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## **CHANGES IN THE CONTEXT OF SUICIDES AMONG STUDENTS IN METROPOLIS OF JAPAN DURING THE COVID-19 PANDEMIC: SUCH DISCUSSION WOULD BE NECESSARY IN THE REPUBLIC OF KAZAKHSTAN AND EACH CITY**

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### **Abstract**

**Background:** Many individuals reported the feeling of 'reaching their breaking point' due to the COVID-19 pandemic's continued restrictions in their daily lives. In Japan, students at all levels have been significantly affected since the spring of 2020 by COVID-19-based restrictions on school attendance, the shift to online courses, and a reduced demand for part-time work, resulting in students' mental and physical exhaustion.

**Objective:** The current prevalence of suicide among students should thus be promptly ascertained. It is important to discuss the necessity of such consideration in the Republic of Kazakhstan as well.

**Materials and Methods:** This study was determined the number of suicides committed by students in Tokyo during the years 2018–2020 and the reasons for those suicides; and this study was analyzed the changes in suicide motives in 2020 compared to those in 2018 and 2019. In addition, we considered the importance of the study using this method in the Republic of Kazakhstan and each city.

**Results:** Female students accounted for a greater proportion of suicides in 2020 compared to the earlier years. There were no appreciable changes in the motives for suicide by males and females in 2020 compared to 2018 and 2019.

**Conclusions:** Precise statistics regarding suicide during the COVID-19 pandemic are important, and suicide-prevention measures based on the context for suicide prior to the pandemic should be formulated in accord with the status of the pandemic in order to prevent suicides among students. Suicide-prevention specialists in various fields such as behavioral science and in government must continue to cooperate to combat the possibility of rising numbers of suicides as the pandemic continues. Since such study is still not enough in the world, it is better to carry out it in detail in the Republic of Kazakhstan.

**Keywords:** *suicide, COVID-19, student, motive, Tokyo, Kazakhstan.*

### **Аннотация**

## **ИЗМЕНЕНИЯ В КОНТЕКСТЕ САМОУБИЙСТВ СРЕДИ СТУДЕНТОВ В МЕГАПОЛИСЕ ЯПОНИИ ВО ВРЕМЯ ПАНДЕМИИ COVID-19: НЕОБХОДИМОСТЬ ПОДОБНОГО РАССМОТРЕНИЯ ДЛЯ РЕСПУБЛИКИ КАЗАХСТАН И ДРУГИХ ГОРОДОВ**

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**Актуальность:** Многие люди сообщали о чувстве "достижения критической точки" из-за сохраняющихся ограничений в их повседневной жизни из-за пандемии COVID-19. В Японии учащиеся всех уровней с весны 2020 года значительно пострадали из-за ограничений на посещение школ, связанных с COVID-19, перехода на онлайн-курсы и снижения спроса на работу неполный рабочий день, что привело к умственному и физическому истощению учащихся.

**Цель:** таким образом, следует незамедлительно установить текущую распространенность самоубийств среди студентов. Важно обсудить необходимость такого рассмотрения и в Республике Казахстан.

**Материалы и методы:** В этом исследовании было определено количество самоубийств, совершенных студентами в Токио в течение 2018-2020 годов, и причины этих самоубийств. Были проанализированы изменения в мотивах самоубийств в 2020 году по сравнению с таковыми в 2018 и 2019 годах. Кроме того, мы рассмотрели важность исследования с использованием этого метода в Республике Казахстан и каждом городе.

**Результаты:** На долю студенток в 2020 году приходится большая доля самоубийств по сравнению с предыдущими годами. В 2020 году не произошло заметных изменений в мотивах самоубийств мужчин и женщин по сравнению с 2018 и 2019 годами.

**Выводы:** Точная статистика самоубийств во время пандемии COVID-19 важна, и меры по предотвращению самоубийств, основанные на контексте самоубийств до пандемии, должны быть сформулированы в соответствии со статусом пандемии, чтобы предотвратить самоубийства среди учащихся. Специалисты по предотвращению самоубийств в различных областях, таких как поведенческая наука и в правительстве, должны продолжать сотрудничать, чтобы бороться с возможностью снижения роста числа самоубийств по мере продолжения пандемии. Поскольку такого исследования в мире все еще недостаточно, лучше провести его детально в Республике Казахстан.

*Ключевые слова:* самоубийство, COVID-19, студент, мотив, Токио, Казахстан.

Түйіндеме

## **COVID-19 ПАНДЕМИЯСЫ КЕЗІНДЕ ЖАПОНИЯНЫҢ МЕГАПОЛИСІНДЕГІ СТУДЕНТТЕР АРАСЫНДАҒЫ СУИЦИД КОНТЕКСТІНДЕГІ ӨЗГЕРІСТЕР: МҰНДАЙ ТАЛҚЫЛАУ ҚАЗАҚСТАН РЕСПУБЛИКАСЫ МЕН БАСҚА ДА ҚАЛАЛАР ҮШІН МҰНДАЙ ҚАРАУДЫҢ ҚАЖЕТТІЛІГІ**

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**Өзектілігі:** көптеген адамдар COVID-19 пандемиясының күнделікті өміріндегі шектеулердің жалғасуына байланысты «өздерінің сыну нүктесіне жету» сезімін хабарлады. Жапонияда 2020 жылдың көктемінен бастап барлық деңгейдегі студенттерге COVID-19 негізінде мектепке барудағы шектеулер, онлайн курстарға ауысу және

толық емес жұмыс күніне сұраныстың төмендеуі айтарлықтай әсер етті, нәтижесінде студенттердің психикалық және физикалық шаршау.

**Мақсаты:** Студенттер арасындағы суицидтің қазіргі кездегі таралуын тез арада анықтау керек. Қазақстан Республикасында да мұндай қараудың қажеттілігін талқылау маңызды.

**Материалдар мен әдістер:** Бұл зерттеу 2018–2020 жылдар аралығында Токиодағы студенттердің өз-өзіне қол жұмсау оқиғаларының саны және осы суицидтердің себептері анықталды; және осы зерттеуде 2018 және 2019 жылдармен салыстырғанда 2020 жылы суицид мотивтерінің өзгеруіне талдау жасалды. Сонымен қатар, біз Қазақстан Республикасында және әр қалада осы әдісті қолдана отырып зерттеудің маңыздылығын қарастырдық.

**Нәтижелер:** 2020 жылы алдыңғы жылдармен салыстырғанда өз-өзіне қол жұмсау фактілерінің көп бөлігін студент қыздар құрады. 2018 және 2019 жылдармен салыстырғанда 2020 жылы ерлер мен әйелдердің өз-өзіне қол жұмсау мотивтерінде айтарлықтай өзгерістер болған жоқ.

**Қорытынды:** COVID-19 пандемиясы кезінде суицидке қатысты нақты статистика маңызды болып табылады және пандемияға дейінгі суицид контекстіне негізделген суицидтің алдын алу шаралары студенттер арасындағы суицидтің алдын алу үшін пандемия жағдайына сәйкес тұжырымдалуы керек. Мінез-құлық ғылымы және үкімет сияқты әртүрлі салалардағы суицидтің алдын алу мамандары пандемия жалғасуда суицид санының артуы мүмкіндігімен күресу үшін ынтымақтастықты жалғастыруы керек. Мұндай зерттеу әлемде әлі жеткіліксіз болғандықтан, оны Қазақстан Республикасында егжей-тегжейлі жүргізген дұрыс.

**Түйінді сөздер:** суицид, COVID 19, студент, мотив, Токио, Қазақстан.

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#### **Introduction**

The date of the first individual's positive COVID-19 test result in Japan was January 15, 2020 [11]. COVID-19 has spread worldwide, and late February 2020 then-Prime Minister Shinzo Abe held a press conference at which he recommended the cancellation of large gatherings and the closing of elementary, junior high, and high schools and special-needs schools [15]. The number of COVID-19 cases in Japan has increased by severalfold as of this writing [13].

Studies from around the world have reported that children and adolescents have developed severe mental health issues during the COVID-19 pandemic [2,4,18]. The specific contents of the mental health issues are mood disorder symptoms including depression, anxiety, stress, loneliness, alcohol use, and the absence of parent-child discussions of how to cope with COVID-19 and its related restrictions [2,4,18]. Due to the spread of COVID-19, many school from April 2020; online courses for university students have been instituted, students have been required to live off-campus, and the demand for part-time work has abruptly decreased,

resulting in financial hardships and mental and physical exhaustion for many university students.

Some contents have been speculated that (i) suicides among students in Japan may have increased since the beginning of the COVID-19 pandemic due to several factors, and (ii) the previous measures used to prevent suicide by students may need to be revised to address COVID-19-related issues. The following were suggested as possible reasons for an increase in suicides among students in Japan [6]: nearly all in-person classes have been converted to online lectures, resulting in far fewer opportunities to interact in person with friends and schoolmates, leaving students feeling isolated; the COVID-19 pandemic has continued for much longer than expected or hoped, and many students have begun to lose hope regarding their future; and the reduction of students' family income has presented economic difficulties and thus additional stress. It was also suggested that as 'new' suicide-prevention measures, it is necessary to (i) enhance opportunities for students' communication with friends, schoolmates and faculty, and family based on the use of

online and other information devices, and (ii) further enhance both the scholarship system and economic support at the national, prefecture, municipal, and/or school levels to help students and their families with tuition and living expenses [6].

In order to best help students and combat suicide, it is necessary to determine the precise details of the trends and motives for suicide. It was conducted the present study to obtain this information in the context of Japan's capital city, Tokyo, the population of which is nearly 14 million (~6.9 million males, ~7.1 million females) [19].

The view of such study is important around the world. Of course the same is true for the Republic of Kazakhstan.

**Materials and Methods**

Using the numerical data published in reports by the Tokyo Metropolitan Police Department [20], this study was determined the total number of suicides in Tokyo in the years 2018, 2019, and 2020, the number of suicides by students, and their motives for suicide ('family problems', 'health problems', 'economic and life problems', 'problems at work', 'problems between the sexes', 'problems at school', 'other problems', and 'unknown'). All of these data were in numerical-form only, without individual information. The Tokyo Metropolitan Police Department does not provide any description of motives for suicide in their reports [20]. However, Japan's National Police Agency does provide such information [12], in categories that are summarized as follows.

- Family problems: 'Parent-child relationship disharmony', 'Other family relationship disharmony', 'Family

death', 'Pessimism about the future of the family', 'Discipline and reprimand from family', and others.

- Health problems: 'Physical illness', 'Depression', 'Schizophrenia', 'Other psychiatric disorders', and others.

- Economic problems: 'Unsuccessful job search', 'Suffering from life', 'Multiple debt', and others.

- Problems at work: 'Job failure', 'Interpersonal relationships at office', 'Work exhaustion', and others.

- Problems at school: 'Suffering from entrance examinations', 'Suffering from carrier', 'Poor academic performance', 'Discord with schoolmates', and others.

It was calculated the proportion of suicides by students among all suicides and the proportion of suicides committed for a given reason. The changes in motives given for suicide in 2020 (the year of the beginning of the COVID-19 pandemic) compared to 2018 and 2019 were analyzed using Fisher's exact test by the software program EZR ver. 1.36 [8].

In addition, we discussed the importance of the viewpoints of such study in the Republic of Kazakhstan and each city.

**Results**

The total number of suicides, the number of suicides by students, the proportions of suicides committed by male and female students, and the proportions of suicides committed for a given reason are shown in Table 1. Based on those figures, the following points were obtained.

Table 1.

**Trends in suicides by students in Tokyo in 2018, 2019, and 2020.**

Suicide (%)	Males			Females		
	2018	2019	2020	2018	2019	2020
Students overall	80/1,502 (5.3%)	92/1,386 (6.6%)	92/1,414 (6.5%)	47/742 (6.3%)	48/721 (6.7%)	63/817 (7.7%)
<b>Motives for suicide (%)</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
Family problems	5.4%	7.9%	6.5%	3.3%	10.9%	10.7%
Health problems	22.6%	20.2%	18.7%	26.2%	34.5%	28.0%
Economic and life problems	3.2%	4.4%	11.2%	4.9%	1.8%	1.3%
Problems at work	0%	1.8%	0%	0%	1.8%	0%
Problems between the sexes	3.2%	4.4%	2.8%	8.2%	9.1%	5.3%
Problems at school	18.3%	25.4%	20.6%	23.0%	10.9%	17.3%
Other problems	7.5%	4.4%	1.9%	4.9%	0%	5.3%
Unknown	39.8%	31.6%	38.3%	29.5%	30.9%	32.0%

In each of the three years examined, female students accounted for a greater proportion of suicides compared to the male students, and the proportion of female students was notably increased in 2020 (7.7%) compared to those in 2018 (6.3%) and 2019 (6.7%).

•Males: The most frequent motive for suicide by males was 'unknown' in each of the three years, followed by 'health problems' or 'problems at school' in 2018 and by 'problems at school' or 'health problems' in 2019 and 2020.

• Females: In 2018 and 2020, the most frequent motive for suicide by females was 'unknown', followed by 'health problems', whereas in 2019, the most frequent motive was 'health problems' followed by 'unknown'. The

third most frequent motive was 'problems at school' in 2018 and 2020 and both 'family problems' and 'problems at school' in 2019.

The results of their statistical analysis of the changes in motives given for suicide in 2020 compared to 2018 and 2019 are also shown in Table 2. The following points were obtained.

There were no significant changes in the motives for suicide by males or females in 2020 compared to 2018 ( $p > 0.05$  for all categories).

There were no significant changes in the motives for suicide by males or females in 2020 compared to 2019 ( $p > 0.05$  for all categories).

**Discussion**

The number of suicides by females among the overall suicides increased in 2020 (the year of the COVID-19 pandemic), and suicides by female students among all females also increased. A recent study suggested that males have had less of an emotional reaction to the COVID-19 pandemic than females [5], and it was pointed out that it is highly possible that males show externalizing behaviors and under-report internalized emotions, whereas it is highly possible that females exhibit internalizing-spectrum symptoms [1,3,5]. A study conducted in Switzerland reported that female students have shown worse mental health trajectories during the COVID-19 pandemic [4]. Females were also reported to be more likely to feel a high degree of fear about COVID-19 [10,17].

A major risk item in suicides among females linked to health problems is depression, at both times of no pandemic and during the COVID-19 pandemic [7,14]. However, another report indicated that the relationship between depressive symptoms and suicidal ideation differs in several situations; depressive symptoms, alcohol use, and eating disorder symptoms were associated with not being a parent, having less indirect social contact,

experiencing feelings of high stress and loneliness, low social support, and low self-efficacy [9]. The increased risk of suicide among individuals with an eating disorder during the COVID-19 pandemic has also been considered [16].

The present analyses revealed no marked changes in motives for suicide by students between before and after the start of the COVID-19 pandemic, but it is still possible that the existing measures to prevent suicide should be modified in accord with the state of COVID-19. The results did indicate some change in the precise reasons for suicide that may be due to effects of the pandemic. COVID-19-related health problems, problems at school, and unknown reasons may have increased as motives for suicide, and thus medical personnel, government agencies, the police, school, and citizens need to pay attention to the effects of COVID-19 on these reasons. The existing suicide-prevention measures must also consider COVID-19-induced health problems and isolation. The most frequent motive for suicide was 'unknown', and this motive must therefore be elucidated in fields related to suicide in order to yield statistical data that can lead to more effective suicide-prevention measures.

Table 2.

**P-value that changes in motives given for suicide in 2020 compared to 2018 and 2019.**

Motives for suicide	Males		Females	
	2018–2020	2019–2020	2018–2020	2019–2020
Family problems	0.774	0.798	0.184	1
Health problems	0.599	0.865	0.849	0.447
Economic and life problems	0.056	0.077	0.325	1
Problems at work	1	0.498	1	0.423
Problems between the sexes	1	0.723	0.514	0.493
Problems at school	0.723	0.427	0.518	0.33
Other problems	0.085	0.447	1	0.137
Unknown	0.776	0.324	0.852	1

There are two major laws in Japan concerning suicide prevention: the Basic Act on Suicide Prevention and its later amendment, and the Outline of Comprehensive Measures to Prevent Suicides and its later revision. These laws established methods for gathering information regarding both completed suicides and attempted suicides, and they have provided suicide-prevention measures at various levels and from a variety of viewpoints. The two laws also incorporate important recently devised suicide-prevention measures, and thus Japan's medical personnel, government agencies, police, private entities and citizens involved in suicide prevention must understand these laws.

A limitation of the present study is that although the publicly reported numerical data that it used comprise the largest set of data that are available for Tokyo, the study used only numerical data.

It is better to carry out this kind of the study in the Republic of Kazakhstan and as soon as possible. Effective prevention measures in this item and appropriate response methods to their multi-year impacts should be established as a country, as each city in the Republic of Kazakhstan.

**Conclusion**

Japan must further develop better suicide-prevention measures including more effective access to mental healthcare; education regarding problem-solving and conflict resolution skills; the promotion of citizens' feeling of interconnectedness; the strengthening of economic support; and the identification and support of individuals who are most at risk during the COVID-19 pandemic. For this purpose, medical personnel, government agencies, the police, school, and private organizations involved in suicide prevention need to work together to devise effective measures to prevent suicides among the population—including students—during the COVID-19 pandemic. It is important that both the Republic of Kazakhstan and Japan continue to have useful discussions in various items of study.

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*Ken Inoue: Conceptualization, methodology, data collection, validation, formal analysis, writing-original draft, writing-review and editing, and funding acquisition.*

*Tatsushige Fukunaga: Conceptualization, Validation, and writing-review and editing.*

Madina Apbassova: *Conceptualization, methodology, and Writing-review and editing*

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