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Research

The Influence of Metropolis Life in the Etiology and Symptoms of Conversion Disorder

Metropol Yaşantısının Konversiyon Bozukluğunun Etiyolojisi ve Semptomalojisi Üzerindeki Etkisi

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ABSTRACT

Objective: The study examined the clinical symptoms and lifetime traumatic experience in female patients with conversion disorder (CD).

Methods: The study sample consisted of patients from a metropolis (CD-metropolis group, n=60), patients from a non-metropolis city (CD-NMC group, n=60), and healthy controls (n=60). The study was completed with 180 women. The Dissociative Events scale (DES), Childhood Trauma questionnaire-28 (CTQ-28), Traumatic Experiences checklist (TEC), and a data form were used to evaluate the participants.

Results: Some specific symptoms (inability to speak, numbness in hands and arms, pseudoseizures, paralysis in hands and arms, and fatigue) and coexisting suicide attempts and dissociation symptoms were more common, CTQ-28, DES, and TEC scores were higher, and TEC Family Support scores were lower in the CD-metropolis group than in the CD-NMC group ($p<0.05$ for all).

Conclusion: Metropolitan life is associated with a different clinical symptomatology, more frequent coexisting problems of attempted suicide and/or dissociation symptoms, and more frequent lifetime trauma compared with NMC life in the context of CD.

Keywords: Conversion disorder, metropolis life, lifetime traumatic experience, suicidal attempt, dissociative symptom

ÖZ

Amaç: Bu çalışmanın amacı, konversiyon bozukluğu (KB) olan kadın hastalarda klinik semptomatoloji ve yaşam boyu travma maruziyetini incelemektir.

Gereç ve Yöntem: Çalışma örneklemi bir metropolden (KB-metropol grubu, n=60), metropol olmayan bir kentten (KB-MOK grubu, n=60) gelen hastalar ve sağlıklı kontrollerden (n=60) oluşmaktadır. Çalışmaya 180 kadın hasta dahil edildi. Katılımcıları değerlendirmek için Dissosiyatif Yaşantılar ölçeği (DES), Çocukluk Çağı Ruhsal Travma ölçeği-28 (CTQ-28), Travmatik Yaşantılar ölçeği (TEC) ve veri formu kullanılmıştır.

Bulgular: KB-metropol grubunda KB-MOK grubuna göre bazı spesifik semptomlar (konuşamama, ellerde ve kollarda uyuşma, yalancı nöbetler, ellerde ve kollarda felç ve yorgunluk), eşlik eden intihar girişimleri ve dissosiyasyon semptomları daha yaygın bulunmuştur. Ayrıca KB-metropol grubunda KB-MOK grubuna göre CTQ-28, DES ve TEC puanları daha yüksekti ve TEC-Aile Desteği puanları ise daha düşük idi (tümü için $p<0,05$).

Sonuç: KB'de, metropol yaşamı metropol olmayan kent yaşamına göre farklı klinik semptomatoloji, daha sık intihar girişimi ve/veya dissosiyasyon semptomları ve daha sık yaşam boyu travmaya maruziyeti ile ilişkilendirilmiştir.

Anahtar Kelimeler: Konversiyon bozukluğu, metropol yaşamı, yaşam boyu travma maruziyeti, intihar girişimi, dissosiyasyon semptomları

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INTRODUCTION

Conversion disorder (CD) is characterized by the loss or alteration of motor, sensory, and neurovegetative system functions in the absence of any specific organic etiology (1,2). It is one of the most common diagnoses among new patient referrals to neurological clinics (16% of all new referrals) (3). It is estimated that 20-25% of all patients in general hospital settings have at least one symptom of conversion, while 5% meet the criteria for the full disorder (4). CD has a very rich and diverse clinical symptoms. Blindness, deafness, pseudoseizures, dystonia, paralysis, syncope or other neurological symptoms are among the most frequent symptoms (2,5). Dissociation and suicidal behavior are common coexisting problems. Suicide rates among patients with CD are estimated to range from 19.6% to 34.2% (5).

The etiology of CD is not fully understood. However, the reported risk factors include female gender, rural life, low socioeconomic status, low educational level, insufficient insight, and low mental capacity (6). A stressful or traumatic life event generally precedes the emergence of symptoms (7). Numerous studies have noted an association between CD and childhood trauma, especially sexual abuse (8,9). In one recent study, 70% of patients diagnosed with CD reported emotional neglect, 59% emotional abuse, 27% physical abuse, 65% sexual harassment, and 23.5% sexual abuse (10).

Numerous studies have examined the symptoms and childhood trauma in CD patients. However, to the best of our knowledge, the relationships between suicidal behavior and traumatic experiences and dissociation symptoms have not yet been studied in the context of the characteristics of the patient's urban place of residence. Similar to rural and urban areas, cities with different socioeconomic and sociocultural backgrounds are associated with different advantages and difficulties, which may lead to variable outcomes in terms of individuals' psychosocial living practices (11). Since the cultural background affects the clinical symptoms in CD (6,12), the sociocultural and socioeconomic characteristics of the metropolis or city in which the patient lives may be significant in the clinical setting.

The purpose of this study was to examine the clinical symptoms (including suicidal behavior and dissociation symptoms) and its association with the sociodemographic characteristics and lifetime traumatic experiences of female patients diagnosed with CD, considering the characteristics of the metropolis or city of residence. Female patients with CD living in a metropolis were compared with healthy controls and with female patients with CD living in a non-metropolis city (NMC). We hypothesized that metropolitan life would be associated with higher rates of suicide attempts, dissociation symptoms, and lifetime traumatic experiences compared with life in NMCs among patients with CD.

METHODS

Study design: This descriptive cross-sectional study was conducted simultaneously in two cities in Türkiye, one a metropolis and the other an NMC. It included a clinical sample of patients diagnosed with CD and healthy controls.

Setting and participants: Three groups of participants were established-CD patients living in the metropolis (CD-metropolis group), CD patients living in the NMC (CD-NMC group), and healthy controls. Members of the CD-metropolis group were recruited from the psychiatric outpatient clinic of the University of Health Sciences Türkiye, Bakırköy Dr. Sadi Konuk Training and Research Hospital in İstanbul, Türkiye's major metropolis. The healthy controls with no psychiatric, chronic medical or genetic illness were recruited from the University of Health Sciences Türkiye, Bakırköy Dr. Sadi Konuk Training and Research Hospital internal medicine outpatient clinics and lived in the same metropolis. Members of the CD-NMC group were recruited from the Elazığ Training and Research Hospital psychiatric Outpatient Clinic in Elazığ, an NMC with a much lower population density, immigration rate, and female employment (13). These features indicate that Elazığ possesses more rural life characteristics than the metropolis. All patients were evaluated by clinical psychiatric assessment based on DSM-5. Patients with any neurological disease, mental disability, alcohol and/or substance dependence, bipolar disorder, schizophrenia, other psychotic disorders, or tardive dyskinesia were excluded from the study. The Dissociative Events scale (DES), Childhood Trauma questionnaire-28 (CTQ-28), Traumatic Experiences checklist (TEC), and a data form were applied face to face to the participants.

Data Measurement

Data form: This 39-item semi-structured questionnaire was developed by the researchers to collect information concerning participants' demographic characteristics, clinical history, life events and traumatic experiences, family burdens, and clinical presentation of CD.

DES: This 11-point Likert-type self-report scale consists of 28 items. It was developed by Bernstein and Putnam (14) to screen dissociative events. The validity and reliability of the Turkish-language version have previously been established (15). Higher scores indicate higher dissociative symptoms.

CTQ: This self-report scale consists 28-item concerning different traumatic events. It is suitable for individuals over 12 years of age and is used to screen emotional and physical neglect and abuse as well as sexual abuse before the age of 20. In the adaptation, validity and reliability study of the 28-item form of the scale, over 5 points for sexual and physical abuse, above 7 points for physical neglect and emotional abuse, above 12 points for emotional neglect, and over 35 points for the total score were suggested as cut-off points. It was developed by Bernstein et al. (16). The validity and reliability of the Turkish-language version were investigated by Aslan and Alparslan (17).

TEC: This self-report scale was originally developed by Nijenhuis et al. (18). It is used to assess the presence of childhood traumatic experiences. It includes 29 items concerning exposure to a different traumatic experience in childhood. Its subscales include emotional neglect, emotional abuse, sexual harassment, sexual abuse and physical abuse/bodily threat (range 0-21).

Study size: When the mean was 36 and 23 (with 21.89 and 18.13 standard deviations) with 95% confidence level (1-α), 80% test pover (1-β), the number of samples to be taken in each group was determined as 37 (5).

Statistical Analysis

NCSS software (Number Cruncher Statistical System) 2007 (Kaysville, Utah, USA) was used for statistical analysis. Descriptive statistical methods (mean, standard deviation, median, frequency, ratio, minimum, and maximum) were used in the evaluation of the study data. The normal distribution of quantitative data was tested using the Shapiro-Wilk test and graphical evaluations. One-way ANOVA was used for comparisons of three or more normally distributed groups, and the Bonferroni test was used for paired comparisons. The Kruskal-Wallis test was applied for comparisons of three or more groups not exhibiting a normal distribution, and the Bonferroni-Dunn test was used for paired comparisons. Pearson's chi-square test and the Fisher-Freeman-Halton test were used to compare qualitative data. Significance was evaluated at the $p<0.05$ level.

Ethical Approval: Ethical approval of the study was taken from Local Ethics Committee of Bakırköy Dr. Sadi Konuk Training and Research Hospital on 18.03.2019 with 2019/105 protocol and 2019-06-02 approval numbers. The study was conducted in accordance with the ethical standards established in the Declaration of Helsinki. All participants were informed about the study, and their written and verbal consent were obtained.

RESULTS

Sample Characteristics

The study was completed with 180 female participants. The CD-metropolis group, CD-NMC group, and the healthy control group all consisted of 60 members each. The participants' ages ranged from 16 to 63 years, with a mean of 33.67±10.50 years. Educational level, monthly family income, and employment rates were statistically significantly lower in the patient groups than in the healthy control group ($p=0.001$ and $p<0.01$, respectively). The participants' sociodemographic characteristics are shown in Table 1.

Symptoms in CD Patients

The most common CD symptoms in the CD-metropolis group were fatigue (96%), crying-involuntary muscle contraction (95%), inability to speak (91.7%), numbness in the hands and arms (88.3%), loss of consciousness-falling (80%), pseudoseizures (53.3%), and paralysis in the hands and arms (51.7%). The most common symptoms in the CD-NMC group were crying-involuntary muscle contraction (93.3%), loss of consciousness-falling (76.7%), inability to speak (45%), and numbness in the hands and arms (30%). Inability to speak ($p=0.001$ and $p<0.01$, respectively), numbness in the hands and arms ($p=0.001$ and $p<0.01$), pseudoseizures ($p=0.001$ and $p<0.01$), paralysis in the hands and arms ($p=0.001$ and $p<0.01$), and fatigue ($p=0.001$ and $p<0.01$) were significantly more common in the CD-metropolis group compared to the CD-NMC group. The groups also differed significantly in terms of the presence of pseudopsychotic symptoms (50% in the CD-metropolis group compared to 30% in the CD-NMC group) ($p=0.001$ and $p<0.01$, respectively).

Suicidal Behavior in the Study Groups

Attempted suicide and suicidal ideation rates differed significantly between the groups ($p=0.001$ and $p<0.01$, respectively). The CD-metropolis group had the highest attempted suicide rate (38.3%), while the highest rate of suicidal ideation was in the CD-NMC group (40%). No difference was observed between the groups in terms of methods employed for suicide ($p>0.05$) (Table 2).

Life-time Trauma Exposure and Its Association with DES in the Study Groups

A history of domestic violence in childhood (both witnessing and being a target of violence) was much more common in both patient groups than in the control group ($p<0.05$). The main perpetrator of violence in the CD-metropolis group was the mother, while in the CD-NMC group the perpetrator was generally the father (Table 3).

Table 1. Comparison of groups in terms of sociodemographic characteristics

		CD-metropolis group (n=60) n (%)	CD-city group (n=60) n (%)	Healthy controls (n=60) n (%)	p
Marital status	Married	42 (70.0)	31 (51.7)	40 (66.7)	[b]0.089
	Single	18 (30.0)	29 (48.3)	20 (33.3)	
Educational level	Illiterate	4 (6.7)	5 (8.3)	0 (0)	[a]0.001**
	Primary school graduate	2 (3.3)	34 (56.7)	10 (16.7)	
	Middle school graduate	39 (65.0)	14 (23.3)	10 (16.7)	
	High school graduate	14 (23.3)	5 (8.3)	12 (20.0)	
	University gradaute	1 (1.7)	2 (3.3)	28 (46.6)	
Employment status	Employment	13 (21.7)	6 (10.0)	54 (90.0)	[b]0.001**
	Non-employment	47 (78.3)	54 (90.0)	6 (10.0)	
Monthly family income	≤2500 TL	41 (68.3)	53 (88.3)	4 (6.7)	[b]0.001**
	2500-5000 TL	13 (21.7)	4 (6.7)	38 (63.3)	
	≥5000 TL	6 (10.0)	3 (5.0)	18 (30.0)	

CD: Conversion disorder, TL: Turkish liras, [a]Fisher-Freeman-Halton test, [b]Pearson chi-square test, *p<0.05, **p<0.01

Table 2. Comparison of groups in terms of suicidal behaviour

		CD-metropolis group (n=60) n (%)	CD-city group (n=60) n (%)	Healthy controls (n=60) n (%)	p
Suicide attempt	Present	23 (38.3)	11 (18.3)	0 (0)	[b]0.001**
	Absent	37 (61.7)	49 (81.7)	60 (100)	
Suicide methods	Oral drug intake	16 (69.6)	9 (81.8)	-	[a]1.000
	Hanging	3 (13.0)	1 (9.1)	-	
	Jumping from hight	1 (4.3)	0 (0)	-	
	Self mutilation	3 (13.0)	1 (9.1)	-	
Suicide thoughts	Present	9 (15.0)	24 (40.0)	1 (1.7)	[b]0.001**
	Absent	51 (85.0)	36 (60.0)	59 (98.3)	

CD: Conversion disorder, [a]Fisher-Freeman-Halton test, [b]Pearson chi-square test, *p<0.05, **p<0.01

The groups differed significantly in terms of CTQ-28, DES, and TEC scores and parameters (p<0.05). The CD-metropolis group exhibited the highest CTQ-28 subscale, DES, and TEC scores. The CD-NMC group exhibited higher CTQ-28-Emotional abuse and CTQ-28-Physical abuse/neglect (at a statistically insignificant level) scores and higher TEC-Physical abuse values than the control group (p=0.001 and p<0.01 respectively). The groups also differed in terms of family support levels, the lowest being observed in the CD-metropolis group, followed by the CD-NMC group (Table 4).

Examination of correlations between CTQ-28 and DES revealed that in the CD-metropolis group, DES scores were statistically significantly correlated with those of three CTQ-28 subscales (Emotional neglect/abuse, physical neglect/abuse, and sexual abuse) (p<0.01). However, these associations were not observed in the CD-NMC group (p>0.05) (Table 5).

Association of Suicide Attempt with the DES, CTQ, and TEC Parameters

In the CD-metropolis group, attempted suicide was significantly associated with DES scores (p<0.01) (Figure 1) and with two of the CTQ subscale scores (physical neglect and physical abuse) (p<0.05) (Figure 2). However, these associations were not observed in the CD-NMC group (p>0.05) (Figure 1).

Table 3. Comparison of groups in terms of domestic violence history in childhood

		CD-metropolis group (n=60) n (%)	CD-city group (n=60) n (%)	Healthy controls (n=60) n (%)	p
Being the target of domestic violence	None	28 (46.7)	35 (58.3)	52 (86.7)	[a]0.001**
	Rare	3 (5.0)	11 (18.3)	0 (0)	
	Occasional	9 (15.0)	7 (11.7)	5 (8.3)	
	Frequent	20 (33.3)	7 (11.7)	3 (5.0)	
Perpetrator of the violence	Father	9 (28.1)	11 (44.0)	1 (12.5)	[a]0.231
	Mother	17 (53.1)	8 (32.0)	5 (62.5)	[a]0.195
	Brother	4 (12.5)	2 (8.0)	2 (25.0)	[a]0.432
	Sister	0 (0)	5 (20.0)	1 (12.5)	[a]0.015*
	Others	6 (18.8)	1 (4.0)	2 (25.0)	[a]0.107
Witnessing the domestic violence (from father to mother)	Absent	24 (40.0)	17 (28.3)	8 (13.3)	[b]0.005**
	Present	36 (60.0)	43 (71.7)	52 (86.7)	

CD: Conversion disorder, [a]Fisher-Freeman-Halton test, [b]Pearson chi-square test, *p<0.05, **p<0.01

Table 4. Comparison of groups in terms of scores of Childhood Trauma Questionnaire (CTQ), DES and Traumatic Experiences Checklist (TEC)

		CD-metropolis group (n=60)	CD-city group (n=60)	Healthy controls (n=60)	p
CTQ-28-Emotional neglect score	Min-max (median)	5-25 (12)	5-21 (6.5)	5-21 (9)	[c]0.001**
	Mean ± SD	13.17±5.82	8.38±4.23	9.85±4.01	
CTQ-28-Physical neglect score	Min-max (median)	5-17 (10)	5-25 (6)	5-20 (5)	[c]0.001**
	Mean ± SD	10.67±2.98	8.50±5.71	6.43±2.58	
CTQ-28-Emotional abuse score	Min-max (median)	5-24 (9)	5-20 (6)	5-22 (5)	[c]0.001**
	Mean ± SD	11.35±5.46	8.22±4.45	6.07±2.43	
CTQ-28-Physical abuse score	Min-max (median)	5-25 (6)	5-16 (5)	5-21 (5)	[c]0.001**
	Mean ± SD	9.17±5.84	5.85±2.20	5.35±2.10	
CTQ-28-Sexual abuse score	Min-max (median)	5-17 (5)	5-15 (5)	5-25 (5)	[c]0.001**
	Mean ± SD	7.07±3.61	5.35±1.49	5.42±2.60	
DES score	Min-max (median) Mean ± SD	3-46 (20) 23.47±14.21	1-30 (10) 9.97±6.12	1-22 (6) 7.07±5.46	[c]0.001**
TEC-Total scores	Min-max (median) Mean ± SD	1-14 (6) 6.25±3.03	0-24 (2) 3.32±3.60	0-21 (1,5) 2.42±3.60	[c]0.001**
		n (%)	n (%)	n (%)	
TEC-Family support	Absent Present	46 (76.7) 14 (23.3)	40 (66.7) 20 (33.3)	23 (38.3) 37 (61.7)	[b]0.001**
TEC-Emotional neglect/abuse	Absent Present	9 (15.0) 51 (85.0)	38 (63.3) 22 (36.7)	36 (60.0) 24 (40.0)	[b]0.001**
TEC-Physical abuse	Absent Present	20 (33.3) 40 (66.7)	46 (76.7) 14 (23.3)	55 (91.7) 5 (8.3)	[b]0.001**
TEC-Sexual harassment	Absent Present	43 (71.7) 17 (28.3)	57 (95.0) 3 (5.0)	57 (95.0) 3 (5.0)	[b]0.001**
TEC-Sexual abuse	Absent Present	43 (71.7) 17 (28.3)	57 (95.0) 3 (5.0)	57 (95.0) 3 (5.0)	[b]0.001**

CD: Conversion disorder, DES: Dissociative Events scale, CTQ-28: Childhood Trauma questionnaire, TEC: Traumatic Experiences Checklist, SD: Standard deviation, min-max: Minimum-maximum, [b]Pearson chi-square test, [c]Kruskal-Wallis test, **p<0.01

Table 5. The relationships between DES and CTQ-28 scores in patient groups

	DES score			
	CD-metropolis group (n=60)		CD-city group (n=60)	
	r	p	r	p
CTQ-28-Emotional neglect score	0.339	0.008**	0.140	0.286
CTQ-28-Physical neglect score	0.507	0.001**	0.189	0.149
CTQ-28-Emotional abuse score	0.345	0.007**	-0.005	0.971
CTQ-28-Physical abuse score	0.437	0.001**	0.161	0.219
CTQ-28-Sexual abuse score	0.455	0.001**	0.164	0.210

CD: Conversion disorder, DES: Dissociative Events scale, CTQ-28: Childhood Trauma questionnaire, r: Spearman's Rho test, *p<0.05, **p<0.01

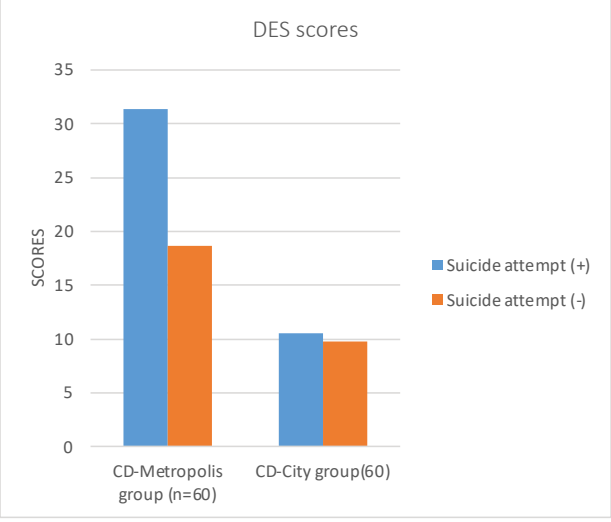

Figure 1. Correlation of suicide attempt with DES scores in patient groups
DES: Dissociative Events scale, CD: Conversion disorder

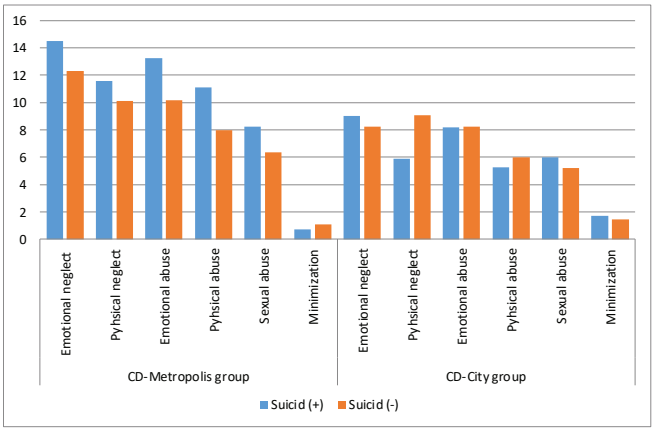

Figure 2. Correlation of suicide attempt with CTQ-28 scores in patient groups
CD: Conversion disorder, CTQ-28: Childhood Trauma questionnaire

Attempted suicide was associated with total TEC scores in the CD-NMC group and with the presence of TEC-Sexual harassment and TEC-Sexual abuse in the CD-metropolis group (p<0.05).

DISCUSSION

Consistent with the previous literature, this cross-sectional study confirms that CD is associated with a low socioeconomic level, low education level, unemployment, traumatic experiences, suicide attempts, and dissociation. However, the original feature of this study is that it examined the clinical symptoms and the relationship between coexisting suicide, dissociative symptoms, and traumatic experiences in terms of the type of city in which the participants lived. Our findings show that metropolitan life is associated with a different clinical symptoms in CD, with more frequent coexisting problems of suicide attempts and/or dissociation symptoms and more frequent traumatic experiences compared to non-NMC life. The study results also showed that suicide attempts, traumatic experiences, and dissociation symptoms were interrelated in CD patients, and that these relationships were also moderated by the type of city in which they lived. Exposure to childhood trauma and dissociative symptoms were important determinants of suicide in CD patients from the metropolis but not in those from the NMC. Based on these findings, both study hypotheses were confirmed.

The study findings are discussed under three subheadings; etiological risk factors of CD, the effects of the city of residence on the clinical symptoms and etiology of CD, and relationships between suicidal and traumatic experiences and dissociation in CD.

Etiological Risk Factors for CD

Low socioeconomic and sociocultural levels (19,20) and traumatic experiences, including those occurring in childhood (8,21-23), are two important etiological risk factors for CD. A study from Pakistan reported that emotional and sexual abuse was frequently observed in female patients with CD (24). In a study from Türkiye, 53.3% of CD patients

reported a history of physical trauma and 25% reported sexual trauma during childhood. Similarly to these previous studies, socioeconomic and educational levels were lower and lifetime traumatic experiences and childhood traumas, including exposure to domestic violence, were more common in patients with CD than in healthy controls in the present research.

An important associated risk factor in this study was the lower level of family support among patients with CD. The family is also an important source of social support (25). It protects against stressors and plays an important role for treating many psychiatric disorders. Low levels of social support have been reported in patients with CD (24). Weak family childhood ties have also been observed in these patients (26), while family members exhibit weak emotional reciprocity (19). Şar et al. (27) reported that poor reciprocal relationships with parents during childhood can lead to CD by causing problems in the development of the child's protective and stress-regulating systems. Considering that social support is an important factor in seeking treatment among individuals with CD (28), we think that investigating family support in these patients will be a useful step both in evaluation and treatment.

The Moderator Role of the City Type in Symptoms and Etiological Risk Factors

Aphasia, loss of consciousness, paresthesia, convulsions, dyspnea, paralysis, psychogenic pain, and astasia-abasia are among the most common symptoms in CD patients (2). Associated suicidality is also common, with suicide rates ranging from 19.6% to 34.2% (5). Dissociative symptoms are reported in approximately 50% of female cases (24). Crying, involuntary muscle contraction, loss of consciousness, falling, inability to speak, and numbness in the hands and arms were among the most common symptoms in both patient groups in the present study. Consistent with the previous literature, CD patients were at risk of attempted suicide and dissociative symptoms. Approximately one-third of all our CD patients, regardless of their city type, attempted suicide, and one quarter exhibited dissociation symptoms.

The clinical symptoms of the disorder varies depending on the developmental level of the country concerned. While symptoms of paralysis, loss of consciousness, blindness or aphonia are seldom observed in Western countries, they are common in developing countries (2,20,22). A study involving a sample from a rural area reported that patients with lower socioeconomic status exhibited more complex and exaggerated symptoms, while in patients with high education and economic levels CD manifests with symptoms similar to a known medical disease (20). Similarly, we found that CD manifests with a higher frequency of various specific symptoms (including an inability to speak, pseudoseizures, numbness in the hands and arms, paralysis in the hands and arms, and fatigue) and pseudopsychotic symptoms, dissociation, and attempted suicide in metropolitan life compared with NMC life. These results indicate the importance of city characteristics in the clinical presentation of the disorder.

Another factor that exhibited intercity differences in cases of CD in this study was related to the frequency of traumatic experiences. Familial problems (more frequent domestic violence and less family support) and lifetime/childhood traumatic experiences were significantly more common in patients living in the metropolis than in those living in the NMC. Although metropolises provide significant cultural and educational opportunities, they are also associated with busy and hectic daily lives (29). Working in shifts in factories and business centers may provide financial security but can also lead to differentiation in nuclear family structures and ties. These adverse outcomes may in turn result in further adverse life experiences for patients with CD living in the metropolis compared with those in less crowded cities where traditional family life still prevails.

Changes in social conditions such as crowding, migration-urbanization, and insufficient social support are among the environmental risk factors for suicide (30). Childhood trauma is reported to be associated with factors such as low socioeconomic status as well as low social support, social isolation, the mother's need to work and work at night, unemployment, debt and overcrowded city life (31). In developing countries such as Türkiye, urbanization is occurring rapidly and unbalanced, and cities are evolving into places with large mass populations. This version of urbanization has recently exacerbated environmental pollution, noise pollution, traffic problems, health problems, and security problems as well as problems such as employment, leading to increased difficulties for people living in such cities (31,32). Due to all these features, metropolitan life may be associated with increased suicidality and traumatic experiences. Based on our current finding, it may be suggested that individuals living in a metropolis among patients diagnosed with CD should receive extra attention in terms of identifying traumatic experiences during clinical evaluations.

The Moderator Effect of City Types on the Relationships Between Suicide Attempts, Traumatic Experiences, and Dissociation

Exposure to traumatic life events (such as child abuse and neglect, domestic violence, bullying, peer violence, dating

violence, sexual violence, and intimate partner violence) is reported to be associated with successful and attempted suicide (33-35). Roy described exposure to childhood trauma as among the major risk factors for suicide (36). Experiencing conflict, disaster, violence, abuse, or loss and a sense of isolation are strongly associated with suicidal behavior. In addition, sexual abuse and dissociation are reported to be independently associated with risk-taking behavior and suicidality (27,35). Specifically, sexual and physical abuse as well as physical neglect have been reported in patients with dissociative symptoms (9,20). Although associations between suicide and childhood trauma and dissociation have been investigated in many studies, the literature regarding patients with CD is limited (34). Güleç et al. (5) demonstrated a strong relationship between suicide and childhood trauma and dissociation in patients with CD. These authors concluded that comorbid dissociative disorder and exposure to childhood trauma are the two predictors of suicide in patients with CD. Similarly, a strong relationship has been demonstrated between emotional/sexual abuse and dissociation in patients with CD (24).

Consistent with previous studies, in the present research dissociation was associated with childhood trauma, specifically emotional neglect/abuse, physical neglect/abuse, and sexual abuse, while attempted suicide was related to childhood trauma (specifically physical neglect and abuse), lifetime sexual trauma, and dissociative symptoms in women diagnosed with CD. However, these associations only applied to patients living in the metropolis. None of these associations were in patients living in the NMC. In contrast, attempted suicide in patients living in the NMC was associated with the level of exposure to overall lifetime trauma. Our results indicated that attempted suicide, trauma, and dissociation symptoms in patients with CD were interrelated, although the type of city involved moderated these relationships. It may be concluded that childhood trauma and lifetime traumatic experiences are important risk factors not only for CD but also for comorbid dissociative symptoms and suicidal behavior, especially in metropolitan life.

The major limitation of this study is its cross-sectional design. Information about traumatic experiences was collected retrospectively from the participants. This might have led to memory bias. It will now be useful to examine traumatic experiences through prospective and longitudinal studies. Other limitations include the relatively small sample size and the absence of a healthy control group drawn from the NMC.

CONCLUSION

The results show that CD is associated with traumatic experiences, suicide attempts, and dissociation, and that this association is particularly prominent in metropolitan life. Since this is the first study to compare patients with CD living in a metropolis with those from an NMC, we think that our research will make an important contribution to the existing literature. Based on our findings, we conclude that the characteristics of the city in which a patient with CD lives are an important determinant of clinical symptomatology, including coexisting suicidality and dissociation and a history of exposure to trauma.

We suggest that in routine follow-ups, patients with CD, especially those living in a metropolis, should be evaluated regularly in terms of coexisting dissociative symptoms and lifetime traumatic experiences, particularly those occurring during childhood, in order to identify patients at a higher risk of suicide.

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ETHICS

Ethics Committee Approval: Ethical approval of the study was taken from Local Ethics Committee of Bakırköy Dr. Sadi Konuk Training and Research Hospital on 18.03.2019 with 2019/105 protocol and 2019-06-02 approval numbers.

Informed Consent: All participants were informed about the study, and their written and verbal consent were obtained.

Authorship Contributions

Surgical and Medical Practices: F.A.K., O.K., Concept: F.A.K., S.Y., P.G.G., Design: F.A.K., S.Y., P.G.G., G.D., Data Collection or Processing: F.A.K., S.Y., O.K., P.G.G., Analysis or Interpretation: F.A.K., S.Y., P.G.G., G.D., Literature Search: F.A.K., S.Y., O.K., G.D., Writing: F.A.K., S.Y., P.G.G., G.D.

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