BRIEF REPORT

COVID-19 Impact on Kazakhstan University Student Fear, Mental Health, and Substance Use

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Coronavirus (COVID-19) was first detected in November 2019. The infection spread quickly in Wuhan (the capital of the Chinese province of Hubei) and then throughout China and other countries including the Kazakhstan located in Central Asia, the ninth largest country in the world in terms of land mass with a population of less than 20 million.

Over the 18th and 19th centuries, Kazakhstan was a protectorate of the Russian Empire. After the 1917 revolution in Russia, it became a part of the Russian Federation (1920); and, in 1936, the Kazakh Soviet Socialist Republic was formed within the USSR. Under Russian Empire and Soviet authority, Kazakhstan territory was used as a place for exile of politically convicted persons; ethnic cleansing of Germans, Greeks, Crimean Tatars, and Koreans; and, mass resettlement of ethnic Russians. In 1991, Kazakhstan declared independence. However, it has maintained close economic, political, and cultural ties with neighboring Russia including a 7500-km common border—much longer than the distance from Los Angeles to New York City. Presently, ethnic Russians and Ukrainians constitute about 20% of the Kazakhstan population; about 70% of the population identify with Islamic religion; and, Russian is the second state language after Kazakh (CIA 2020).

The Kazakh government policy toward the COVID-19 pandemic closely mirrors that of Russia (Åslund 2020) in terms of quarantine, blocked access to designated cities and regions, closed borders, and a transition of the school and university education system to distance learning. At the end of September 2020, 107,590 confirmed cases and 1699 deaths were reported in the country. Case fatality ratios (the number of COVID-19 deaths divided by the numbers of confirmed cases) in Kazakhstan (1.6%) were less than those in Russia (1.8%), China (5.2%), Germany (3.1%), and the USA (2.8%) (Johns Hopkins University of Medicine 2020).

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The present study builds on COVID-19-related research conducted in former USSR countries during the first wave of infection in April and May 2020. Such efforts include validation of a survey research tool in Russian language for Russian-speaking university students (Gritsenko et al. 2020; Reznik et al. 2020). Also, a comparative study was conducted across universities in the former Soviet Union—particularly Russia and Belarus that are very close in culture, religion, and language but have different strategies to combat COVID-19. Unlike these two countries, Kazakhstan has a predominately Muslim population and there is a dearth of youth and young adult COVID-19 information about this important segment of the population linked to the future of the country. Based on earlier COVID-19 research of university students in Russia and Belorussia, we hypothesize COVID-19 fear, mental health, and substance use among Kazakh university students are linked to gender and religious status. Specifically, we believe gender predicts fear level, mental health problems, and substance use; and religiosity is not a protective factor among university students in terms of COVID-19-related mental health conditions.

Methods

The methods used for this study of Kazakh students are similar to those developed to determine COVID-19 impact on Russian and Belarussian university students (Gritsenko et al. 2020). The Qualtrics software platform was used for this online survey. The main data collection instrument was the seven-item Fear of COVID-19 Scale (FCV-19S) (Ahorsu et al. 2020; Reznik et al. 2020). The levels of agreement with FCV-19S statements were evaluated by a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). Higher total scores correspond with more COVID-19 fear. Two questions were added to the scale to determine COVID-19 impact on university student studies, social life, and family relations. The influence of COVID-19 on student substance use including tobacco, alcohol, cannabis, and prescription drugs was examined. The survey instrument was translated from English to Russian, a common language used for education and research purposes, and back translated. The translation method used is consistent with that described by the World Health Organization for research purposes (WHO 2020).

The survey instrument was used on a cross-sectional sample of university students from Baitursynov Kostanay Regional University (BKRU), Republic of Kazakhstan. Students were informed that their survey participation was voluntary and responses were confidential. Permission to conduct the survey was received from BKRU Institutional Research Committee. All procedures performed in this study involving human participants were in accordance with the ethical standards of the BKRU research committee and comparable ethical standards. On average, the online instrument took 10–15 min to complete; and 15.9% of the university student population responded.

For the study cohort, the FCV-19S with two additional questions reliability is 0.795 (Cronbach's alpha) and 0.813 (McDonald's omega). Additional questions were added to the survey instrument about COVID-19 symptoms, testing, psycho-emotional conditions, and compliance with WHO prevention recommendations. For this study, all statistical analyses were conducted using SPSS, version 25.

Results

This survey included 466 participants—67.0% ($n = 312$) female and 33.0% ($n = 154$) male students. The response rate is 15.9%. The mean age of the respondents is 19.0 years (SD = 2.7); and 31.8% ($n = 148$) reported being not religious and 68.2% ($n = 318$) religious. Student academic disciplines were grouped into 5 areas: health related including biology and veterinary science (13.4%); psychology (29.5%); social and humanitarian including education, philosophy, and journalism (25.6%); and mathematics, economics and technical (31.5%). Table 1 provides background characteristics of the survey respondents.

For all respondents, mean value of the FCV-19S is 22.1 (SD = 5.8) and a median score is 22.0 with a range of 9 to 41. The total distribution of the fear values among the Kazakh students is close to the normal distribution (skewness = 0.087; kurtosis = − 0.086) (see Fig. 1). Based on the distribution of results, 40 respondents missing data, we gradated fear values ranging from 9 of 41 to represent the following levels: low—9 to 19 scores ($n = 171$); medium—20 to 24 scores ($n = 159$); and high—25 to 41 scores ($n = 137$).

Results evidence no significant difference in fear values based on respondent academic study area. However, higher fear levels on average were reported by females than by males (23.0 vs. 20.1 respectively; $t_{424} = 4.924$; $p < .001$) and by religious than by secular students (23.1 vs. 20.0 respectively; $t_{424} = 5.146$; $p = .008$). Two-way ANOVA did not evidence a significant influence of gender and religiosity interaction on fear values ($F_{1,422} = 2.117$; n.s.). The last month rate of any substance use (i.e., tobacco, alcohol, cannabis, and/or prescription drugs) before COVID-19 was 25.6% and, during COVID-19, was 27.7% (n.s.). Fear values were not found to be significantly linked to last month substance use ($t_{367} = 0.454$; n.s.). Secular, compared to religious, students reported more substance use before (37.9% vs. 20.2%; $p < .001$) and during (38.7% vs. 23.4%; $p < .001$) the COVID-19 pandemic.

In terms of WHO COVID-19 prevention measures, 17.3% of the respondents reported infrequent or no mask use; and 36.1% indicated they do not practice social distancing. Females, more than males, were more inclined to adopt such prevention measures (64.0%

Table 1 Student demographic characteristics

|	Male ($n = 154$)	Female ($n = 312$)	Total ($n = 466$)
Age, mean (SD)	18.9 (1.7)	19.1 (3.1)	19.0 (2.7)
Median	18.0	19.0	19.0
Range	17–29	17–44	17–44
Religious, % (n)			
Not religious	37.5 (57)	29.1 (90)	31.9 (147)
Religious	62.5 (95)	70.9 (219)	68.1 (314)
Checked for COVID-19, % (n)	11.1 (17)	13.8 (43)	12.9 (60)
There were COVID-19 symptoms, % (n)	13.1 (20)	12.5 (39)	12.7 (59)
Someone close to had COVID-19, % (n)	18.3 (28)	15.7 (49)	16.6 (77)
Change of fear of the COVID-19 in recent months, % (n)	*	*	
Decreased	36.2 (54)	44.7 (136)	41.9 (190)
Increased	2.7 (4)	6.6 (20)	5.3 (24)
No change	61.1 (91)	48.7 (148)	52.8 (239)

*$p < .05$ (χ^2 test)
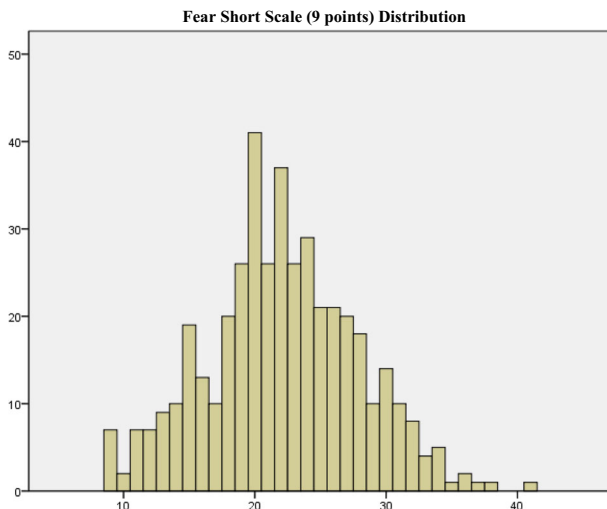
Fig. 1 Fear Short Scale (9 points) distribution

vs. 51.9%; $p = .021$). Also, students who reported last month substance use, compared to non-users, were less likely to practice COVID-19 prevention (36.8% vs. 21.9; $p = .001$) and more likely to report lower COVID-19 fear (21.3 vs. 22.6; $t_{366} = 1.993$; $p = .047$). Two-way ANOVA did not reveal a significant influence of last month substance use and COVID-19 prevention practice (i.e., mask use and distancing) on fear values ($F_{1,362} = 0.009$; n.s.).

Regarding psychological and emotional conditions, female more than male students reported being depressed (25.4% vs. 6.8%; $p < .001$), lonely (28.3% vs. 12.3%; $p < 0.001$), nervous (31.3% vs. 15.0%; $p = 0.001$), and angry (25.8% vs. 13.6%; $p = .006$) due to COVID-19. No significant difference was found among secular and religious students in terms of COVID-19-related psychological and emotional conditions. Regardless of gender and religious status, students who reported being more nervous due to COVID-19 were more inclined to be last month substance users (36.1% vs. 21.0%; $p = .002$). Students who were checked for COVID-19 and/or had symptoms reported being more exhausted than those not tested (21.6% vs. 8.9%; $p = .001$). Also, students who had someone close to them with COVID-19 reported more depression (28.6% vs. 16.7%; $p = .022$) and exhaustion (20.3% vs. 10.0%; $p = .018$). Table 2 shows the links between students' psychological and emotional conditions due to COVID-19 fear.

Table 2 COVID-19 fear level responses to student psychological and emotional conditions

Last month COVID-19 impact	COVID-19 fear level		
	Low ($n = 171$)	Medium ($n = 159$)	High ($n = 137$)
Depressed, % (n)	6.3 (7)***	18.5 (25)***	33.0 (36)***
Exhausted, % (n)	3.6 (4)***	12.8 (17)***	20.0 (21)***
Lonely, % (n)	12.6 (14)**	28.4 (38)**	28.0 (30)**
Nervous, % (n)	9.0 (10)***	25.7 (35)***	43.2 (48)***
Angry, % (n)	9.1 (10)***	24.8 (34)***	32.4 (35)***

**$p < .01$; ***$p < .001$ (χ^2 test)

Discussion

Studies show pandemic, such as COVID-19, increases psychological stress and the consequences of quarantine lead to mental health conditions such as depression, irritability, insomnia, anger, and exhaustion (Brooks et al. 2020; Prilutskaya and Grjibovski 2020; Sorokin et al. 2020). The present fear level of Kazakh students tends not to differ from that reported by Russian and Belarus university students at the peak of first wave infection during April to June 2020. Furthermore, based on present findings, the vast majority (94.7%) of Kazakh students reported their fear decreased or remained unchanged since the beginning of the pandemic; and, only 5.3% reported an increase. This low rate may be a result of student coping with COVID-19 conditions over time with implications that this response may be happening elsewhere (Ye et al. 2020).

Present findings, consistent with earlier studies in Russia and Belarus, evidence a higher level of fear among religious female students (Gritsenko et al. 2020). This outcome, hypothesized, raises question about the role of religiosity as a protective factor during difficult times (Howell et al. 2019; Koenig 2015). The relationship between religiosity and psychological well-being has been documented (Leondari and Gialamas 2009) but not so in Kazakhstan where Islam is dominant. However, and important to note, religiosity among Kazakh students is like that found among Russia and Belarus university students. It tends to be of a declarative nature not accompanied by the formation of religious consciousness and regular religious practice including prayers, going to church/mosque, and religious observance of restrictions (Alimbekova et al. 2020).

Kazakh study results, like those from Russia and Belarus, evidence that COVID-19 does not appear to significantly affect the pattern of student substance use. Substance use is higher among secular than religious students who tend to report less COVID-19 fear and more disregard for WHO prevention guidelines (i.e., mask use and social distancing). The link between religion, religiosity, substance use, and problem behavior is well studied (Ford and Hill 2012; Isralowitz and Myers 2011). Present study findings evidence that the level of substance use among Kazakh university students is lower than that reported in Russia and other countries (Isralowitz et al. 2018). This outcome may be a result of prohibitive government policy toward cannabis and Islamic religious beliefs affecting alcohol use.

Limitations

This study, to the best of our knowledge, is the first to examine the impact of COVID-19 on Kazakh university students. In spite of the cross-sectional nature of the research and limited number of survey respondents that restrict generalizability of the results, present findings tend to confirm that found in other former Soviet Union block countries. Furthermore, and important, present study results evidence a possible trend among university students toward resilience and coping with COVID-19 conditions—an important step toward a return to pre-pandemic living conditions. Further investigation is needed across Kazakh universities and over time to develop a more detailed understanding of COVID-19 impact on young adults linked to the development and future of the country.

Compliance with Ethical Standards

Conflict of Interest   The authors declare that they have no conflict of interest.

Informed Consent   All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000 (5). Informed consent was obtained from all students for being included in the study.

References

Ahorsu, D. K., Lin, C. Y., Imani, V., Saffari, M., Griffiths, M. D., & Pakpour, A. H. (2020). The fear of COVID-19 scale: development and initial validation. *International Journal of Mental Health and Addiction*. Retrieved from. https://doi.org/10.1007/s11469-020-00270-8.

Alimbekova, G. T., Shabdenova, A. B., & Lifanova, T. Y. (2020). Religiosity of the urban community in Kazakhstan. *RUDN Journal of Sociology, 20*(2), 323–332 (In Russian).

Åslund, A. (2020). Responses to the COVID-19 crisis in Russia, Ukraine, and Belarus. *Eurasian Geography and Economics*, 1-14. Retrieved from. https://doi.org/10.1080/15387216.2020.1778499.

Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. J. (2020). The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *The Lancet, 395*(10227), 912–920.

Central Intelligence Agency (CIA) (2020). *The World Fact Book: Kazakhstan*. Retrieved from https://www.cia.gov/library/publications/the-world-factbook/geos/kz.html. Accessed 6 Nov 2020.

Ford, J., & Hill, T. (2012). Religiosity and adolescent substance use: evidence from the national survey on drug use and health. *Substance Use and Misuse, 47*(7), 787–798.

Gritsenko, V., Skugarevsky, O., Konstantinov, V., Khamenka, N., Marinova, T., Reznik, A., & Isralowitz, R. (2020). COVID 19 fear, stress, anxiety, and substance use among Russian and Belarusian university students. *International Journal of Mental Health and Addiction*. Retrieved from. https://doi.org/10.1007/s11469-020-00330-z.

Howell, A. N., Carleton, R. N., Horswill, S. C., Parkerson, H. A., Weeks, J. W., & Asmundson, G. J. (2019). Intolerance of uncertainty moderates the relations among religiosity and motives for religion, depression, and social evaluation fears. *Journal of Clinical Psychology, 75*(1), 95–115.

Isralowitz, R. & Myers, P. (2011). *Illicit drugs*. Santa Barbara, CA: Greenwood/ABC-CLIO Publishers.

Isralowitz, R., Reznik, A., Gritsenko, V., Khalepo, O., & Kovaleva, Y. (2018). Alcohol use and related problem behavior: a survey among Russian Federation and Israeli female university students. *International Journal of Mental Health and Addiction, 16*(3), 707–710.

Johns Hopkins University of Medicine (2020). *Coronavirus Resource Center*. Retrieved from https://coronavirus.jhu.edu/map.html. Accessed 6 Nov 2020.

Koenig, H. G. (2015). Religion, spirituality, and health: a review and update. *Advances in Mind-Body Medicine, 29*(3), 19–26.

Leondari, A., & Gialamas, V. (2009). Religiosity and psychological well-being. *International Journal of Psychology, 44*(4), 241–248.

Prilutskaya, M. V., & Grjibovski, A. M. (2020). Perception of the state of emergency due to COVID-19 by medical students and staff in a Kazakhstani university. *Human Ecology, 6*, 4–12 (in Russian).

Reznik, A., Gritsenko, V., Konstantinov, V., Khamenka, N., & Isralowitz, R. (2020). COVID-19 fear in Eastern Europe: validation of the fear of COVID-19 scale. *International Journal of Mental Health and Addiction*, 1-6. Retrieved from https://doi.org/10.1007/s11469-020-00283-3.

Sorokin, M. Y., Kasyanov, E. D., Rukavishnikov, G. V., Makarevich, O. V., Neznanov, N. G., Lutova, N. B., & Mazo, G. E. (2020). Structure of anxiety associated with the COVID-19 pandemic in the Russian-speaking sample: results from on-line survey. *medRxiv*. Retrieved from. https://doi.org/10.1101/2020.04.28.20074302.

World Health Organization (WHO) (2020). *Process of translation and adaptation of instruments*. Retrieved from https://www.who.int/substance_abuse/research_tools/translation/en/. Accessed 6 Nov 2020.

Ye, Z., Yang, X., Zeng, C., Wang, Y., Shen, Z., Li, X., & Lin, D. (2020). Resilience, social support, and coping as mediators between COVID-19-related stressful experiences and acute stress disorder among college students in China. *Applied Psychology: Health and Well-Being*. Retrieved from . https://doi.org/10.1111/aphw.12211.

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