


Management of Technostress in Teachers as Occupational Risk in the Context of COVID-19 [†]

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[†] Presented at the 3rd International Electronic Conference on Environmental Research and Public Health—Public Health Issues in the Context of the COVID-19 Pandemic, 11–25 January 2021; Available online: <https://ecerph-3.sciforum.net/>.

Abstract: The integration of new technologies in schools and high schools is linked to new problems with the use and management of ITC tools, such as technostress in teachers. Technostress is associated with several negative effects on workers' health, such as anxiety, musculoskeletal disorders, headache, mental and physical fatigue. Due to the worldwide COVID-19 pandemic, the majority of schools closed, and face-to-face courses were replaced with online courses in a very short time. In these circumstances, several teachers were forced to increase their skills with ICT technology to accomplish their teaching objectives, and their technological workload was higher than at the beginning of the course. In the current research, the technostress of teachers was evaluated based on a validated questionnaire. Results pointed out that occupational risks linked to technostress were high during the pandemic period. Older teachers showed more vulnerability to the risk, because a lack of training and adaptation of some of the new tools for online courses, while women showed higher levels of anxiety and emotional tension. Prevention measures as specific training programs for ICT, rational use of ICT, and a more balanced distribution of work and family life at home should be developed to address the problem.

Keywords: COVID; technostress; psychosocial risk; teacher



Citation: Rey-Merchán, M.d.C.; López-Arquillos, A. Management of Technostress in Teachers as Occupational Risk in the Context of COVID-19. *Med. Sci. Forum* **2021**, *4*, 5. <https://doi.org/10.3390/ECERPH-3-08999>

Academic Editor: Jon Øyvind Odland

Published: 11 January 2021

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1. Introduction

The adoption of information and communication technologies in schools and high schools are linked to some emerging problems, such as technostress between teachers. The problem is increasing fast in many developed countries. In previous research, developed in South Korea [1], different factors that act as creators of techno-stress were studied, such as techno-insecurity, techno-overload, or techno-complexity. Trying to define the frontier from which new technologies become a source of techno-stress has been carried out in countries such as Finland [2]. In a similar study carried out in Malaysia [3], the results showed that many teachers are overwhelmed by the high demand for tasks related to ICT, seeing their working hours prolonged with the completion of numerous updates of information for students and administrative tasks, from their own home. Aligned with previous studies, work overload was demonstrated as a strong precursor of technostress in the study carried out in Indonesia [4].

Due to the worldwide COVID-19 pandemic, the majority of schools closed, and face-to-face courses became online courses in a very short time. In these circumstances, several teachers were forced to increase their skills with ICT technology to accomplish their teaching objectives, and their technological workload was higher than at the beginning of the course. It is important, therefore, to elucidate the impact of these unexpected

circumstances on teachers. Accordingly, the aim of the research is to measure technostress in a group of selected teachers.

2. Material and Methods

In order to measure the technostress levels of Spanish teachers in the context of COVID-19 circumstances, a group of expert teachers was selected following the staticized group methodology [5]. This methodology is similar to the DELPHI method and it has been successfully applied in previous research [6,7]. The first step is to identify a potential expert. Secondly, select them according to the expertise requirements, based on professional achievements. Then, interview experts, and finally collect and analyze their answers and report the results.

For the current study, 11 teachers were selected as members of the expert panel. All of them achieved more than 10 years of experience, and they had a Master's degree or a Ph.D. They answered the questions in a validated questionnaire [8].

3. Results and Discussion

The experts' results were obtained after they answered the questions shown in Table 1.

Table 1. Technostress questionnaire [8].

	Question
1	With the passage of time, technologies interest me less and less.
2	I feel less and less involved in the use of ICT
3	I am more cynical about the contribution of technologies in my work
4	I doubt the meaning of working with these technologies
5	I find it difficult to relax after a day's work using them
6	When I finish working with ICT, I feel exhausted
7	I am so tired when I finish working with them that I can't do anything else
8	It's hard to concentrate after working with technologies
9	I feel tense and anxious when working with technologies
10	It scares me to think that I can destroy a large amount of information by improper use of it
11	I hesitate to use technologies for fear of making mistakes
12	Working with them makes me feel uncomfortable, irritable and impatient
13	In my opinion, I am ineffective using technologies
14	It is difficult to work with information and communication technologies
15	People say I am ineffective using technologies
16	I am unsure of finishing my tasks well when I use ICT

In Table 2, the results obtained from the expert panel are shown. The scale of possible answers was composed by the following options: (0) Never; (1) Near never; (2) Rarely; (3) Sometimes; (4) Often; (5) Very often; (6) Always.

The majority of experts answered that they feel exhausted when they finish their work with ICT, and they found it difficult to relax after a working day using them. In spite of their efforts, many of them are very often unsure of whether they have properly completed their tasks. They often feel tense and anxious when working with technology. Older panelists showed, in general, more doubts about their skills with ICT, and they often felt uncomfortable, irritable and impatient. These symptoms can be a sign of mental diseases, such as depression. In this sense, the relationship between teachers technostress and depression has been demonstrated by previous authors [9]. Other problems, such as a lack of autonomy in their tasks, or poor family balance, are also linked to technostress, especially in distanced online teaching courses [10].

Table 2. Technostress questionnaire results.

Question #	Average	Median	Standard Deviation
1	2.64	2	1.12
2	2.91	3	1.51
3	3.82	4	0.98
4	2.55	3	0.82
5	4.55	5	0.82
6	4.64	5	0.67
7	3.64	4	0.67
8	4.00	4	1.10
9	3.82	4	0.98
10	3.91	4	0.94
11	4.09	4	1.04
12	2.91	3	0.94
13	2.73	3	1.01
14	3.27	3	0.90
15	2.36	2	0.67
16	4.00	4	1.18

4. Conclusions

According to the results, it is necessary to create strategies for the adequate management of teaching technostress during the COVID-19 pandemic. The importance of an adequate management of the prevention of occupational risks becomes especially important in this psychosocial risk. In this sense, the involvement of educational organizations to implement preventive measures and the quality of teaching are key. Prevention measures, such as specific training programs for ICT, rational use of ICT, and a more balanced distribution of work and family life at home, should be developed to address the problem.

Institutional Review Board Statement: This research received no external funding.

Informed Consent Statement: Not applicable.

Conflicts of Interest: The authors declare no conflict of interest.

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