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Research / Araştırma

Does Internal Migration Affect Criminal Behavior in Schizophrenia Patients?

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ABSTRACT

Does internal migration affect criminal behavior in schizophrenia patients?

Objective: In our research, we aimed to attract attention whether internal migration has an effect on criminal behavior of schizophrenic patients.

Method: Schizophrenic (according to DSM-IV) patients (66 from the general psychiatry units and 69 from forensic psychiatry clinics) participated in the research from a regional hospital in the northwest of Turkey. Forensic psychiatric patients are divided into two subgroups, namely those who migrated (n=30) within the country and not (n=39), with those who are repetitive offenders (n=29) and not (n=40); then groups were compared in the point of parameters of crime and migration.

Results: Most of the patients who have not committed a crime were from cities. Even though there was no significant difference, with those who have committed a crime, the age of internal migration was younger. Migration raised the possibility of the recidivism of the criminal acts up to 5 fold whereas, having already been prisoned before raised this possibility up to 17 fold and childhood within the criminal group.

Conclusions: Although our data indicated the internal migration not to affect the rate of the criminal acts among the patients with schizophrenia meaningfully, it significantly affected repetition of crime within the criminal group. The need to focus on internal migration and urbanization as disruptive environmental conditions effecting schizophrenia and crime in countries like Turkey where the urbanization process is still ongoing, is obvious.

Key words: Crime, internal migration, schizophrenia

ÖZET

Şizofreni hastalarında iç göçün suça etkisi var mı?

Amaç: Araştırmamızda şizofrenlerin suç işlemesi üzerine ülke içi göçün etkisi olup olmadığının araştırılması amaçlanmıştır.

Method: Araştırmaya Türkiye'nin Kuzeybatısında bir Bölge Hastanesinin genel psikiyatri (66 hasta) ve adli psikiyatri kliniklerinde (69 hasta) tedavi edilen (DSM-IV'e göre) şizofreni hastaları alınmıştır. Adli psikiyatrik hastalar ülke içinde göç etmiş (n=30) ve göç etmemiş (n=39) olanlar ile yineleyici suç işleyenler (n=29) ve işlemeyenler (n=40) olarak ikişerli gruplara ayrılarak suç ve göç değişkenleri bakımından incelendi.

Bulgular: Suç işlememiş olanların çoğunluğu kentli idi. İstatistiki olarak fark olmamasına rağmen suç işlemiş olanlarda göç yaşı daha erkendi. Suç işleyenler arasında göç etmiş olma yineleyici suç işleme olasılığı 5 kat arttırırken, önceden cezaevinde bulunmuş olma bu olasılığı 17 kat arttırmıştır.

Tartışma: Şizofreni hastalarında iç göçün suça etkisi üzerine yapılmış araştırmamızda, suç işleyen ve işlemeyen gruplar arasında farklılık saptanmamasına rağmen suç işleyen hastalarda iç göçün yineleyici suç işleme üzerine belirleyici olduğu saptanmıştır. Kentleşme süreci devam eden Türkiye gibi ülkelerde şizofreni ve suç oluşumunu etkileyen çevre koşullarını bozucu bir etmen olarak kentleşme ve iç göç üzerine de odaklanma gereği açıktır.

Anahtar kelimeler: Suç, iç göç, şizofreni

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INTRODUCTION

Migration is described as geographically movement to somewhere else to live for a long time or permanently. Migration movements, which emerge as a result of economic, social or political reasons, are generally categorized as internal and external migration. External migration generally occurs as movements from underdeveloped countries towards developed countries. Internal migration generally occurs as movements from less developed regions towards more developed ones within the same country (1).

Schizophrenia can be described as a junction where crime and migration meet. Even though many studies researching the double relationships within that triad (migration-crime, migration-schizophrenia, crime-schizophrenia) have been conducted, very few studies have been done focusing on the crossing of these three factors.

In a study conducted in Denmark, these three factors were studied among immigrant forensic psychiatric patients and the results showed that the high percentage among immigrant forensic psychiatric patients was explained with migration, not with sociological factors or drug use. Schizophrenia was a factor in the occurrence of crimes involving violence but not a factor in non-violent crimes. Non-violent crimes were dispersed equally among ethnic groups whereas schizophrenia and violence were together and crimes of violence came to the forefront among immigrants and their children (2).

On the other hand, it was observed that in studies done on the effects of migration on schizophrenia and crime, the concentration was more on international migration than internal migration and the urbanization process. But the effect of internal migration on families' and individuals' life conditions should not be underestimated, especially in developing countries.

The annual prevalence of schizophrenia in a country's population was determined as 1.4-4.6/1000 and incidence as 16-42/100000 (3). Incidence of schizophrenia is diversified with developing degree of countries, social classes and migration factors (4,5).

In psychiatric literature, studies done on mental disorders, especially studies done on the interaction between schizophrenia and migration are mostly concentrated on transnational migration (6,7). In a cohort study done in Denmark, the risk of developing schizophrenia among second generation immigrants was determined to be 1.42 times higher than the native population (8). In a meta-analysis study, mean weighted relative risk of developing schizophrenia was found higher among second generation immigrants (4.5) than first generation immigrants (2.7), and there was a meaningful high relative risk between developed and undeveloped countries for immigrants. In schizophrenia, the existence of migration in an individual's or his/her family's life story is a significant risk factor (9). In two German studies results showed the impact of high density of population, increasing urbanization and less socially organizing on incidence and severity of schizophrenia (9,10). In another study, it was showed that the place of birth and the level of urbanization of the place one lived during the start of the illness increased the risk of schizophrenia for adults (11). Even though the result of this study suggests that internal migration does not affect the onset of schizophrenia, the number of studies on this issue is not satisfactory yet.

The current consensus suggests that 'psychosocial stress' has a moderate effect on the etiology of schizophrenia (12,13). This opinion has become indefensible with the new epidemiological findings, especially the ones concerning immigrants.

On the other hand, the relationship between crime and migration has been studied for a long time. When schizophrenic patients who have and have not committed homicide were compared according to the countries they were born in, a significant difference was determined in favor of immigrants who have committed homicide. In other words, among schizophrenic patients who have committed homicide, more were immigrants. This result may reflect the effects of cultural factors and social adaptation but it's also known that migration in general is a non-specific factor on violent behavior. It should be emphasized that there is no documented evidence showing that schizophrenia and/or violent behavior occurs more or less in any immigrant group. As a result it is understood that violent behavior of immigrants is a risk factor by itself, and this risk is

independent from country of origin of the schizophrenic patient (14,15).

When this general situation is assessed, it can be concluded that the environmental living conditions of international immigrants living in developed countries and internal immigrant population who relocated are very similar (16-20). It seems that an assessment of the effects of internal migration can be made by comparing the results of studies on international migration in literature.

In this paper, schizophrenic patients who were admitted to general psychiatric wards and schizophrenic patients who committed a crime but were sent to psyciatric wards because they were found not to have criminal responsibility, were compared in terms of socio-demographic factors including migration, illness and crime variable in order to investigate the relationship of migration and schizophrenia. Subjects who committed a crime were also compared as subgroups of migrated and not-migrated and thus the effect of internal migration on crime was investigated. In addition, the criminal group was divided into two subgroups as the repetitive and not the repetitive offenders and they were also compared.

METHOD

The study was conducted in a regional hospital serving to the northwestern population of the country. The forensic psychiatry department of the hospital serves 17 cities and population of 25 million people while being responsible for the compulsory treatment services of all psychiatric subjects who have committed a crime in these cities. The general psychiatric clinics of the hospital provides service for 6 cities and 13 million people. Psychiatric patients of those cities whose conditions are too serious to be treated with local resources are sent to our hospital and are internalized in closed wards.

The research was conducted prospectively and data were collected from the medical records of hospital and court documents.

Cases, who agreed to participate at the study were randomly selected from the forensic psychiatry unit consisting of a capacity of 314 beds for male inpatients. The study group consisted of 69 schizophrenic male patients admitted to the Forensic Psychiatry Department for compulsory treatment by a criminal court order. They were matched in terms of age, gender and duration of illness with the control group of 66 schizophrenic male patients internalised in closed wards without a criminal history. Then, subjects who had committed crime were divided between subgroups who migrated (30 patients) and who had not migrated (39 patients). In addition, the criminal group was divided into two subgroups as the repetitive (29 patients) and not the repetitive offenders (40 patients) and they were also compared. Among the group who committed crime, 5 patients were included in the migration group because they had migrated to a foreign country and returned back but then migrated to a different province than their city of origin.

Measures

Patients were diagnosed according to DSM-IV criteria. Demographic, migration and criminal history data of all patients were collected by researchers using a semi-structured information form. The marital status, educational level and living conditions (with whom they lived) were examined and the findings were compared, the characteristics of their migration and crimes were studied. The credibility of the data was confirmed by both consulting the patients and examining their prior medical records. Migration is defined as the change of the living place for at least one-year time and the reference criminal act is considered as the offence, which caused cases to be sent to the hospital. Prison experience is defined as all the imprisonments of the cases including the reference crime, which causes them to come to the hospital.

In determining the degree of the violence of criminal behavior, Taylor's scale (21) was used. This scale is ranked as follows: "0" no criminal behavior, "1" mild criminal behavior (verbal aggression, transport of weapons without the use, minimal property damage accident), "2" moderate criminal behavior (causing light bodily harm, sexual offense under difficult, illegal use of

instruments of crime without causing injury, damaging property purposes), "3" serious criminal behavior (causing serious bodily injury damage, extensive damage to property, grievous bodily harm endangering life), and "4" very serious criminal behavior (the death of the victim or victims, victims of real danger to life or stay in the hospital longer than 24 hours will cause injury) (21).

Statistical Analysis

To test the coherence of normal distribution of the quantitative variables one - sample Kolmogorov Smirnov test is used. By normal distribution of the variables Student's t - test is used to compare two groups and by variables without a normal distribution Mann Whitney U-test is used. Chi-square or Fisher's exact test was used to evaluate categorical variables. In addition, a binary logistic regression was carried out for variables that were related to criminal behavior. Results were accepted as significant if "p value" was smaller than 0.05. SPSS version 15 is used for statistical analysis.

RESULTS

No significant difference was found among groups who committed crime and who had not in terms of socio-demographic variables, except for the area inhabited. Among those who committed crime, almost half of them lived in cities, 1/3 in counties and 2/5 in villages. Of those who did not commit a crime, more than 4/5 lived in cities, about 1/8 in counties and 1/30 in villages. The difference of the distribution of living places was significant (χ^2=20.405, p<0.001). By the comparison of the groups by using the method of the extended Chi-square test, each of them was found to be meaningfully different from the other

Table 1: Comparison of patients with and without a criminal history in terms of marital status, place of birth, place of residence, parental loss during childhood, parental divorce during childhood, to be exposed to violence during childhood, whether there is migration or not and the direction of migration

	Crime (+) (n=69)		Crime (-) (n=66)				
	n	%	n	%	χ^2	df	p
Marital Status							
Single	42	60.9	46	69.7	1.160	2	0.56
Married	12	17.4	9	13.6			
Widow or Divorced	15	21.7	11	16.7			
Lives with							
Homeless or Single	12	17.4	16	24.2	0.963	1	0.33
With relatives	57	82.6	50	75.8			
Place of birth							
Village	24	34.8	17	25.8	1.387	2	0.50
District	16	23.2	16	24.2			
City or Abroad	29	42.0	33	50.0			
Place of residence							
Village	15	21.7	2	3.0	20.405	2	<0.001**
District	20	29.0	8	12.1			
City	34	49.3	56	84.9			
Parental loss during childhood	13	18.8	15	22.7	0.310	1	0.57
Parental divorce during childhood	10	14.5	3	4.5	3.836	1	0.05
Exposed to violence during childhood	28	40.6	13	19.7	6.956	1	0.008*
Migration	30	43.5	34	51.5	0.874	1	0.35
Direction of migration							
From village to district	1	3.3	-	-			
From village to city	12	40.0	23	67.6			
From district to city	1	3.3	-	-		-	
From city to city	9	30.0	10	29.4			
From city to district	2	6.7	1	2.9			
To abroad	5	16.7	-	-			

χ^2: Chi square test; *p<0.01; **p<0.001

two. Even though not significant, a clear difference can be seen between the two groups in terms of the direction of the migration; in the group without a criminal history, the migration ratio from villages to cities is 2/5, whereas in the group with criminal history, the ratio reaches above 2/3. There was no significant difference for parental loss during childhood but there were significant differences between the groups in terms of parental divorce (χ^2=3.836, p=0.05) and to be exposed to violence during childhood (χ^2=6.956, p<0.01) (Table 1).

Thirty of the patients who committed crime (43.5%) and 34 of the control group (51.5%) had migrated. Migrant patients who committed crime migrated at a younger age than those who did not, but the difference was statistically not significant (t=0.789, p>0.05) (Table 2).

By comparing the study group and the control group, no significant differences were found in terms of length of education (years), duration of illness (years) and the age of the beginning of the illness. Those who did not commit crime had been admitted more frequently to the hospital (z=-2.844, p<0.01) but on the other hand those who did commit crime, had a significantly longer total duration of stay (months) at the hospital (z=-7.993, p<0.001) (Table 2).

When schizophrenic patients who have committed a crime were compared as migrated and not-migrated, no significant difference was found between the groups in terms of age, length of education (year), age at the beginning of illness, duration of illness (year), number of hospital admissions, total stay at the hospital (month), age of the first criminal act, length of stay at prison (month), age at the start of compulsory treatment and duration of compulsory treatment (month). The comparisons that were found to be significant were as follows: The duration of the illness was longer in

Table 2: Comparison of groups with and without crime in terms of demographics, migration and illness

	Crime (+) (n=69) Mean±SD	Crime (-) (n=66) Mean±SD	t/z	p
Age during migration (year)	12.59±8.08 (n=30)	14.62±11.68 (n=34)	-0.789	0.43
Age (year)	37.81±9.67	40.26±8.45	-1.561	0.12
Duration of education (year)	8.14±3.85	9.59±3.61	-2.244	0.02*
Duration of disease (year)	13.55±8.26	15.23±7.73	-1.216	0.23
Beginning age of disease	24.54±6.22	24.85±5.83	-0.300	0.76
Number of hospitalization	3. 94±3.18	5.67±4.61	-2.844	0.004**
Total duration of hospitalization (month)	47.16±55.48	8.29±22.69	-7.993	<0.001***

t: Student t test; z: Mann Whitney U-test; *p<0.05, **p<0.01, ***p<0.001

Table 3: Comparison of immigrant and non-immigrant among schizophrenic patients who committed a crime in terms of socio-demographic, illness and crime variables.

	Migration (+) Mean±SD (n=30)	Migration (-) Mean±SD (n=39)	t/z	p
Age (year)	40.07±9.05	36.08±9.89	1.722	0.09
Duration of education (year)	8.43±4.62	7.92±3.20	0.517	0.59
Duration of disease (year)	15.93±8.78	11.72±7.43	2.157	0.03*
Beginning age of disease	24.77±6.95	24.36±5.68	0.268	0.79
Number of hospitalization	4.43±3.18	3.56±3.17	1.578	0.11
Total duration of hospitalization (month)	53.43±56.18	42.33±55.18	1.726	0.84
Age of the first crime	27.73±9.60	29.38±7.80	-0.788	0.43
Duration in prison 1 (month)	25.56±37.48 (n=16)	4.75±3.59 (n=4)	1.040	0.27
Age of reference crime (year)	34.7±8.85	31.62±8.58	1.207	0.23
Duration in compulsory treatment (month)	41.03±48.27	33.15±52.28	1.484	0.14
Total crime number	2.10±1.06	1.36±0.74	3.366	<0.001***
Counts of criminal acts after disease	1. 77±1.00	1.31±0.65	2.279	0.02*
Repetition of reference crime	2.00±1.05	1.33±0.70	3.014	0.003**

120 cases are sentenced in prison, t: Student t test; z: Mann Whitney U test; *p<0.05, **p<0.01, ***p<0.001.

patients who had migrated (t=2.157, p<0.05), total number of crimes committed by those who had migrated (z=3.366, p<0.001), number of crimes after the illness has started (z=2.279, p<0.05) were higher. According to the reference crime which causes them to come to the hospital, the migrated cases had a statistically higher rate of repetition of the criminal acts (z=3.014, p<0.01) (Table 3).

When subjects who had committed crime were compared in terms of subgroups of repetitive crime and non-repetitive crime, no significant difference was found in terms of the place of birth, the place of residence, the severity of the violence, having a parental loss and to be exposed to violence during childhood but there was a significant difference between two subgroups in terms of migration (χ^2=9.887, p<0.01), having a parental divorce (χ^2=3.755, p=0.05) and the time spent in prison (χ^2=21. 344, p<0.001). In addition, among perpetrators migration raised the possibility of the recidivism of the criminal acts up to 5 - fold (CI=1.78-14.08), whereas having already been in prison before raised this possibility up to 17- fold (CI=4.35-70.11) (Table 4).

In the logistic regression analysis, history of migration and having a parental divorce in childhood were entered as explanatory variables, and the model was significant (χ^2=12.711; df=2; p<0.01) in the group with repetitive crime. It was concluded that having a migration increased the risk of repetitive criminal behavior 2.2 times higher, independently (OR=2.2, CI=1.29-3.70, p<0.01) (Table 5).

Table 4: Comparison of repetitive crime and non- repetitive crime groups among subjects who committed a crime in terms of place of birth, place of residence, prison experience and severity of the violence of the criminal act, parental loss during childhood, parental divorce during childhood, to be exposed to violence during childhood and prison experience.

	Repetitive crime (+) (n=29)		Repetitive crime (-) (n=40)				
	n	%	n	%	χ^2	df	p
Place of birth							
Village	11	37.9	13	32.5	0.362	2	0.83
District	7	24.2	9	22.5			
City	11	37.9	18	45.0			
Place of settlement							
Village	4	13.8	11	27.5	2.373	2	0.30
District	8	27.6	12	30.0			
City	17	58.6	17	42.5			
Severity of violence							
Mild to Moderate	11	37.9	11	27.5	0.842	1	0.35
Serious to Most serious	18	62.1	29	72.5			
Migration[1]	19	65.5	11	27.5	9.887	1	0.002**
Parental loss during childhood	4	13.8	9	22.5	0.833	1	0.36
Parental divorce during childhood	7	24.1	3	7.5	3.755	1	0.05
Exposed to violence during childhood	13	44.8	15	37.5	0.374	1	0.54
Prison experience[2]	17	58.6	3	7.5	21. 344	1	<0.001***

[1]Repetitive crime (exist/none) and Migration (exist/none) OR: 5, 95% CI: 1.78-14.08, [2]Repetitive crime (exist/none) and Prison experience (exist/none) OR: 17.47, 95% CI: 4.35-70.11, χ^2: Chi square test; *p<0.05, p≤0.01, **p<0.001

Table 5: The effects of migration (Yes/No) and parental divorce during childhood (Yes/No) as explanatory variables on repetitive crime (Yes/No) in regression analysis at the group with a criminal history.

	B	S.E.	Wald	df	p	OR	95% C.I.	
							Lower	Upper
Migration (yes/no)	0.780	0.269	8.409	1	0.004*	2.182	1.288	3.697
Parental divorce during childhood (yes/no)	0.621	0.395	2.471	1	0.116	1. 861	0.858	4.038

Logistic regression model: χ^2=12.711; df:2; p=0.002*.

*p<0.01, Overall correct percentage of classification 66.7%

DISCUSSION

In our study most schizophrenic patients who had not committed a crime lived in a city, whereas significantly higher degree of those who had committed crime lived in towns and villages. This fact of our study can be interpreted as criminal behavior intensifying in small places. These results are not in accordance with the results of studies focusing on the general population (18,19,22). But it's thought that this difference stems from the specific characteristics of the clinic population of the regional hospital. It can be said that this difference is a result of admittance policies; even though regular treatment applications are made to the nearest clinics and hospitals, obligatory forensic psychiatric treatment services are only provided at the hospital of the associated region. So, it can be said that no results can be achieved with this difference. On the other hand, it should be kept in mind that difficulties to reach psychiatric health services at places with small populations is an important obstacle in preventing violence related to mental illness.

Even though there was no significant difference in terms of migration between patients who committed crime and those who had not, it was found out that those who committed a crime migrated at a younger age. By screening the international literature, no studies were found with results on the effect of age of migration on the formation of psychosis and the effects of it on criminal behavior. But it is generally accepted that migration causes to disadvantageous socio-cultural and socio-economical environmental conditions and these conditions effects the development of personality and identity; in the same way these conditions make the development of psychosis and criminal behavior easier (4,6-8,14,15). It is clear that earlier migration means living longer in disadvantageous conditions.

The result that those who did not commit a crime were admitted more to hospitals was interpreted as them having more opportunities in terms of utilizing health services. The fact that those who committed crimes stayed in hospitals for longer durations was interpreted as compulsory hospital stays because of crimes being longer.

A significant difference was determined among schizophrenia patients who had committed crime and who had migrated internally in terms of duration of illness, number of crimes committed and repetition of crime. By the criminal group the rates of separation of the parents and the exposure to violent acts during the childhood rates were significantly higher. However within the criminal group these two parameters did not differ meaningfully according to the presence or the absence of the migration. And the logistic regression analysis indicated that having a migration increased the risk of repetitive criminal behavior 2.2 times higher compared to other possible explanatory variables like having a parental divorce during childhood. This suggests that migration has a significant effect on severity of illness and crime variables. In the studies conducted by Gabrielsen and Kramp (2), it was also determined that having migrated to Denmark increased the risk of becoming schizophrenic and becoming a forensic psychiatric subject.

Another factor increasing the risk of committing a crime is the duration of time spent without treatment (23,24) and here, migration indirectly increases the risk by lowering the chances of reaching to the treatment opportunities (25).

In a study made in the USA in the 90s about the decrease of crime even though there was an increase in migration, the effect of migration on the decrease of crime was investigated. Though migration and high rates of homicide and robbery are correlated, in this study big decreases in robbery and homicide were attributed to large migrations to cities in 1990-2000 (26). Since this result is not yet supported with other studies, more information is needed on this subject.

Turkey majorly undertook the urbanization process in the 20th century. Internal migration intensified in 1950s and showed a movement from rural to urban, from agriculture to industry, from East to West during the second half of 20th century. As a result of population movements, urban population that was 25% in the 1950's increased to higher rates than 70% in the 21st century (27). According to the census of 2000, 28% of our country's population was born in a different place

than they inhabit. This percentage increases to 62% in Istanbul, the metropolis which enlarged immensely within these years of internal migration (28).

It is generally thought that migration is a process from negative towards something positive. But recent studies show that migrations do not always occur because of positive needs (28). Migration's directives are defined as rural repellence and urban attraction (29,30), but the major factor seems to be the economic need and the need to utilize urban possibilities for economic reasons (29,31).

In our country, in addition to voluntary internal migration due to economic reasons, there is also a population obliged to migrate by the government with the justification of a campaign against separatist terror. It's observed that this population is situated in low-opportunity neighborhoods of big cities (32). According to Keles (33), in 1995, 35% of Turkey's city population lived in shanty towns devoid of basic infrastructures like water and electricity (33). Ozmucur and Silber (34) showed that internal migration from rural to urban between 1987 and 1994 increased the inequality of income distribution instead of being a stabilizer.

In 1970s, about 4 million people or 1/3rd of the city population lived in shanty towns. Other metropolises were in a worse condition. For example, 2/3rds of Ankara's urban population lived in shanty towns. At the beginning of the 1990s, 9 million people in Turkey lived in shantys, which accounted for one of every three dwellings (34). Studies investigating the vulnerability of the individuals of this population identified high levels of PTSD, anxiety and depression symptoms. On the other hand, it was found that these people lived in areas with the worst infrastructure and additional problems like unemployment, lack of social security, homelessness and child labor were found to be higher than among the general population (33). While war, internal struggle or terror are the common reasons for international migration (35), in our country they are also important reasons for internal migration, whether voluntary or compulsory (36).

In a study investigating "lifetime migration" using place of birth data in 1950-1980, the divergence from homogeneity was calculated and Istanbul was found to be the most heterogeneous city with 61.80%. Cities following Istanbul in heterogenity are respectively: Kocaeli (43.60%), Izmir (41.72%) and Ankara (40.24%). The region most distant from homogeneity is Marmara (31). Between 1980 and 2000 the first four cities out of 10 towards which migration is directed were within the Marmara region (36). This region is the hinterland of our hospital where this study was conducted.

The following can be mentioned as limitations of this study. Though the study was done with clinical subjects, looking for the mutual relationship among crime, migration and schizophrenia is insufficient in terms of reaching general results, it carries some significance in terms of attracting attention to the problems for epidemiological studies. Another constraint was the limited number of subjects and the fact that there were subjects who had migrated internationally and returned to their home country and then internally migrated; a fact that disrupted the homogeneity. On the other hand, our study lacks the possibility of creating results for female patients (even though their number and percentages within forensic psychiatry in Turkey is low) because our study groups consisted of male patients only. The fact that no study was found researching the effects of internal migration on schizophrenia or criminal behavior, together or separately, also restrained our opportunity to compare our results.

Although our data indicated the internal migration not to affect the rate of the criminal acts among the patients with schizophrenia meaningfully, it correlated significantly with the repetition of crime and the prison experience within the criminal group. It was concluded that the evaluation of migration, crime and schizophrenia together will bring new dimensions and depth to the subject. On the other hand, our results indicated that the changes causing due to mass migration and their effects on schizophrenia patients who committed a crime in countries where internal migration rates are high, and this result may enable new possibilities for intervention and treatment.

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