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ANALYSIS OF THE STATE, DYNAMICS AND STRUCTURE OF SEXUAL CRIMES AGAINST THE SEXUAL INVIOABILITY OF THE PERSON IN CENTRAL KAZAKHSTAN

Resume: The struggle and prevention of crimes against sexual freedom and inviolability of the person remains an urgent social and legal problem at the present time. Forensic medical examination of victims of sexual inviolability plays an important role in the analysis of the situation on this problem, not only in the legal, but also in the medical aspect. The current trend of criminality against the sexual inviolability of the person is an increase in the number of violent crimes of a sexual character, which are of a pronounced latent character.

Research aim

Analysis of quantitative and qualitative indicators of crimes against the sexual inviolability of a person in the territory of Central Kazakhstan to form indicators for assessing the current situation in the region and recommendations for the prevention of these types of crimes.

Materials and methods

The analysis of the number, dynamics and structure of sexual crimes on the territory of Central Kazakhstan from 2018 to 2021 was carried out based on the results of the conclusions of forensic medical examinations of cases of sexual inviolability, sexually motivated murders or atypical sexual behavior.

Results

The data of retrospective monitoring made it possible to assess the structure and characteristics of sexual crimes in Central Kazakhstan for the specified period of time. The results showed that the total number of sexual crimes does not tend to decrease. The increase in the number of violent sexual crimes committed against children has a steady nature. Statistically significant age features, temporal and seasonal indicators, indicators characterizing the crime scene and socio-psychological aspects of sexual crimes in the territory of Central Kazakhstan were revealed. This study allowed us to resolve a number of issues concerning the significance of the production of forensic medical and forensic biological examinations. There was identified a number of problems that need special attention of law enforcement agencies.

Conclusion

The issues of prevention of sexual crimes in various regions of Kazakhstan do not lose their relevance, requiring regular scientific theoretical and applied research, including forensic medical research, in the direction of improving the activities of health authorities and the state to counteract them.

Key words: forensic medical examination, sexual inviolability, Central Kazakhstan, women, minors.

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ОРТАЛЫҚ ҚАЗАҚСТАНДАҒЫ АДАМНЫҢ ЖЫНЫСТЫҚ ТИІСПЕУШІЛІГІНЕ ҚАРСЫ ЖЫНЫСТЫҚ ҚЫЛМЫСТАРДЫҢ ЖАҒДАЙЫН, ДИНАМИКАСЫН ЖӘНЕ ҚҰРЫЛЫМЫН ТАЛДАУ

Түйін: Адамның жыныстық бостандығы мен тиіспеушілігіне қарсы қылмыстармен күресу және оларды алдын алу қазіргі уақытта өзекті әлеуметтік-құқықтық мәселе болып қала береді. Жыныстық зорлық-зомбылық құрбандарының сот-медициналық сараптамасы осы мәселе бойынша жағдайды талдауда тек құқықтық жағынан ғана емес, медициналық жағынан да маңызды рөл атқарады. Адамның жыныстық тиіспеушілігіне қарсы қылмыстың қазіргі заманғы үрдісі айқын жасырын сипаттағы сексуалдық зорлық-зомбылық қылмыстарының санының артуы болып табылады.

Зерттеу мақсаты

Орталық Қазақстан аумағында адамның жыныстық тиіспеушілігіне қарсы қылмыстардың сандық-сапалық көрсеткіштеріне талдау жасау, аумақтағы ағымдағы жағдайды бағалау көрсеткіштерін және қылмыстың көрсетілген түрлерінің алдын алу бойынша ұсыныстарын қалыптастыру.

Материалдар мен тәсілдер

2018 жылдан бастап 2021 жылға дейін Орталық Қазақстан аумағында сексуалдық зорлық-зомбылық, сексуалдық себептер бойынша кісі өлтіру немесе типтік емес сексуалдық мінез-құлқық жағдайларының сот-медициналық сараптамалары қорытындыларының нәтижелері бойынша жыныстық қылмыстардың саны, динамикасы мен құрылымына талдау жүргізілді.

Нәтижелер

Ретроспективті мониторинг деректері көрсетілген уақыт аралығында Орталық Қазақстанда сексуалдық сипаттағы қылмыстардың құрылымы мен ерекшеліктерін бағалауға мүмкіндік берді. Нәтижелер жыныстық қылмыстардың жалпы санының төмендеу үрдісі жоқ екенін көрсетті. Балаларға қатысты жасалған сексуалдық сипаттағы зорлық-зомбылық қылмыстары санының өсуі тұрақты сипатқа ие. Орталық Қазақстан аумағында статистикалық маңызды жас ерекшеліктері, уақытша және маусымдық көрсеткіштер, қылмыс жасалған жерді сипаттайтын индикаторлар және жыныстық қылмыстардың әлеуметтік-психологиялық аспектілері анықталды. Бұл зерттеу сот-медициналық және сот-биологиялық сараптамалар өндірісінің маңыздылығына қатысты бірқатар



мәселелерді шешуге мүмкіндік берді. Құқық қорғау органдарының ерекше назарын қажет ететін бірқатар мәселелер анықталды.

Қорытынды

Қазақстанның түрлі аумақтарында жыныстық қылмыстардың алдын алу және болдырмау мәселелері денсаулық сақтау органдары мен мемлекеттің оларға қарсы іс-қимыл жөніндегі қызметін жетілдіру бағытында ғылыми теориялық-қолданбалы, оның ішінде сот-медициналық зерттеулерді тұрақты жүргізуді талап ете отырып, өз өзектілігін жоғалтпайды.

Түйін сөздер: сот-медициналық сараптамасы, сексуалдық зорлық, Орталық Қазақстан, әйелдер, кәмелет жасқа толмағандар.

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АНАЛИЗ СОСТОЯНИЯ, ДИНАМИКИ И СТРУКТУРЫ ПОЛОВЫХ ПРЕСТУПЛЕНИЙ ПРОТИВ ПОЛОВОЙ НЕПРИКОСНОВЕННОСТИ ЛИЧНОСТИ В ЦЕНТРАЛЬНОМ КАЗАХСТАНЕ

Резюме: Актуальной социально-правовой проблемой в настоящее время остается борьба и профилактика преступлений против половой свободы и неприкосновенности личности. Судебно-медицинская экспертиза жертв сексуального насилия играет важную роль в анализе ситуации по данной проблеме не только в правовом, но и в медицинском аспекте. Современной тенденцией преступности против половой неприкосновенности личности является увеличение числа насильственных преступлений сексуального характера, носящих выраженный латентный характер.

Цель исследования

Анализ количественно-качественных показателей преступлений против половой неприкосновенности личности на территории Центрального Казахстана для формирования индикаторов оценки текущей ситуации в регионе и рекомендаций по предупреждению указанных типов преступлений.

Материалы и методы

Проведен анализ количества, динамики и структуры половых преступлений на территории Центрального Казахстана с 2018 по 2021 год по результатам заключений судебно-медицинских экспертиз случаев сексуального насилия, убийств по сексуальным мотивам или нетипичного сексуального поведения.

Результаты

Данные ретроспективного мониторинга позволили провести оценку структуры и особенностей преступлений сексуального характера в Центральном Казахстане за указанный период времени. Результаты показали, что общее количество половых преступления не имеет тенденции к снижению. Рост количества насильственных преступлений сексуального характера, совершенных в отношении детей, носит устойчивый характер. Выявлены статистически значимые возрастные особенности, временные и сезонные показатели, индикаторы, характеризующие место совершения преступления и социально-психологические аспекты половых преступлений на территории Центрального Казахстана. Данное исследование позволило разрешить ряд вопросов, касающихся значимости производства судебно-медицинских и судебно-биологических экспертиз. Выделен ряд проблем, нуждающихся в особом внимании правоохранительных органов.

Заключение

Вопросы профилактики и предотвращения половых преступлений в различных регионах Казахстана не теряют своей актуальности, требуя регулярного проведения научных теоретико-прикладных, в том числе и судебно-медицинских исследований, в направлении совершенствования деятельности органов здравоохранения и государства по противодействию им.

Ключевые слова: судебно-медицинская экспертиза, сексуальное насилие, Центральный Казахстан, женщины, несовершеннолетние.

Introduction:

The spread of violent crimes against sexual freedom and sexual inviolability of the person is a significant problem of modern society. The commission of attacks on sexual inviolability and sexual freedom of the person indicates not only a low level of moral development of individual representatives of society, but about the presence of serious destructive processes in society, about shortcomings and omissions on the part of the state in the work to improve the cultural and moral development of its citizens [1]. Forensic medical examination in cases of crimes against sexual inviolability is an analytical complex for the use of medical knowledge to form practical recommendations and proposals aimed at the prophylaxis and prevention of crimes of a sexual character [2].

The World Health Organization defines sexual violence as "any sexual act that is directed against person's will, by any person, regardless of their relationship to the victim, in any setting. It includes, but is not limited to, rape, attempted

rape, and sexual slavery, as well as unwanted touching, threats of sexual violence, and verbal sexual harassment" [3]. At the same time, it is known that official statistical information does not give a complete picture of the dynamics of sexual crimes characterized by a high degree of latency, which is confirmed by numerous previous studies [4,5,6,7]. According to various estimates, in the world, only from 8.4% to 35% of cases of rape are registered with the police [8,9]. The leaders in the number of crimes against sexual freedom and sexual inviolability in the world are the USA and Canada, in the European Union - Sweden, Great Britain, Germany and France [10,11]. At the same time, reporting varies from country to country and depends on the region and culture. In the CIS countries, the coefficient for rape and attempted rape is in: Kyrgyzstan - 3.68, Russia - 2.3, Moldova - 7.5, Armenia - 0.8, Ukraine - 0.48, Uzbekistan - 0.67, Azerbaijan - 0.2, Tajikistan - 0.46 per 100,000 populations. Kazakhstan ranks first in the CIS in terms of the number of victims of



sexual violence - 7.88 per 100,000 populations [12]. The issue of prevention of sexual crimes in each individual region does not lose its relevance. Central Kazakhstan is an important economic and geographical region within the Republic of Kazakhstan; it includes the enlarged Karaganda region with a population of 1,385,533 people. The crime rate in the Karaganda region in 2018 was 155, in 2019 - 117, in 2020 - 89 people per 10,000 populations [13]. The factors influencing the dynamics of crime in the region are the causes and conditions of crime, the demographic structure of the population and other social processes. In this connection, the study and analysis of the structure of sexual crimes in the region is of great informational and preventive importance not only for law enforcement agencies, but also for society as a whole.

The aim of this study is to analyze the quantitative and qualitative indicators of crimes against the sexual inviolability of a person in the territory of Central Kazakhstan in order to form indicators for assessing the current situation in the region and recommendations for the prevention of these types of crimes.

Materials and methods:

A Non-Interventional retrospective (historical) cohort study was conducted, including an analysis of 732 forensic medical examinations of the Center for Forensic Examinations of the Ministry of Justice of the Republic of Kazakhstan of the Institute of Forensic Examinations in the Karaganda region for 2018-2021. The retrospective analysis included: selection and preparation of the necessary initial quantitative and qualitative data, analysis of the selected data with subsequent structuring, interpretation of the results and preparation of recommendations. The objects of the study were persons

subjected to sexual violence: children (girls and boys), under the age of 5, from 6 to 14 years, from 15 to 18 years and women in the following age categories: from 18 to 29 years, from 30 to 39 years old, 40 to 49 years old and over 50 years old.

The obtained data were processed using statistical software packages Statistica 10.0 (StatSoft Inc., USA) and SPSS 20. Methods of applied statistical analysis were used to analyze obtained results. The calculation of 95% CI was carried out according to the Wilson method. Differences in values were considered statistically significant at a probability level of more than 95% ($p < 0.05$). To analyze qualitative variables in independent samples, we used methods for comparing frequencies (or shares) in groups (Pearson's χ^2 test, Yates correction, Kendall's correlation coefficient (τ), Fisher's test (φ^*)). To assess the degree of association (effect size), the Cramer criterion (V) was used with the corresponding interpretation of the values according to the recommendations of Rea and Parker, as < 0.1 insignificant; $0.1 - < 0.2$ weak; $0.2 - < 0.4$ average; $0.4 - < 0.6$ relatively strong; $0.6 - < 0.8$ strong and $0.8 - 1.0$ very strong. To measure the tightness of the connection in the analysis of binary features, the φ criterion (Phi coefficient) was used. An assessment of the probability of an outcome depending on the presence or absence of a risk factor was evaluated using relative risk (RR) and odds ratio (OR) indicators [14].

Results:

Analysis of the state, dynamics and structure of crimes against sexual inviolability and sexual freedom of the person in the territory of Central Kazakhstan, based on the results of forensic medical reports, shows an upward trend in the number of this type of crime (*Figure 1*).

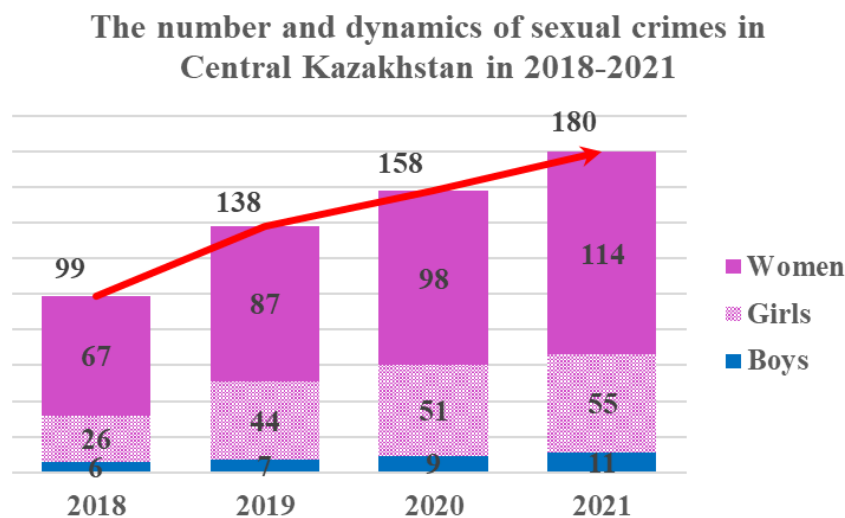


Figure 1 - Distribution of sexual crimes against women and children in Central Kazakhstan in 2018-2021

In 2019, the increase in the number of crimes against sexual inviolability and sexual freedom of the person in Central Kazakhstan exceeded 2018 by 39.3%, and in 2020 by another 14.5%. Thus, in 2021, 13.9% more sexual crimes were committed in this region of Kazakhstan than

in the previous 2020. The results of the data analysis show that women make up the vast majority of victims of sexual violence. At the same time, the predominance of the number of sexual crimes committed against underage girls aged 15 to 18 years is highlighted (*Figure 2*).



Age structure of persons subjected to sexual violence in Central Kazakhstan

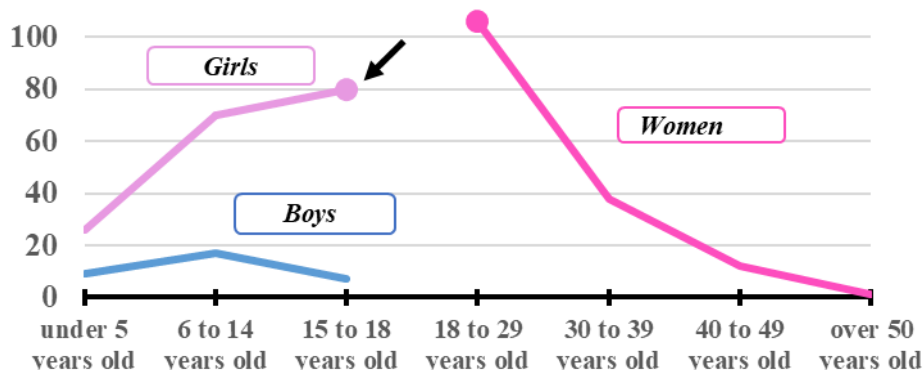


Figure 2 - Distribution of sexual crimes against women and children in Central Kazakhstan by age

Statistical analysis of qualitative and quantitative indicators of sexual crimes against women, depending on age, presented in *Table 1*, shows that the maximum indicators were recorded for women in the age category

from 18 to 29 years. Thus, the share of young women who became victims of sexual violence in Central Kazakhstan in the period from 2018 to 2021 varies from a minimum of 65.71% in 2018 to a maximum of 71.05% in 2020.

Table 1 - Number (share) of crimes against the sexual integrity of women in Central Kazakhstan, depending on the age group

Age group	2018		2019		2020		2021	
	p%	CI 95%	p%	CI 95%	p%	CI 95%	p%	CI 95%
18 - 29	65.71	(49.15;79.16)	66.67	(50.34;79.79)	71.05	(55.24;82.99)	66.67	(52.54;78.33)
30 - 39	22.86	(12.07;39.02)	22.22	(11.71;38.08)	23.68	(12.99;39.2)	27.08	(16.56;40.99)
40 - 49	11.43	(4.54;25.95)	8.33	(2.87;21.82)	5.26	(1.45;17.28)	6.25	(2.15;16.84)
> 50	0	(0;9.89)	2.78	(0.49;14.17)	0	(0;9.18)	0	(0;7.41)
Totals	22.29	(16.49;29.42)	22.93	(17.05;30.11)	24.20	18.17;31.47)	0.57	(23.9;38.17)

Note. Share shown in a percentage (p%), 95% confidence interval (CI 95%).

At the same time, the share of affected women aged 30 to 39 years, depending on the year, ranged from 22.22% to 27.08%, in the age category from 40 to 49 years - from 5.26% to 11.43%. The number of sexual crimes committed against women over 50 years of age is significantly lower and amounts to less than 2.78%. When processing qualitative data using Pearson's criterion χ^2 , no statistically significant differences were found (4.793, df=9, p=0.852) and, therefore, the frequency of sexual violence against women of a certain age does not depend

on the year of the attack. Sexual violence against girls aged 15 to 18 dominates with 45.45% indicator and against boys with an indicator of 51.52% aged 6 to 14. The analysis data presented in *Figure 3* shows that sexual crimes against women and children dominate in the warmer part of the year. In the cold season, in comparison with other seasons, the amount of crimes in some years decreased slightly, with the exception of the winter of 2020.

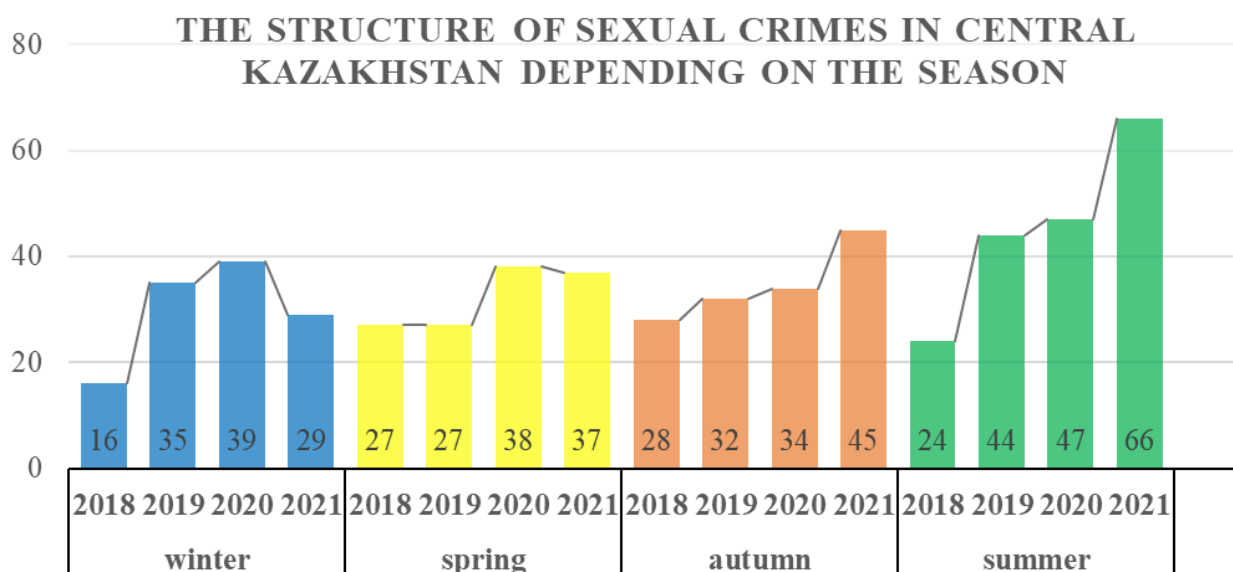


Figure 3 - Dynamics of sexual crimes in Central Kazakhstan depending on the time of year

Statistical data on the number of sexual crimes against women committed in the territory of Central Kazakhstan, depending on the time of year, are presented in *Table 2*.

Table 2 – Number (share) of crimes against the sexual inviolability of women in Central Kazakhstan depending on the time of year

Season	2018		2019		2020		2021	
	p%	CI 95%	p%	CI 95%	p%	CI 95%	p%	CI 95%
Spring	34.29	(20.84;50.85)	13.89	(6.08;28.66)	21.05	(11.07;36.34)	10.42	(4.53;22.17)
Autumn	25.71	(14.16;42.06)	38.89	(24.79;55.14)	0	(0;9.18)	31.25	(19.95;45.33)
Summer	20.00	(10.04;35.89)	33.33	(20.21;49.66)	55.26	(39.7;69.85)	37.50	(25.22;51.64)
Winter	20.00	(10.04;35.89)	13.89	(6.08;28.66)	23.68	(12.99;39.2)	20.83	(11.73;34.26)
<i>Totals</i>	22.29	(16.49;29.42)	22.93	(17.05;30.11)	24.20	(18.17;31.47)	30.57	(23.9;38.17)

Note. Share shown in a percentage (p%), 95% confidence interval (CI 95%).

A statistically significant relationship was found between the year of commission of this type of crimes against women and the season of the year, confirmed by the data of the Pearson criterion χ^2 (2738.49, df=9, p=0.001) and M-L Chi-square (5.760, df=9, p=0.00004). At the same time, the number of sexual crimes against women varied in different years: so in 2018, most of them were committed in the spring, in 2019 – in the fall, and in 2020 and 2021 – in the summer. Cramer's correlation coefficient (V) is 0.2411, which corresponds to the average degree of

correlation between the year of the crime and the season. In the course of comparing paired groups in two independent samples for 2018-2019 and 2020-2021, statistical analysis using the Z criterion revealed statistically significant differences confirming the relationship between the period of commission of this type of crime and the season of the year (Pearson Chi-square (9.347, df=3, p=0.025), M-L Chi-square (9.431, df=3, p=0.024)). Relevant statistics are presented in *Table 3*.

Table 3 - Statistical data of a comparative analysis of the number (shares) of crimes against sexual integrity in Central Kazakhstan depending on the season for 2018-2018 and 2020-2021

Season	Years of crime						Z	p level	95% CI difference of shares
	2018-2019			2020-2021					
	n	p%	CI 95%	n	p	CI 95%			
Spring	17	23.94	(15.52;35.04)	13	15.12	(9.05;24.17)	1.399	0.164	(-0.035;0.215)
Autumn	23	32.39	(22.65;43.93)	15	17.44	(10.86;26.8)	2.177	0.031*	(0.014;0.282)
Summer	19	26.76	(17.85;38.05)	39	45.35	(35.25;55.84)	-2.402	0.017*	(-0.324;-0.034)
Winter	12	16.90	(9.94;27.26)	19	22.09	(14.62;31.94)	-0.813	0.417	(-0.173;0.076)



Totals	71	45.22	(37.64;53.03)	86	54.78	(46.97;62.36)	-1.693	0.091	(-0.203;0.015)
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Note. Share shown in a percentage (p%), 95% confidence interval (CI 95%), quantity (n).

Statistically significant change* (p < 0.05).

Statistically significant differences were found between the number of attacks committed in autumn and summer in different periods. Thus, in the period 2018-2019, the share of sexual crimes committed on the territory of Central Kazakhstan in autumn is statistically significant (z=2.177, p=0.031, CI 95% (0.014;0.282)) 32,39% (22.65;43.93) exceeded the share of similar crimes in 2020-2021 – 17.44% (10.86;26.8). At the same time, the share of sexual crimes committed in the summer of 2020-2021 was 45.35% (35.25;55.84), which was statistically significant (z= -2.402, p=0.017, CI 95% (-0.324;-0.034)

differed from the number of such offenses in 2018-2019 - 26.76% (17.85;38.05).

When studying the indicators in relation to the crime scene, it was found that the ratio of the shares of crimes committed in closed spaces (in apartments, abandoned premises, houses, garages, car interiors, etc.) and open spaces (on the street, in squares, parks, vacant lots, etc.), regardless of the age or gender of the person subjected to sexual violence, varies from year to year. Table 4 presents statistical indicators reflecting the situation on the studied issue in Central Kazakhstan for the specified period of time.

Table 4 - The number (share) of crimes against sexual inviolability in Central Kazakhstan, depending on the crime scene

Crime scene (type of location)	2018		2019		2020		2021	
	p%	CI 95%	p%	CI 95%	p%	CI 95%	p%	CI 95%
Open area	85.7 1	(70.62;93.74)	100. 0	(90.36;100)	57.89	(42.19;72.14)	52.0 8	(38.33;65.53)
Closed area	14.2 9	(6.26;29.38)	0	(0;9.64)	42.11	(27.86;57.81)	47.9 2	(34.47;61.67)
Totals	22.2 9	(16.49;29.42)	22.9 3	(17.05;30.11)	24.20	(18.17;31.47)	30.5 7	(23.9;38.17)

Note. Share shown in a percentage (p%), 95% confidence interval (CI 95).

The analysis of the data showed the presence of a statistically significant relationship between the year of the commission of the specified type of crime and the place of commission of the crime, namely the type of locality (space), as evidenced by the data of the Pearson criterion χ^2 (30.443, df=3, p=0.000) and M-L Chi-square (39.368, df=3, p=0.000). The Cramer's correlation coefficient (V) in this case was 0.440, which indicates a relatively strong correlation between the year of the crime and the place of the crime.

The results of a detailed study to establish associations between the year of the commission of a sexual crime and

the crime scene presented in Table 5 indicate that these parameters are related: there was found a statistically significant difference of Pearson's Chi-squared test with Yates' continuity (26.425, df=1, p=0.000) and M-L Chi-square (31.615, df=1, p=0.000).

Table 5. Statistical data of a comparative analysis of the number (shares) of crimes against sexual inviolability in Central Kazakhstan, depending on the crime scene for 2018-2018 and 2020-2021

Table 5

Crime scene (type of location)	Years of crime						Z	p level	95% CI difference of shares
	2018-2019			2020-2021					
	n	p%	CI 95%	n	p	CI 95%			
Open area	66	92.96	(84.55;96.96)	47	54.65	(44.16;64.75)	5.320	0.000*	(0.252;0.495)
Closed area	5	7.040	(3.04;15.45)	39	45.35	(35.25;55.84)	-5.320	0.000*	(-0.495;-0.252)
Totals	71	45.22	(37.64;53.03)	86	54.78	(46.97;62.36)	-1.693	0.091	(-0.203;0.015)

Note. Share shown in a percentage (p%), 95% confidence interval (CI 95%), quantity(n).

Statistically significant change* (p < 0.05).

So, in the period 2018-2019, the share of this type of crimes committed in open areas - streets, parks and squares was 92.96% (84.55;96.96), while in 2020-2021 - only 54.65% (44.16;64.75). At the same time, in 2020 and 2021, the situation has changed dramatically - the shares of these types of crimes committed indoors has significantly increased and amounted to 45.35% (35.25; 55.84) compared to the same period of 2018-2019 – 7.04% (3.04;15.45). Fisher's exact test is also statistically significant and is equal to p=0.000. The correlation coefficient Phi is 0.425 and in this case demonstrates a relatively strong correlation between the number of crimes committed and the crime scene during these periods. When establishing the odds ratio (OR), it was

found that the probability of an attack and the commission of a sexual crime in closed premises in 2020-2021 was almost 11 times higher than the probability of an attack in a closed area in 2018-2019 - OR=10.95; CI (OR)=(4.016;29.875).

In the process of studying the socio-demographic characteristics of sexual crimes in the territory of Central Kazakhstan, it was found that about 77% of rapes of women, 73.3% of girls and 87.88% of boys of sexual crimes were committed by one person. At the same time, the number of persons who committed a group crime remains at a consistently high level, regardless of the age or gender of the victim. (Figure 4).



Distribution by number of perpetrators of sexual violence

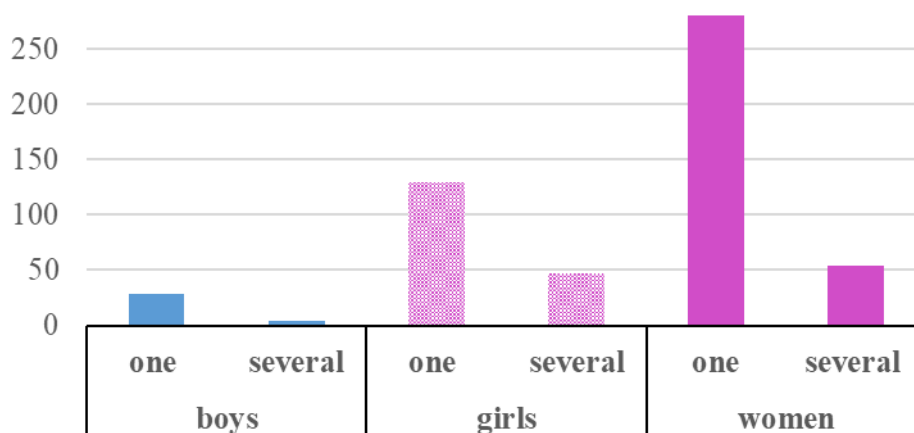


Figure 4 - Distribution of the number of sexual crimes in the Central Kazakhstan depending on the number of perpetrators of sexual violence

An increase in the proportion of crimes committed by relatives or acquaintances was also revealed. So, the maximum share - about 62% - falls on familiar faces, who are most often neighbors, stepfathers, relatives or family friends. However, it should be especially noted that for boys this figure was significantly higher and reaches 90%. It has been established that of all sexual crimes, 20.61% on average were committed by two or more persons: but this fact is not 100% reliable, since it does not exclude the presence of participation of other persons in violence, in

cases of detection of spermatozoa of only one suspect. A statistically significant relationship was found between the year of the commission of the specified type of crime and the number of persons involved in this crime, which is confirmed by the values of the Pearson criterion χ^2 (9.955, $df=3$, $p=0.019$) and M-L Chi-square (10.034, $df=3$, $p=0.018$). The corresponding data are presented in Table 6. The Cramer's correlation coefficient (V) is 0.252, which corresponds to the average degree of correlation between the year of the crime and the number of criminals.

Table 6 - The number (share) of crimes against sexual inviolability in Central Kazakhstan depending on the number of persons involved in the commission of a crime

Number of criminals	2018		2019		2020		2021	
	p%	CI 95%	p%	CI 95%	p%	CI 95%	p%	CI 95%
One man (single)	82.8 6	(67.32;91.9)	91.6 7	(78.18;97.13)	81.5 8	(66.58;90.78)	64.5 8	(50.44;76.56)
Two or more people(group)	17.1 4	(8.1;32.68)	8.33 0	(2.87;21.82)	18.4 2	(9.22;33.42)	35.4 2	(23.44;49.56)
Totals	22.2 9	(11.66;38.41)	22.9 3	(12.23;38.85)	24.2 0	(13.38;39.76)	30.5 7	(19.39;44.64)

Note. Share shown in a percentage (p%), 95% confidence interval (CI 95%).

According to the results of the statistical analysis presented in Table 7, it was found that in the period of 2018-2019 the share of the specified type of crimes

committed by one person was 87.32% (77.63; 93.18), while in 2020-2021 - 72.09% (61.82;80.47).

Table 7 - Statistical data of comparative analysis of the number (shares) of crimes against sexual integrity in Central Kazakhstan, depending on the number of persons involved in the commission of a crime, for 2018-2019 and 2020-2021

Number of criminals	Years of crime						Z	p level	95% CI difference of shares
	2018-2019			2020-2021					
	n	p%	CI 95%	n	p	CI 95%			
One man (single)	62	87.32	(77.63;93.18)	62	72.09	(61.82;80.47)	2.331	0.021*	(0.024;0.271)
Two or more people(group)	9	12.68	(6.82;22.37)	24	27.91	(19.53;38.18)	-2.331	0.021*	(-0.271;-0.024)
Totals	71	45.22	(37.64;53.03)	86	54.78	(46.97;62.36)	-1.693	0.091	(-0.203;0.015)

Note. Share shown in a percentage (p%), 95% confidence interval (CI 95%), quantity(n). Statistically significant change* ($p < 0.05$).

At the same time, in the period of 2020-2021, the share of sexual crimes committed in the group of persons increased

statistically significantly - 27.91% (19.53;38.18) compared to the same period for 2018-2019 - 12.68% (6.82;22.37).



Fisher's exact test is statistically significant and is equal to $p=0.015$. The Phi correlation coefficient was 0.186 and in this case demonstrates a weak correlation between the number of crimes committed and the number of perpetrators during these periods. When establishing the odds ratio (OR), it was found that the probability of an attack and the commission of a group sexual crime in 2020-2021 was 2.67 times higher than in 2018-2019 - $OR=2.667$; $CI(OR)=(1.148;6.196)$.

The analysis of information on the time of applying to a forensic medical institution for examination, reflected in

Table 8, showed that most of the victims apply for a forensic medical examination most often on 2nd or 3rd days after committing acts of a sexual character in relation to them (24.7% and 22.7%, respectively). And only 18.6% of victims of sexual inviolability contact the police in the first day. The number of persons who applied for an examination in the forensic medical institutions of the region on the 3rd and 4th days after the incident decreases and amounts to 18.7% and 15.3%, respectively.

Table 8 - Terms of applies after the incident and the results of forensic biological research

Victims	Post-accident inspection day					Place of detection of spermatozoa			
	1 day	2 day	3 day	4 day	5 day	Vagina	Rectum	Oral cavity	Not detected
Women	44	38	36	22	17	91	11	8	47
Girls	12	46	41	42	35	94	16	10	56
Boys	12	7	6	4	4	-	5	4	24
Totals	68	91	83	68	56	185	32	22	127

It has been established that the fact of detection of spermatozoa directly depends on the time (day) of applying of victims after sexual assault. So, for persons who applied on 1st day, the percentage of detection of spermatozoa in a forensic biological examination is more than 87%, on 2nd and 3rd days 32% and 9%, respectively. When applying for an examination within a period of more than 3 days, this indicator is less than 1%. Structuring of information by the type of sexual events showed steady stability of sexual actions in a perverted form, so the presence of spermatozoa in the rectum and oral cavity was 8.7% and 6%, respectively.

Discussion:

The analysis of the number, structure, dynamics and statistical data on the territory of Central Kazakhstan based on the results of forensic medical examinations revealed a progressive increase in the number of sexual crimes. While, according to some researchers, in recent years in the world, there are trends of a steady decline in absolute and relative rates of rape [4,8,15]. However, according to others, these data do not reflect the real state of this type of crime. [1,5,16,17]. Many authors, when studying the characteristics of crimes against sexual inviolability and sexual freedom, confirm in their studies that these crimes are highly latent [6,9,10,18,19]. Some researchers estimate that only 19% of rapes committed or attempted are reported annually [20]. Women under the age of 30, in various countries, according to research, are the most vulnerable category [18,19]. Almost 80% of women in Central Kazakhstan who have been victims of sexual violence also belong to the age category from 18 to 29 years. At the same time, the vast majority of available statistical data, including in Central Kazakhstan, show that women report cases of sexual violence more often than children, regardless of age [21]. There are only a few works studying the psychosexual characteristics of children, in which some researchers associate this with the age-related characteristics of the psyche of juvenile and minor victims (immaturity, subordination to the authority of an adult, credulity, lack of life experience and awareness in matters of sexual relations, inability to fully and critically assess the current situation and predict possible actions of others) [20,22].

One of the necessary indicators of the level of civilization of human society, according to MHH Miranda *et al.*, is the level of protection of the rights and legitimate interests of minors, whose normal psychophysical and moral

development is a necessary prerequisite for the progress of society [16]. According to the results of the study, in the general structure of committed crimes, crimes of a sexual character (rape) on the territory of Central Kazakhstan, an increase in the number of such crimes against minors has been noted. According to WHO data, over the past few years in the world, the number of violent crimes committed against the sexual integrity of minors has increased by 5 times, and the number of crimes related to the production and distribution of child pornography using the Internet has increased by more than 12 times [3]. At the same time, only in 2021, the number of indecent acts against boys increased by 5.9%, and their share in the total number of indecent acts increased from 29% to 38.7% [8]. According to G, Barbara *et al.*, in Europe every third child suffers from physical and mental violence and every fifth - suffers from sexual violence, i.e. 20% of the total European child population [23]. In the Russian Federation, unfavorable trends in the growth of sexual crimes against minors also persist and the number of child victims remains unacceptably high: 6,570 children were recognized as victims of crimes against sexual integrity and sexual freedom in January-June 2021, which is 12% more than in 2020, when 5861 children were affected [4,5]. On the other hand, some studies and statistical data indicate a positive trend in the reduction of sexual crimes committed against minors on the territory of Kazakhstan [6]. Thus, according to N. Buberbaev *et al.*, this indicator decreases annually by more than a thousand facts, and since 2013 their number has decreased by 5 times - from 9 thousand to 1800 facts in 2020 [12]. However, according to our research, there is no positive dynamics in this type of crime in the territory of Central Kazakhstan during 2018-2021. The revealed dynamics of sexual crimes in the studied region of Kazakhstan is similar to the global trend that prone to increase of sexual crimes, especially against minors, despite numerous measures taken by society in this direction. One of the factors complicating the fight against these types of crimes is that these acts are characterized by a high percentage of latency [24]. There are quite a lot of reasons for such latency: many researchers emphasize that children do not know how to apply safety rules in life, they are afraid to admit a mistake if they suddenly broke the rule and do not tell adults about what happened to them [6,25,26]. According to some estimates, children under the age of 11 are a particularly vulnerable category in relation to sexual violence [8]. In



domestic medical and, in particular, forensic psychiatric practice, the problem of sexual abuse against children has not been studied enough. At the same time, in Central Kazakhstan, the most unprotected category in relation to sexual violence is also boys aged 6 to 14 years, and if we take the data on girls, the age of the victims shifts to the category of 15-18 years.

The vulnerable characteristics of child victims, according to S. Dyar *et al.*, include the absence of a father or living in a foster family or with a stepfather, in families with lower income, etc. [21]. At the same time, selective studies indicate that the vulnerable characteristics of adult victims include female gender, sexual abuse in childhood or adolescence and alcohol or drug use [27,28]. Indicators characterizing the identity of a suspect in sexual violence on the territory of Central Kazakhstan are similar to indicators identified in similar studies in various countries and regions: the perpetrator is usually a male relative (30.2%). However, if we compare male and female victims of sexual violence, the perpetrator is usually: a male relative (stepfather) for girls (35.1%) and another known person (27.3%) for boys.

As studies have shown, sexual crimes in the territory of the Central part of Kazakhstan are not distributed randomly or evenly in time or space. Certain times, seasons of the year, and certain places are most associated with a certain risk. Analyzing the data regarding the time of year, it can be noted that there is a seasonality factor in the studied territory. Some researchers note that seasonality is usually a characteristic feature for resort regions – in the spring-summer period, due to the increase in the number of tourists, the number of crimes against sexual inviolability and sexual freedom of the person also increases, which are often committed in park and beach areas, which is not typical for the autumn-winter period [29,30]. Sexual assaults against women, in Central Kazakhstan, are registered quite stably throughout the year. At the same time, in each individual year, we can distinguish a cyclical increase in the number of such crimes in different periods, so in 2020 and 2021, an increased number of such crimes was noted in the autumn-winter period compared to 2018, which may well be explained by the situation with Covid-19, accompanied by a restriction of people's access to the street, which is also confirmed data obtained from other countries [23,24,31]. According to literary data, women are more vulnerable at different times and in different places: 65% of registered sexual assaults occurred in private homes, and selective studies show that 20.2% of such crimes are committed in residential apartments, 10.9% on the streets, 15.3% in forest park areas, 13.9% in basements, attics, 9.3% in places of mass leisure, 15.9% in dachas, 14.2% in other places [32]. This trend is emphasized by various studies conducted in different countries of the world, not only in Central Kazakhstan, regardless of the standard of living, location and other factors [8,19,28]. It should be noted that in Central Kazakhstan, the introduction of lockdown during the Covid-19 pandemic increased the chances of attacks and the commission of sexual crimes in closed premises by almost 11 times, which may be due to the restriction of movement of the population during this period and the increased attention of the police to people on the streets.

Many authors note that most of the crimes against children are committed by relatives or people close to the family, acquaintances [2,22]. The perpetrator in 75% of sexual assaults, according to literary data, was known to the victim, while two out of five perpetrators (40.4%) were family members or friends. According to some authors in

many countries of the world, the situation is similar, the victims of sexual violence are women in their own home, while the most likely perpetrator was a man they knew who was intoxicated [1,5,12]. The conducted studies showed that the situation in the Central part of Kazakhstan is absolutely similar. For crimes of a sexual character, evening and night time are especially typical. Studies have shown that illegal acts of a sexual character were committed against 59.3% of the victims by persons they do not know, 24.1% by acquaintances, 16.6% by relatives (stepfathers).

Literary data indicate that more than 1.5 million women and 834,700 men are annually subjected to rape and/or physical violence by an intimate partner in the United States [10,28,31], but in the territory of Central Kazakhstan, the number of sexual crimes by an intimate partner is less than 1%. The results obtained as a result of the analysis and statistical processing of the results revealed a general pattern in the timing of the apply of persons affected by sexual crimes. According to some published data, only 46% of registered cases of rape were reported on the same day, and 14% of victims took more than six months to contact the police [9]. If the victim was a child, then the delay increased: only 28% of those under 16 reported the attack on them on the same day, and about a third postponed contacting the police for more than six months [32-34]. On the contrary, conducted studies have shown that the situation is different in the studied territory, as victims examined on the day of the commission of the crime are more likely to receive the results of a forensic medical examination confirming sexual violence. The detection of spermatozoa directly depends on the timeliness of the victims' apply after sexual act. The analysis of the data showed that the detection of traces of biological origin in cases of sexual violence against children, as in many other countries, causes difficulties, since the suspect does not leave traces of sperm at the place of crime, due to incomplete sexual act or an existing sexual disease. Although the specificity of the prostate-specific antigen in the sample in these cases is relatively high, however, it gives a limited probability of success for several factors, including poor stability, low sensitivity of the target protein and possible subjectivity of the performer [4], which causes difficulties in proving most of the facts of sexual crimes, especially in relation to children.

Despite the limitations of the study, such as the narrowness of studying the problem only in one region of Kazakhstan and the retrospective nature of the study, which does not allow obtaining additional data from victims, this study provides some recommendations to those who are interested in improving the current situation on the territory of not only Central, but also all over Kazakhstan. Dynamic risk factors found in the current study should be regularly evaluated during survey. Examination of a person who has been subjected to sexual violence and who has applied to a medical institution is also a difficult task, due to the lack of an integrated approach and standardized methods, a single generally accepted terminology, the lack of objective methods for identifying cause-effect relationships of the outcome with the provision of medical care, etc. It should be emphasized that there are a large number of shortcomings in the preparation of medical documentation and the technique of medical examinations when applying to a medical institution. The lack of clear criteria (standardization and algorithm of examination, the use of examination and measuring devices, observance of the principle of repeated



inspection, knowledge of the features of the examination in case of suspected erectile dysfunction, inspection of the anorectal area, etc.) leads to the loss of part of the evidence base in the future. The collection of information characterizing the specifics of the crime also requires special attention. A full reflection of all the necessary information, a correct description of the damage, ensuring the safety of traces of the crime will allow forensic medical experts to give a highly qualified conclusion.

Conclusion

Sexual violence continues to be a serious problem in Kazakhstan, and understanding the factors underlying sexual crimes can lead to more effective prevention, assessment and intervention. Medical institutions implement policies and programs that define the role of the health care system in solving this problem. Health care professionals take a strategic position to identify people who have suffered from violence and (or) are at risk of renewed violence, provide them with medical care and refer them to other relevant services. Awareness of the public, especially health care professionals who occupy a special position that allows them to meet the needs of women and children who have been subjected to violence in medical and psychological care, is very important in this matter. This study emphasizes the importance of creating an effective concept for countering and preventing violent attacks on sexual inviolability and sexual freedoms of minors and other persons.

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