

Level of anxiety caused by the coronavirus (COVID-19) pandemic among dentists in Poland.

Ewa Rusyan

Warsaw Medical Univeristy

Agnieszka Mielczarek

Warsaw Medical University

Agnieszka Kapała

Warsaw Medical University

Kamil Adamczyk

Central Clinical Hospital of the Ministry of the Interior in Warsaw

Robert Piec

The Main School of Fire Service in Warsaw

Barbara Szykuła- Piec (✉ bpiec@sgsp.edu.pl)

The Main School of Fire Service in Warsaw <https://orcid.org/0000-0002-4533-232X>

Research article

Keywords: COVID-19, Fear, Fear of COVID-19 Scale, Dentists

Posted Date: August 21st, 2020

DOI: <https://doi.org/10.21203/rs.3.rs-52883/v1>

License:  This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

Version of Record: A version of this preprint was published at Medicina on March 11th, 2022. See the published version at <https://doi.org/10.3390/medicina58030415>.

Abstract

Background: The early information on both the speed and high morbidity rate and, above all, mortality, triggered the symptoms of COVID-19-related panic and anxiety. Dentists were listed in the top five professions with the highest risk of transmission of the virus. The paper aimed to assess the level of anxiety among dentists in Poland.

Methods: A cross-sectional study was conducted via an online survey questionnaire. The study used a tool developed by the team of Ahorsu et al. The COVID-19 Fear Scale (FCV-19S) translated into the Polish language. The online questionnaire was completed by 356 dentists.

Results: In the studied population of dentists, the perceived level of anxiety associated with COVID -19 should be considered relatively low. Both gender and work experience had no significant impact on their level. When the respondents had children, lived with the elderly, or looked after them the observed level of anxiety was higher and physical symptoms such as sweating palms and increased heart rate occurred.

Conclusion: Despite the high risk of infection, the tested low level of anxiety among dentists is a positive predictor of the appropriate level of medical services provided by this group of doctors.

Background

One of the global challenges that emerged in the world at the end of 2019 was the coronavirus (COVID-19) pandemic. The early information on both the speed and high morbidity rate and, above all, mortality, triggered the symptoms of COVID-19-related panic and anxiety¹. Under these conditions, working in occupations exposed to infection has become particularly stressful. According to the New York Time analysis based of US Department of Labor data², this group includes dentists, listed in the top five professions with the highest risk of transmission of the virus. In the first phase of the spread of the disease, most clinics in Poland suspended the practice. At the beginning of the pandemic, only departments working in emergency in Poland, providing services to patients with acute conditions, remained active³. Insufficient supply of personal protective equipment, also, the lack of clear legal interpretations in the field of civil and criminal liability caused anxiety about the resumption of operations.

The aim of the paper was to assess the level of anxiety among dentists and an attempt to determine the sociodemographic factors that affect its severity.

Methods

The study used a tool developed by the team of Ahorsu et al., The COVID-19 Fear Scale (FCV- 19S)⁴ translated into Polish. The FCV-19S scale was validated for use as a reliable research tool in multiple studies^{5,6,7}. The research was approved by the Bioethics Committee at Medical University of Warsaw-approval number AKBE/ 143/ 2020. Written informed consent was obtained from all the participants.

A cross-sectional study was conducted via an online survey questionnaire from 26 May 2020 to 18 June 2020. Social media and e-mails were used to collect the data. The questionnaire consisted of demographic questions to characterise a research sample and a proper part, in accordance with FCV-19S. These are 7 statements / questions to assess the perceived fear of COVID-19. The questions were closed-ended. The level of anxiety was assessed on a five-point scale, where the value of 1 means that a respondent did not have a given symptom, and 5 means that a respondent felt it strongly.

Patients' fear of COVID-19 was measured by questions and statements:

1. I am afraid of coronavirus (COVID-19) more than anything else
2. Thinking about coronavirus (COVID-19) makes me uncomfortable
3. My palms sweat when I think about coronavirus
4. I am worried that I will die from the coronavirus infection
5. When I hear about coronavirus (COVID-19) in the media and on the Internet, I get nervous and worried
6. I cannot sleep because of coronavirus
7. My heart starts to beat faster when I think about coronavirus

The answers were coded from 1 for "definitely not" to 5 for "definitely yes", with the possibility of marking "3" for imprecise definition of one's opinion. The applied Likert scale allows for averaging responses in two groups of statements: 1 and 2 – general low level of anxiety, 4 and 5 – general high level of anxiety.

The online questionnaire was completed by 356 people, after assessing the correctness of the entered data, 347 questionnaires were classified for further analysis. SPSS Statistics version 21.0 was used to perform statistical analyses, Chi-Square test and Pearson's correlation coefficient were used to correlate and assess the relation of responses.

Results

According to The Polish Chamber of Physicians and Dentists, which is a professional self-governing organisation of dental practitioners, in Poland in 2020 37,773 people practiced this profession, including 28,458 (75%) women and 9,315 (25%) men⁸. 347 questionnaires were qualified for the analysis and they were verified in terms of the correctness of the entered data. In the studied group, the proportions of men and women were similar to the general distribution characterising the gender distribution among dentists in Poland.

The questionnaire was completed by stomatologists with very little 1-year work experience and very experienced dentists with 49 years of work experience. Over $\frac{3}{4}$ of the surveyed sample of dentists stated that they live together with their partner (spouse). More than half of the respondents have children (approx. 58%). 1 in 7 dentists declared living with an elderly person or taking care of them. It was a significant variable that created an additional anxiety factor. Detailed data is presented in Table 1.

Table 1. Demographic information

DEMOGRAPHICS	GROUP	N (%) / MIN, MAX, MEAN
Gender	Female	245 (70,6%)
	Male	102 (29,4%)
Work experience (in years)		min 1 max 49 mean 12,48
Relationship status	Single	52 (15,0%)
	Divorced or widowed	15 (4,3%)
	In a relationship, living apart together	38 (11,0%)
	In a relationship, living together	242 (69,7%)
Having children	No	145 (41,8%)
	Yes	202 (58,2%)
Elderly care	Nie	297 (85,6%)
	Tak	50 (14,4%)

Table 2. Distribution of answers to individual questions of The COVID-19 Fear Scale

Questionnaire item	group	frequency n	percent (%)	mean	std. deviation
I am most afraid of COVID- 19	1	173	49,9	1,85	1,016
	2	85	24,5		
	3	63	18,2		
	4	21	6,1		
	5	5	1,4		
It makes me uncomfortable to think about COVID- 19.	1	133	38,3	2,22	1,224
	2	85	24,5		
	3	68	19,6		
	4	43	12,4		
	5	18	5,2		
My hands become clammy when I think about COVID- 19.	1	290	83,6	1,25	0,652
	2	36	10,4		
	3	14	4,0		

	4	5	1,4		
	5	2	0,6		
I am afraid of losing my life because of COVID- 19.	1	250	72,0	1,47	0,897
	2	55	15,9		
	3	24	6,9		
	4	12	3,5		
	5	6	1,7		
When watching news and stories about COVID- 19 on social media, I become nervous or anxious.	1	124	35,7	2,29	1,229
	2	87	25,1		
	3	64	18,4		
	4	57	16,4		
	5	15	4,3		
I cannot sleep because I'm worrying about getting COVID- 19.	1	289	83,3	1,25	0,653
	2	37	10,7		
	3	14	4,0		
	4	5	1,4		
	5	2	0,6		
My heart races or palpitates I think about getting COVID- 19.	1	276	79,5	1,32	0,728
	2	44	12,7		
	3	18	5,2		
	4	6	1,7		
	5	3	0,9		

Table 3. Average percentage distribution of general anxiety defined by all marked feelings. Due to the combination of all the aforementioned symptoms, both physiological and psychological, the risk of increased anxiety was found in 8.2% of the research sample (indications 4 and 5) (Tab. 3).

Level of fear	%	mean
1 - Fear low	63,2	1,66
2	17,7	
3	10,9	
4	6,1	
5- Fear extremely high	2,1	

The fear of contracting COVID-19 as an anxiety stronger than anything else – (marked on a scale by 4 and 5, respectively) was declared by 7.5% (n = 26), while 74.4% (n = 173 + 85) did not feel such a defined

fear. The overall average of 1.85 indicates a low level of concern. The highest arithmetic mean was 2.29 for the statement: "When I hear about coronavirus (COVID- 19) in the media and on the Internet, I get nervous and worried", a slightly lower average (2.22)

was produced for the question: "Thinking about coronavirus (COVID- 19) makes me uncomfortable." For both statements, a higher level of anxiety was indicated – values 4 and 5, 20.7% and 17.6%, respectively. Equally high values of the standard deviation indicate that there was a large discrepancy in the answers given. Physical symptoms of coronavirus anxiety, such as sleep problems, sweating palms, and increased heart rate, were the least common. Fear of death due to infection was reported in 5.2% of respondents. Detailed data is presented in Table 4.

Table 4. Statistical significance of the Chi-Square test and values, and statistical significance of Pearson's correlation coefficient

Questionnaire item	Gender	Work experience	Relationship status	Having children	Elderly care
I am most afraid of COVID- 19	0,28	Pearson Correlation R = 0,12 Sig. = 0,03	0,42	0,00	0,01
It makes me uncomfortable to think about COVID- 19.	0,08	Pearson Correlation R = 0,05 Sig. = 0,31	0,21	0,00	0,16
My hands become clammy when I think about COVID- 19.	0,46	Pearson Correlation R = 0,01 Sig. = 0,83	0,58	0,41	0,00
I am afraid of losing my life because of COVID- 19.	0,18	Pearson Correlation R = 0,12 Sig. = 0,03	0,38	0,02	0,26
When watching news and stories about COVID- 19 on social media, I become nervous or anxious.	0,69	Pearson Correlation R = 0,10 Sig. = 0,08	0,36	0,00	0,00
I cannot sleep because I'm worrying about getting COVID- 19.	0,28	Pearson Correlation R = 0,02 Sig. = 0,70	0,71	0,15	0,089
My heart races or palpitates I think about getting COVID- 19.	0,52	Pearson Correlation R = 0,074 Sig. = 0,169	0,5	0,2	0,07

The results presented in Table 4 indicate that gender did not have a statistically significant influence on the level of anxiety in the respondents. Nor can it be said that seniority affects the level of anxiety. Although in two cases there are statistically significant relationships lower than 0.05, the value of the Pearson's correlation coefficient is very low and amounts to 0.12. The results of the Chi-Square test

assessing the relationship between the distribution of the frequency of responses for anxiety level in relation to the status of the relationship show no significant dependence. However, having children significantly influences the level of anxiety. By analysing the distribution of indications and test results, it can be concluded that statistically significant people with children are afraid of Coronavirus more than anything else. People with children feel more often uncomfortable when they think about the coronavirus (COVID-19). They are also significantly more worried about dying from COVID-19 infection, and they get upset when they hear about coronavirus in the media and on the Internet. The situation is similar when the respondents live with older people. The distribution of answers indicates that the respondents also have physical symptoms that indicate anxiety, such as sweating palms.

Discussion

Anxiety and fear are universal, basic emotions that accompany a person, especially in difficult, unpredictable situations, where common sense is replaced by fear and speculation, e.g. due to the lack of reliable and verified information about danger. We are dealing with this situation today. As of 9 July 2020, nearly 12 million confirmed COVID-19 cases have been reported to the WHO worldwide, including over 540,000 cases of deaths⁹. The rate of spread of the virus and high global COVID-19 mortality rate may explain the fear of contact with potentially infected people¹⁰. Many studies confirm the strong impact that the threat of the new coronavirus disease (COVID-19) has on individuals^{11,12}. Such strong emotions trigger both physiological and psychological reactions. At present, due to the prolonged state of the epidemic, it is important to pay attention to the psychological sphere¹³, which is not insignificant for the transmission of the virus. Fear defined as "unclear, unpleasant emotional state characterised by experiencing, fear, stress and annoyance, along with anxiety, says Taylor, is the main reaction that strongly influences the perception of the environment and individual behaviour¹⁴.

In view of the strong influence of anxiety on individual and collective behaviour, a scale for measuring fear has been developed by a team of scientists to diagnose its level among people living in different parts of the globe. This study was conducted to assess the anxiety and fear of contracting the disease among dentists in Poland while working during the COVID-19 epidemic. It is considered important to study this group of healthcare workers as they are at greater risk of contraction because of close contact with infected patients¹⁵ through respiratory droplets from a patient's mouth¹⁶. Having defined a number of feelings which, according to the authors of the scale, make up the general characteristics of the level of anxiety, it can be concluded that the tested sample was not subject to strong anxiety associated with COVID-19. On average, 1.66 was the level of anxiety characterising the studied population.

It is at variance with the limited professional activity that took place in the first months of the pandemic in Poland, when the vast majority of offices were closed. In April, a still high percentage of jobs did not start work and only in May about 50% of private offices resumed their operation. It is also possible that the study was conducted at a time when the population has managed to adapt more to the new situation, which to a lesser extent reflects the primary emotions associated with the coronavirus. Undoubtedly, we

deal with adaptation to new working conditions, allowing to reduce the risk of transmission, by appropriate protective clothing and compliance with sanitary regulations. Moreover, the clear definition of the legal situation related to the potential risk of infection in the conditions of a dentist's office calmed both the doctors and the patients themselves to a great extent. According to the information obtained from the questionnaire, the concern about the health of the people for whom the respondents are responsible remains unchanged. Having children and caring for the elderly who are more susceptible to infections raises the level of anxiety in the respondents. It would seem that the presented attitude is irrelevant to the practised profession, but it indicates the importance of basic family relations, especially in the period of danger. At the same time, maybe medical education and knowledge in the field of epidemiology have a positive effect on the mental health of dentists?

The results of the answers to the question on nervousness “when I hear about the coronavirus in the media and the Internet” also seem interesting. In the face of a virus that is invisible, we can deal with reactions intensified by the lack of proven knowledge and information chaos, which is confirmed by our research. One in five respondents becomes nervous and anxious when they hear about coronavirus (COVID-19) in the media and on the Internet. Additionally, it can be triggered by the frustration of not being able to divert attention away from the topic of pandemic and the flood of information. Even scientific sources have provided anecdotal evidence, such as the unfortunate publication in a prestigious scientific journal on the treatment of patients with COVID 19. Due to the scale of the problem, the World Health Organization (WHO) has added a “mythbusters” section to its website, where coronavirus-related advice is posted in order to debunk a large number of “fake news”.

The study used a previously validated tool that has so far carried out thousands of assessments of anxiety levels around the world. The limitations of this study are that the data were collected in a short time, and given the strong impact of the epidemic on the psychophysical sphere, it can be assumed that attitudes may evolve along with the emerging new reports related to COVID-19. Additionally, the tool used does not take into account the current / active background for the study, which strongly influences the respondents' responses. Depending on the emotional state in which they are examined and objective circumstances, specific physiological reactions are identified. Hence, statements about physiological responses such as sweating of palms, trouble sleeping, and increased heart rate are difficult to identify in a generalised perception of behaviour. However, when specific situations were detailed, it turned out that physiological symptoms appeared. In the event of a pandemic, the factors of anxiety are difficult to capture, which is another significant limitation for the obtained research results.

Conclusions

Pandemics are large-scale epidemics that spread around the world. In recent years, virologists have been outdoing each other in reports and predictions about future pandemics with probable, catastrophic consequences for humanity. In Poland, as of 9 July 2020, we have over 35 thousand of confirmed cases of COVID-19 with 1,542 people who died due to complications from coronavirus infection. With these statistics, most of the restrictions were lifted while maintaining an order to wear a mask in public places

and maintaining social distance. Such a narrative may explain the low average level of anxiety characterising the studied population of dentists – 1.66. However, the mind-set, which is difficult to change, and reaction to continuously flowing information about COVID-19, have a significant impact on the level of declared anxiety.

The aim of the study was to assess the level of anxiety among dentists that was achieved and the results, according to the authors, are satisfactory in the context of the impact of anxiety on behaviour. A relatively low level of anxiety reduces potential irrational behaviour, does not distract and enables a common-sense analysis of the situation¹⁷. A dental practice requires precision and commitment that are not disturbed in a low-anxiety situation.

List Of Abbreviations

COVID-19 Fear Scale- FCV-19S

Declarations

Ethics approval and consent to participate

The research was approved by the Bioethics Committee at Medical University of Warsaw- approval number AKBE/ 143/ 2020. Written informed consent was obtained from all the participants.

Consent for publication

Not applicable

Availability of data and materials

The datasets during and/or analysed during the current study available from the corresponding author.

Competing interests

The authors declare that they have no competing interests

Funding

No external funding was available

Authors' contributions

ER took part in designing the questionnaire, acquired and analysed the data from the questionnaire, interpreted the data and drafted the work.

AM took part in designing the questionnaire, interpreted the data and substantively revised the work.

AK interpreted the data and substantively revised the work.

KA took part in designing the questionnaire, acquired and analysed the data. RP took part in designing the questionnaire and analysed the data.

BSP took part in designing the questionnaire, acquired and analysed the data from the questionnaire, interpreted the data and drafted the work.

Each author approved the submitted version and have agreed both to be personally accountable for the author's own contributions and to ensure that questions related to the accuracy or integrity of any part of the work, even ones in which the author was not personally involved, are appropriately investigated, resolved, and the resolution documented in the literature.

Acknowledgements

Not Applicable

References

¹ COVID-19: Fighting panic with information. Retrieved from [thelancet.com/pdfs/journals/lancet/PIIS0140-6736\(20\)30379-2.pdf](https://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(20)30379-2.pdf)

² Gamio, L. (2020, March 15). The Workers Who Face the Greatest Coronavirus Risk. Retrieved from <https://www.nytimes.com/interactive/2020/03/15/business/economy/coronavirus-worker-risk.html>

³ Coronavirus has restricted our access to medical care. Here is the breakdown of how hospitals, clinics and private practice now operate. Retrieved from <https://wyborcza.pl/7,173236,25964988,coronavirus-has-restricted-our-access-to-medical-care-here.html>

⁴ Ahorsu DK, Lin CY, Imani V, Saffari M, Griffiths MD, Pakpour AH. The Fear of COVID-19 Scale: Development and Initial Validation. *Int J Ment Health Addict.* 2020:1-9.

⁵ Sakib N, Bhuiyan A, Hossain S, Al Mamun F, Hosen I, Abdullah AH, et al. Psychometric Validation of the Bangla Fear of COVID-19 Scale: Confirmatory Factor Analysis and Rasch Analysis. *Int J Ment Health Addict.* 2020:1-12.

⁶ Satici B, Gocet-Tekin E, Deniz ME, Satici SA. Adaptation of the Fear of COVID-19 Scale: Its Association with Psychological Distress and Life Satisfaction in Turkey. *Int J Ment Health Addict.* 2020:1-9.

⁷ Soraci P, Ferrari A, Abbiati FA, Del Fante E, De Pace R, Urso A, et al. Validation and Psychometric Evaluation of the Italian Version of the Fear of COVID-19 Scale. *Int J Ment Health Addict.* 2020:1-10. ⁸ Statistical information of the Polish Supreme Medical Council, on 3.07.2020 r. <https://nil.org.pl/rejstry/centralny-rerezent-lekarzy/informacje-statystyczne>

- ⁹ WHO Coronavirus Disease (COVID-19) Dashboard. (n.d.). Retrieved from <https://covid19.who.int/>
- ¹⁰ Lin CY. Social reaction toward the 2019 novel coronavirus (COVID-19). *Soc Health Behav* 2020;3:1-2.
- ¹¹ Bhuiyan, A. K., Sakib, N., Pakpour, A. H., Griffiths, M. D., & Mamun, M. A. (2020). COVID-19-Related Suicides in Bangladesh Due to Lockdown and Economic Factors: Case Study Evidence from Media Reports. *International Journal of Mental Health and Addiction*. doi:10.1007/s11469-020-00307-y
- ¹² Qiu, J., Shen, B., Zhao, M., Wang, Z., Xie, B., & Xu, Y. (2020). A nationwide survey of psychological distress among Chinese people in the COVID-19 epidemic: Implications and policy recommendations. *General Psychiatry*, 33, e100213.<https://doi.org/10.1136/gpsych-2020-100213>
- ¹³ Pappas G, Kiriaze IJ, Giannakis P, Falagas ME. Psychosocial consequences of infectious diseases. *Clin Microbiol Infect*. 2009;15(8):743-7.
- ¹⁴ Taylor, S. (2019). *The psychology of pandemics: Preparing for the next global outbreak of infectious disease*. Newcastle upon Tyne, UK: Cambridge Scholars Publishing
- ¹⁵ Ather A, Patel B, Ruparel NB, Diogenes A, Hargreaves KM. Coronavirus Disease 19 (COVID-19): Implications for Clinical Dental Care. *J Endod*. 2020;46(5):584-95.
- ¹⁶ Meng, L.; Hua, F.; Bian, Z. Coronavirus Disease 2019 (COVID-19): Emerging and Future Challenges for Dental and Oral Medicine. *J. Dent. Res*. 2020.
- ¹⁷ Jerusalem, M.; Schwarzer, R. Self-Efficacy as a Resource Factor in Stress Appraisal Processes. In *Self-Efficacy: Thought Control Of Action*; Schwarzer, R., Ed.; Hemisphere: Washington, DC, USA, 1992; pp. 195-231.