. The sample was achieved with guidance from outpatient clinics of Child and Adolescent Psychiatry, Child Neurology and Adult Neurology in Mersin University Hospital. Contacts were asked to address adolescents between the ages of 12 and 18 who experience severe headaches that interfere with daily functionality and affect their lives negatively. The same applied for their parents. The parents and adolescents were directed to the Child and Adolescent Headache Out-patient Clinic, where they were assessed by Prof. Dr. Aynur Özge, a neurology specialist according to ICHD-3 criteria. During evaluation interviews commonly used pain related coping methods of these individuals were questioned qualitatively using the HQ. Sociodemographic information of participants was acquired simultaneously. Prior to the application process, participants were informed of the aim of the study and following a briefing were asked to read and sign the volunteer consent form. Then, the participants completed the PCQ independently in the waiting room of the out-patient clinic.

Statistical analysis

Statistical analyses were performed by using IBM SPSS (Statistical Package for Social Sciences) 20.0. Before the analysis, the study data were assessed in terms of outliers, out-of-range values, missing values, and normality. The presence of skewness and kurtosis values between -3 and +3 was accepted as the criterion for normal distribution of the variables of the study[19]. Data on continuous variables were expressed as mean ± standard deviation, while categorical ones were expressed as percentages and numbers.

Pearson correlation analysis was conducted to examine the association between the groups' quantitative data (PCQ sub-scales scores). One of the methods used to support these analyses with qualitative data was the comparison of descriptive statistics. In this process, the frequencies and percentages of the groups' responses to the commonly used pain coping methods questioned with the HQ were recorded and the results were compared. Also, the relations of the adolescents' quantitative data with qualitative data from both groups were examined with t-test or Mann-Whitney-U test. The relations of quantitative and qualitative data from adolescents with some sociodemographic variables and headache characteristics were analyzed by the t-test and one-way ANOVA or Mann-Whitney-U and Kruskal-Wallis tests for group comparisons of continuous variables. Categorical

variables were compared with chi-square test. Homogeneity (Levene's) and normality (Shapiro Wilk) tests were used to choose statistical methods (parametric or nonparametric). A p value of less than 0.05 was considered to be significant in all of the analyses.

RESULTS

The findings on sociodemographic variables of the sample revealed that the mean of the adolescents' age was 14.97 (±1.97). 71.4% of adolescents were female (n=50) and 28.6% were male (n=20). As a result of the neurological evaluation, 68.6% (n=48) of adolescents were diagnosed with migraine without aura (MWoA) whereas 31.4% (n=22) received a diagnosis of migraine with aura (MWA). 57.1% of parents (n=40) were diagnosed with MWoA, 34.3% (n=24) with MWA and 8.6% (n=6) with chronic migraine (CM). 81.4% of parents with headache were mothers of adolescents (n=57) and 18.6% (n=13) were fathers. All descriptive findings regarding clinical features of the headaches as well as other sociodemographic variables of the sample are shown in Table 1.

Table 1. Descriptive statistics for sociodemographic variables and headache characteristics

Variable		n (%)
Gender	Female	50 (71.4)
	Male	20 (28.6)
Socioeconomic level	Poor	17 (24.3)
	Medium	38 (54.3)
	Good	15 (21.4)
Mother's education	Elementary school	25 (35.7)
	High school	22 (31.4)
	Graduate school and above	23 (32.8)
Father's education	Elementary school	30 (42.9)
	High school	21 (30.0)
	Graduate school and above	19 (27.2)
Headache diagnosis (Adolescent)	Migraine with aura	22 (31.4)
	Migraine without aura	48 (68.6)
Headache diagnosis (Parent)	Migraine with aura	24 (34.3)
	Migraine without aura	40 (57.1)
	Chronic migraine	6 (8.6)
Parent with a headache diagnosis	Mother	57 (81.4)
	Father	13 (18.6)
		Mean±SD (Min-Max)
Age (years old)		14.97±1.97 (12-18)
Pain frequency (per Month)	Adolescents	9.61±3.85 (2-15)
	Parents	5.99±5.55 (1-25)

n: Number, SD: Standard deviation

Table 2. Relationships between parents and adolescents' pain coping strategies

Variable	SM (Adol.)	CwH (Adol.)	CCA (Adol.)	SMR (Adol.)
SM (Par.)	0.29*	0.11	0.25*	0.21
CwH (Par.)	0.00	-0.05	0.08	0.05
CCA (Par.)	0.31**	0.10	0.29*	0.29*
SMR (Par.)	0.08	0.20	0.25*	0.35**

SM: Self-management, CwH: Coping with helplessness, CCA: Conscious coping attempts, SMR: Seeking medical remedies, Adol.: Adolescent, Par.: Parent; *p<0.05, **p<0.01

In line with the main purpose of the study, we first examined the association between pain coping strategies obtained quantitatively through PCQ sub-scales from the groups by conducting correlation analysis. (See Table 3 for the values of participants' sub-scales scores). Results yielded significant and positive correlations between parents and adolescents' scores on SM (r=0.29, p=0.015), CCA (r=0.29, p=0.015) and SMR (r=0.35, p=0.003). Accordingly, the increase in parents' scores on SM,

CCA, and SMR was associated with an increase in adolescents' use of pain coping strategies similar to their parents. In contrast there was no significant relationship between parents and adolescents' scores on CwH (r=-0.05, p=0.655) (Table 2).

In our study, the data were also collected from the participants through HQ to support the correlational findings regarding the quantitative data and to obtain more detailed information about the pain coping ways. For this purpose, we presented close-ended (yes or no) and an open-ended (other) options to the groups through the question of "What do you do to overcome your headache?" in order to assess and compare their answers on commonly used pain coping methods. Among these alternatives directed as closed-ended, for the option "laying down/ sleeping/ escaping to the dark"; 90% of adolescents (n=63), 84.3 of parents (n=59); for the "taking painkiller" option 81.4% of adolescents (n=57), 87.1% of parents (n=61); for the option "massage" 55.7% of adolescents (n=39), 67.1% of parents (n=47); for the "vomiting" option 8.6% of adolescents (n=6), 14.3% of parents (n=10) and finally for the "eating" option 12.9% of adolescents (n=9) and 5.7% of parents (n=4) answered "yes". On the other hand, adolescents scored 5.40 on average (±5.71) in response to the question "How many painkillers do you get every month for your headaches?" posed in the HQ, while parents scored 4.91 on average (±5.65) for the same question. Moreover, a deeper look into the findings concerning pain medication overuse (10 or more painkillers in a month) among groups found pain medication overuse in 14.3% of adolescents (n=10) and 12.9% of parents (n= 9) (Table 3).

Table 3. Descriptive findings on quantitative and qualitative data obtained from groups

Measures	**Adolescents**	**Parents**
The PCQ subscales	Mean±SD (Min-Max)	Mean±SD (Min-Max)
Self-management	24.19±7.60 (12-43)	23.13±9.25 (12-67)
Coping with helplessness	19.87±4.64 (11-28)	20.32±5.15 (10-29)
Conscious coping attempts	18.23±4.86 (9-29)	16.81±7.13 (9-64)
Seeking medical remedies	18.01±4.37 (11-31)	19.70±4.29 (10-33)
The commonly used coping methods	n (%)	n (%)
Close-ended options		
Sleeping or escaping to the dark	63 (90.0)	59 (84.3)
Taking painkillers	57 (81.4)	61 (87.1)
Getting or applying massage	39 (55.7)	47 (67.1)
Vomiting	6 (8.6)	10 (14.3)
Eating	9 (12.9)	4 (5.7)
Open-ended option (Other)		
Tying a long cloth or scarf over head	12 (17.1)	6 (8.6)
Mental/ behavioral attention shifting (e.g. listening to music)	10 (14.3)	4 (5.7)
Cold compress (e.g. ice, cold water), hot compress (e.g. towel, hair dryer)	10 (14.3)	4 (5.8)
Drinking stimulants (e.g. coffee, tea) or tranquilizers (e.g. lavender tea)	2 (2.8)	1 (1.4)
Average painkillers taken per month	Mean±SD (Min-Max)	Mean±SD (Min-Max)
	5.40±5.71 (0-30)	4.91±5.65 (0-21)

PCQ: Pain Coping Questionnaire, SD: Standard deviation, n: Number

In order to support our other analyzes, it was also examined whether qualitative data obtained from both parents and adolescents differ in terms of adolescents' PCQ sub-scales scores (Table 4). Three of the commonly used pain coping methods of both groups questioned through HQ were suitable for conducting the relevant analyzes. The responses to other methods in the questionnaire were not included in the analysis due to non normal sample distribution to the groups. According to our significant results, the CwH scores of the adolescents using the "laying down, sleeping or escaping to the dark" method for coping with pain were significantly higher than those who did not (p=0.029; 95% CI: 1.788-6.041). However, it was found that the adolescents not preferring this method had significantly higher SM

scores than those who did (p=0.018; 95% CI: -9.540--3.054). Moreover, CCA scores were significantly higher in adolescents whose parents frequently used the same method for coping with pain, compared to those who had parents not use (p=0.050; 95% CI: 0.001-6.233). According to another finding, the adolescents using the coping method of "taking pain killers" had significantly higher scores for both CwH (p=0.006; 95% CI: 1.136-6.564) and SMR (p=0.005; 95% CI: 1.764-5.266) than those who did not. On the other hand, it was found that the adolescents with parents not preferring this method as a way of coping with pain had significantly higher both SM (p=0.013; 95% CI: -11.875--1.460) and CCA (p=0.004; 95% CI: -8.193--1.641) scores than those whose parents used it. Finally, the adolescents using the "massage" to cope with pain had significantly higher CwH scores than those who did not (p=0.006; 95% CI: 0.926-5.170).

In the study, we also examined possible relations among quantitative and qualitative measurements obtained from adolescents with some sociodemographic variables as well as headache characteristics of the participants. However, according to these results, there were no significant correlations between both quantitative and qualitative data with the adolescents' age, gender, attack frequency in addition to neurological diagnoses of the groups (p>0.05). Moreover, our analyzes on whether the correlations we examined differed according to gender of parent with a headache diagnosis showed that the results were not significant (p>0.05).

Table 4. Relations of groups' qualitative data with quantitative measurements from adolescents

	Laying / Sleep (n=63) (Adolescent)		**Taking painkillers (n=57) (Adolescent)**		**Getting massage (n=39) (Adolescent)**	
	Mean±SD	**p**	**Mean±SD**	**p**	**Mean±SD**	**p**
SM	23.56±7.70	**0.02****	23.86±7.72	0.45*	23.13±7.86	0.19*
	29.86±3.13		25.63±7.13		25.53±7.14	
CwH	20.26±4.69	**0.03****	20.59±4.63	***0.01****	21.22±4.48	***0.01****
	16.35±2.11		16.74±3.27		18.17±4.34	
CCA	18.07±4.99	0.40*	17.85±4.58	0.17*	18.14±4.75	0.87*
	19.71±3.35		19.90±5.83		18.34±5.07	
SMR	18.14±4.39	0.44*	18.66±4.48	***0.01*****	18.03±4.38	0.97*
	16.79±4.31		15.14±2.26		17.98±4.42	
	Laying/ Sleep (n=59) (Parent)		**Taking painkillers (n=61) (Parent)**		**Getting massage (n=47) (Parent)**	
	Mean±SD	**p**	**Mean±SD**	**p**	**Mean±SD**	**p**
SM	24.72±7.79	0.18	23.33±7.43	***0.01****	24.35±8.16	0.81*
	21.36±5.94		30.00±6.29		23.87±6.45	
CwH	19.89±4.69	0.95	20.15±4.71	0.19*	20.13±4.44	0.52*
	19.79±4.62		17.96±3.85		19.35±5.10	
CCA	18.72±4.91	**0.05***	17.60±4.65	***0.00****	18.14±5.06	0.82*
	15.61±3.71		22.52±4.18		18.42±4.51	
SMR	18.19±4.40	0.41	18.10±4.64	0.85**	18.28±4.49	0.45*
	17.00±4.24		17.36±1.58		17.44±4.15	

n: Number, SD: Standard deviation, SM: Self-management, CwH: Coping with helplessness, CCA: Conscious coping attempts, SMR: Seeking medical remedies; *: t test, **: Mann-Whitney U test; Bold indicates p<0.05 and italic bold indicates p<0.01

DISCUSSION

The results of quantitative data indicated a positive and significant correlation between parents' and adolescents' scores on coping with pain through seeking medical remedies. Primarily, we believe that it is important to understand the relationship between this finding and pain coping strategies (functional or non-functional). It is stated in the literature that, a sub-dimension of seeking medical remedies as a coping strategy is the frequent usage of appropriate or inappropriate painkillers to cope with the pain[18,20]. However the nature of this coping strategy prevents us from making a clear judgment about whether painkillers are used by participants as part of an effective or ineffective treatment. Qualitative data from our sample suggested that attitudes of parents that seek medical solutions to cope with pain prompt the adolescents to utilize a non-functional coping

strategy. This view is supported by our findings regarding that painkillers are preferred primarily at high doses to cope with pain in both groups, and there are similarities in monthly painkiller usage and rates of drug misuse. In literature, studies on the subject emphasize the modeling theory as well as the important role of parents, who experience similar pains to their children, and their attitudes towards both their own and their children's pain; influencing their adolescent children with regard to the use of painkillers. Moreover, the results of these studies indicate that mothers are the primary information source of adolescents on their painkiller use[10,21,22]. Therefore we believe that, in addition to multiple and consistent findings obtained from this study regarding the role of parents on the attitudes of adolescents to cope with their pain through painkillers, the fact that mothers made up the majority of the participants in the sample group supports the existing literature.

Increase by parents' attitudes coping with migraine pain through self-management and conscious coping attempts was associated with an increase in the frequency of adolescents' use of similar strategies. Self- management is defined as a strategy to cope with pain using functional, direct and behavioral methods. Self-management also includes elements such as behavioral attention-shifting activities, attempts to seek social support/ social interaction, breathing/ relaxation exercises and engaging in physical activities. Engaging in conscious coping attempts, similar to the self-management strategy, is a functional and direct strategy. It is associated with cognitive processes during a headache, for example diverting attention, daydreaming and reinterpreting the pain. It is reported that the use of both types of coping strategies increases self-efficacy and feelings of control regarding pain management and life adjustment[18]. These findings suggest that the functional consequences of both strategies used by a parent with migraine facilitate the adoption of such methods by adolescents. Moreover self-management and conscious coping attempts can be learned by adolescents from parents, either indirectly through observation or directly through parents' attitudes, providing another important element in the existence and subsistence of these relationships[23,24]. It seems probable that adolescents, who experience similar pains as their parents, are more likely to be influenced by parental modeling and attitudes towards their own pain as they continue to share the same environment[25].

The only non-significant correlational finding of our study was between parents' and adolescents' use of coping strategy, through attitudes that evoke feelings of helplessness in the face of pain. First of all, it seems reasonable to evaluate this result together with the similar qualitative data from our study in which we compared pain coping methods frequently used by adolescents and parents. In our study, in addition to the unconscious use of analgesic drugs, we also found that the use of other non-functional coping methods such as sleeping, escaping to dark, and vomiting by both groups was quite similar ratio. The interpretation of these findings leads us to believe that differences in the nature of both non-functional ways for coping with pain could have an important role in this picture which is not initially evident. Attempts by parents to reduce their pain by sleeping, escaping to dark, vomiting or taking painkillers frequently can be considered as the coping methods with a high likelihood to be modeled and imitated by their adolescent children. Because they are in the same family environment, such behaviors of their parents are observed more frequently by adolescents. Literature research indicates that learning pain coping attitudes of their parents who experience similar pains through observation has a positive effect on their children[23,24,26]. In contrast, helplessness, which includes cognitive distortions towards pain such as overgeneralization or personalization, is defined as the inefficacy to cope with pain effectively, often characterized as a non-functional coping way that is experienced hidden or within the individuals themselves.[18,27]. Accordingly our finding that there is no significant correlation between parents and adolescents' utilization of coping strategies, through attitudes that evoke feelings of helplessness in the face of pain, may be linked to the nature of this strategy which is not learned through observation of parents in the same way.

On the other hand, although helplessness is often a hidden and hard-to-observe strategy, some parents may display exaggerated or catastrophic expressions about their pain much more frequently when their pain aggravates, and as a result, feel more helpless[28,29]. Hence, it could be argued that in such situations this strategy becomes visible. Studying this together with other relational findings, a striking picture emerges. In our research, we know that when there is a relationship between cognitive or behavioral ways of pain coping strategies that are functional in character, considering migraine diagnosed parents and their children during adolescence period, this also affects

adolescents. However, it can be suggested that the anxious and helpless attitudes frequently exposed by the parents when they experienced severe pain in the past may have triggered some emotional and behavioral reactions in adolescents (such as anxiety, sadness, avoidance) and affected the strategies they would adopt for coping with pain in later stages of their lives.[2].

Moreover, some individual, temporal and contextual factors may also have a role in the relationship between coping strategies used by parents and their children with similar pains during adolescent period. For example, kids aged approximately between 7 and 12 perform their logical reasoning in the light of more concrete and directly observable information. During this period, it seems that children could directly model patterns of pain coping strategies used by their parents who experience similar pains as them without actually taking the efficiency of these strategies into account[30,31]. However, cognitive processes such as hypothetical reasoning and abstraction skills, which begin to develop especially from adolescence[30], may increase the possibility of adolescents to benefit from individual and past experiences on coping with pain[32]. These advances in the cognitive field may also contribute to the adolescents' questioning of pain coping attitudes having been observed in their parents throughout their developmental process and to think about their functionality. Moreover, according to one of our findings, the parents' using a non-functional method for coping with pain (such as laying down, sleeping, escaping to dark) was related to the adolescents' adopting functional cognitive coping strategies. Therefore, it seems plausible that the reasons stated above may motivate adolescents to explore and more decisively use some functional strategies to cope with their own pain.

Our study had certain limitations. The research method of this study was planned in a cross-sectional setup. As such, it does not provide an opportunity to eliminate team-patient cohesion and possible subjective variables associated with it. Moreover, it is not possible to make judgments on causality of the observed relations through the correlational and qualitative findings obtained from the study. The sample size was another limitation. In particular, we think that the fact that some of our hypotheses regarding relational and group comparisons, among which we expect significant results, were not confirmed, is essentially related to our limited sample size. Therefore, it would be useful to retest such findings in larger samples using similar research designs. In addition, the information regarding the methods of coping with pain obtained from the groups included in this study is limited to the sub-dimensions of the PCQ and the qualitative data questioned through a questionnaire. During the design process of the research, it was observed that the number of the scales for which validity and reliability studies have been carried out in our country for the relevant topic were quite limited. It seems necessary to develop psychometric measurement tools that include more specific dimensions of the ways to deal with migraine in both adult and adolescent samples and are sensitive to age-related and cultural factors by competent and subject-sensitive researchers.

In conclusion, when our results were evaluated as a whole, the relationships between pain coping strategies in parents and their children diagnosed with migraine tended to persist, essentially in situations where parents resorted to functional coping methods in adolescence period. Moreover, our other findings indicated that this situation may be valid for some but not all methods of coping with pain in non-functional or ineffective ways. These results, which point out the importance of understanding the process of coping with migraine in families may lead to further research to assess the difference between the formation of genotype and phenotype during adolescence. This can help the specialists working with children and adolescents with migraine in clinical practice, to better comprehend the individual, the disease and family dynamics. On the other hand, in line with our current findings, it does not seem possible to make clearer or stronger judgments about the influence processes of parents on adolescents' attitudes towards coping with headache. Further studies in which the direct attitudes of parents diagnosed with migraine towards their children's pain or the indirect effects based on observations are experimentally examined under laboratory conditions may be very beneficial in this context. Moreover, the relationships we examined in the study may also be affected by some developmental or experiential factors that may occur during adolescence, as mentioned earlier, (such as the adolescent's age, cognitive development level or past experiences of coping with pain), as well as the presence of comorbid mental disorders in both individuals[20,28,30-32]. Future studies focusing on the possible mediating or moderating effects of such variables will make a meaningful contribution to a

better understanding of those relationship mechanisms.

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