

# Teachers' perceived stress and experience in online teaching during the early phase of the COVID-19 pandemic

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Stress affects various aspects of human life and may also affect professional functioning of teachers. Research on attitudes towards digital/online teaching and learning has shown that the success of any online education depends upon the attitude of teachers towards online learning. Some studies before the pandemic showed that teachers, in comparison to other high-stress occupations, were reported as being the most stressed in regard to physical and psychological wellbeing. The aim of this pilot study is to investigate teachers' perceived stress and its relationship with attitudes towards online teaching and subjective online teaching overload during the early phase of COVID-19 pandemic. The online survey was performed during and immediately after the enforcement of lockdown measures in Vojvodina in spring 2020. The total sample included 64 teachers from primary and secondary schools (12.5% were class teachers), between 26 and 63 years of age. The subjective stress perception was measured using the Perceived Stress Scale, and a 19-item questionnaire was constructed for the assessment of attitudes towards online teaching. The perceived stress level was increased compared to the norms suggested by the scale author. Subjective overload with online teaching was significantly positively correlated with the perceived stress ( $r = .385, p < .01$ ). Teachers did not report extremely positive or negative attitudes towards online

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teaching. Still, the attitude towards online teaching was significantly negatively correlated with the subjective overload with online teaching ( $r = -.294, p < .05$ ). Results showed no significant correlation between the perceived stress and attitudes towards online teaching.

**Keywords:** teachers, online teaching, perceived stress, attitudes towards online teaching, online teaching overload.

## Introduction

The “COVID-19 education” brought about a lot of novelties and challenges for education professionals, as well as an increased interest of academics. Most of the attention, though, was given to the educational process itself, usage of information technology (IT) in teaching and learning, and the way in which students were coping. Much less attention was paid to the way teachers felt and how they coped with the “new normality” of their profession. Having in mind that teaching profession is already among the most stressful professions (Johnson et al., 2005), that digital teaching was something not quite familiar to most of the teachers prior to the pandemic, and that the COVID-19 pandemic brought a number of existential worries concerning the everyday functioning during the lockdown and disrupted family and working schedules, it seems that teachers found themselves caught “between the rock and a hard place” almost overnight.

In the dawn of the post-COVID education, it is necessary to envision the new possibilities that the “COVID-19 education” brought to our schools in improving the quality of teaching and learning. Although distance learning is not a new education model, the transition to emergency distance learning in 2020 was sudden, extensive and widespread, so the body of prior knowledge on distance education can be only taken into account with reservation (Kovács Cerović et al., 2021). The effects of such a massive change to the wellbeing and mental health of teachers and students should be investigated anew.

In this paper, we first introduce the findings on professional stress, with special focus on the (perceived) stress in teachers. Then we analyse the context of online teaching and learning and recent research on the mental health of teachers within this context. Further, we present the preliminary results of the pilot study conducted during spring 2020 which aimed to detect possible issues in mental health of teachers and offer the directions for further investigation in the period of COVID-19 and post-COVID19 education.

### *Stress in teachers*

Directly or indirectly, stress affects various aspects of human life and may also affect professional functioning. Teacher stress is commonly defined as the experience of unpleasant emotions resulting from teacher work, or, more

specifically, negative emotional experience directly related to an individual's capacity to cope with specific stressors (Kyriacou, 2001). Some studies before the pandemic showed that teachers, in comparison to other high-stress occupations, were reported as being among the most stressed in regard to physical and psychological wellbeing (Johnson et al., 2005; Travers & Cooper, 1993). Studies have also shown that teacher stress can negatively affect school as an organization, as well as the teacher's ability to give adequate response and act effectively in the classroom and in school (Flook et al., 2013; Hawkins Eskridge & Coker, 1985).

The most common symptoms of prolonged occupational stress include the following: anxiety, depression, frustration, hostile behaviour, emotional exhaustion and tension, as well as physical health symptoms (such as headache, stomach ache, palpitations, insomnia). Very important are emotional and behavioural symptoms of prolonged stress, such as abrupt mood swings, increased irritability, lowered tolerance for frustration, feelings of helplessness and lack of control, and greater professional risk taking (Cardinell, 1980). As a result, indicators of work pathology could emerge, such as reduced efficiency, tardiness, absenteeism, and staff turnover, which can be very disruptive for the continuity of educational programmes (Hawkins Eskridge & Coker, 1985).

Compared to other professionals, specific factors influence stress in teachers even without the pandemic; some of them arise from education reforms requirements, the increasing pressures of evaluation of teachers' work and, not of lesser importance, the role of the wider environment (Krnjajić, 2003; Van der Linde, 2001). Previous research identified different sources of stress in teachers in "regular" situations, such as workload and time demands, disruptive behaviour of students, as well as some organizational factors and changes in the curriculum (Blase, 1986; Boyle et al., 1995; Flook et al., 2013, Putwain & von der Embse, 2019). Beara and Jerković (2015) described social environmental factors, present in the first decade of the 21<sup>st</sup> century in Serbia, which added to the pressure, such as increased enrolment of socially deprived children and children with disabilities in regular schools, reduced cohorts of children enrolling in school (due to reduced birth rates), dissatisfaction of young teachers who either cannot get a job at school at all, or, at best, get a precarious temporary work contracts. In addition, a vast majority of teachers think that education is insufficiently appreciated in society, their profession is not respected enough (Institute for Education Quality and Education, 2010) and that social circumstances are unfavourable for their professional development (Beara & Jerković, 2015). It was also noticed that most school-based interventions were designed for the wellbeing of students, and there were fewer efforts to address stress and burnout among teachers and boost their wellbeing (Flook et al., 2013).

Another group of stressors for teachers stems from rapid technological development. Teachers have to quickly master digital competencies and use of IT communication in teaching and other school activities. We will assume that many teachers face an additional challenge – how to teach those students who have a higher degree of digital knowledge and technology skills than teachers do (Beara & Jerković, 2015)?

A very important take on teachers' stress is to establish the level of stress that they perceive themselves. The perceived stress is a subjective belief about the possibility to control and predict one's life, the frequency of coping with a variety of stressful events, as well as the belief in one's ability to cope with problems. Rare research on the perceived stress in teachers showed that both the perceptions of stress and ability to cope with demands were connected with burnout (McCormick & Barnett, 2011), while high teacher self-efficacy was associated with the lower perceived stress (Putwain & von der Embse, 2019). It seems that self-efficacy and good relations with colleagues and students could serve as protective factors in preserving teachers' engagement and prevention of emotional exhaustion and distress (Klassen et al., 2012; Putwain & von der Embse, 2019; Tuettemann & Punch, 1992).

### *The COVID-19 pandemic and teacher stress*

During the pandemic, stress was caused by the abruptness of implemented measures (lockdown, online learning etc.), uncertainty about their duration, and a lack of familiarity with distance education at that time (UNESCO, 2020a). The pandemic required a very sudden shift to remote learning and teaching and teachers were at the front of that shift. They were expected to support students' academic development and wellbeing, while also dealing with adversity and stress in their own lives (Collie, 2021). In the context of the pandemic, it is expected that stress can exacerbate and contribute to the already difficult situation in online teaching and learning. UNESCO (2020a) identified teachers' stress as being one of the adverse consequences of school closures. In such situation, teachers are often unsure of their obligations and the way to ensure students' learning in changed circumstances. One study with Chilean teachers has established that their quality of life was affected by the COVID-19 pandemic and that these perceptions could be related to emotions (fear, uncertainty and loneliness) and work overload due to distant teaching (Lizana et al., 2020).

In Serbia, during spring 2020, education was organized through different channels of distant learning, starting on 17 March with the lockdown. The Ministry of Education, Science and Technological Development of the Republic of Serbia (2020) organized the recording of lectures which were broadcast via the public TV channels. Nevertheless, schools had the

responsibility to complement those instructions by teacher-led instruction via social media (such as Viber and Facebook groups) and distance learning platforms, chosen and organized according to teachers' decisions. This resulted in a wide variety of channels for learning and teaching, sometimes within the same school and even within the same grade. Schools and teachers had to pay special attention to the students from families with lower socio-economic status, with difficulties in access to digital technology, as well as to the students with individual educational plans. That put additional pressure on teachers to organize and adjust the approach to their students.

### *Teachers' attitudes towards distant and digital teaching and learning*

Optimal integration of digital teaching and ICT in teaching and learning depends on teachers' beliefs and attitudes towards ICT (Sang et al., 2010). Academic papers investigating attitudes towards digital/online teaching and learning, although still scarce, became more prominent in the context of the COVID-19 pandemic, since this form of education, from a (rarely used) addition to regular teaching, became widely and almost exclusively used in the world nowadays. According to UNESCO (2020b), 90% of students were learning online at the end of March 2020. Nevertheless, teachers' attitudes towards distant teaching and learning are still under-researched, even though there is common understanding that the success of any form of online education, to a great extent, depends upon the attitude of teachers towards online teaching and learning. For example, Tzivinikou et al. (2020) showed that significant factors for the implementation of distance education during COVID 19 school closures were teachers' attitudes towards efficacy and difficulties of distance education. Recent research in Serbia suggests that both teachers and students have responsibly accepted the change in their work methods (Miražić-Nemet & Surdučki, 2020). However, there are also signs that teachers, students and parents experience a certain level of "online teaching/learning overload". This issue is yet to be investigated thoroughly and this is what we want to contribute to in this paper.

### *Aims*

The aim of this pilot study is to explore teachers' perceived level of stress and its relationship with age, employment length, online teaching experience (subjective assessment of online teaching overload, preparedness for online teaching, and satisfaction with online teaching) and attitudes towards online teaching. This study is a part of a wider study that will include students, parents and teachers, and other variables significant for the adequate implementation of digital teaching and learning, and preservation of mental health, such as protective factors and coping strategies.

The research questions posed in the study include:

- What is the level of the perceived stress of teachers?
- What are the differences in the perceived stress regarding the age, length of employment and family status of teachers?
- What is the relationship between the perceived stress and teachers' attitude towards digital learning?
- What are the relations between the perceived stress level, subjective perception of teaching overload, preparedness for online teaching and satisfaction with online teaching?

## Method

### *Sample and procedure*

This pilot research included 64 teachers from primary and secondary schools (12.5% were class teachers) in Vojvodina; 87.5% females, aged between 26 and 62; 77% of respondents were married, and 75% had school-age children. The employment length of teachers was classified into three categories: less than 10 years (23%), between 11 and 20 years (36%) and more than 21 years (41%).

The study was conducted online during spring and summer of 2020, using Google Forms type of survey. The study protocol was approved by the Ethical Committee of Psychological Research, University of Kragujevac. Anonymity was preserved while informed consent was obtained from all participants included in the study.

### *Instruments*

A questionnaire was created for the purposes of the research, containing items about teachers' demographic data and subjective assessment of online teaching experiences during lockdown, in specific:

- online teaching overload (a single-item scale) – “To what extent did you feel overloaded by online teaching during the lockdown?” (from 1 – not at all to 5 – very much);
- preparedness for online teaching (a single-item scale) – “Looking back now, how do you assess your overall preparedness for online teaching?” (from 1 – completely unprepared to 5 – completely prepared); and
- satisfaction with online teaching realisation (a single-item scale) – “How satisfied are you with your own implementation of online classes during the lockdown?” (from 1 – completely unsatisfied to 5 – completely satisfied).

For the *Attitudes towards digital learning* assessment, we adapted the items from the *Games in the Classroom Attitudes Survey* (Alquarashi, 2016) and created a 19-item Likert type questionnaire (the answer range was from 1 – totally disagree to 5 – totally agree). The principal component method extracted one factor, which explained 54.68% of the total variance. Factor loadings ranged from 0.36 to 0.83 (Table 1). The reliability analysis showed a high alpha coefficient value ( $\alpha = 0.95$ ).

Table 1.

*ATDL scale factor loadings*

ATDL items	Factor loadings
Makes teaching interesting	.83
Helps to achieve teaching goals	.83
Encourages a deeper understanding of the learning material	.82
Helps students develop thinking skills	.82
Improves learning efficiency	.81
Enhances students learning productivity	.81
Encourages participation among students	.80
Motivates students learning	.79
Helps students to solve complex tasks	.77
Helps students to more easily communicate with each other	.76
Motivates students to engage more	.75
Facilitates lectures	.74
Improves students' content knowledge.	.74
Guides teachers' instructional planning	.72
Increases students' skills	.71
Increases students' presentation skills	.64
Increases teachers' presentation skills	.62
Improves individual learning	.56
Helps students to achieve better grades	.36

*Perceived stress* was assessed by the *Perceived stress scale* (PSS, Cohen et al., 1983). This 10-item scale uses a five-point Likert scale (from 0 – never to 4 – almost all the time) to evaluate the intensity of the perceived stress in the last month; higher score reflects the higher perceived stress. Respondents evaluate how unpredictable, uncontrollable, and overloaded their lives are (e.g., “In the last month, how often have you felt nervous and stressed?” or “In the last month, how often have you felt confident about your ability to handle your personal problems?”) (Cohen, 1994). Factor analysis (the Principal Component method of extraction) in this study confirmed the one-factor structure of the *Perceived Stress Scale*, which explained 38.60% of the total variance. Factor loadings ranged from 0.24 to 0.81 and the reliability analysis showed a good internal consistency of the scale ( $\alpha = 0.81$ ).

### Statistical analyses

SPSS 21 was used for statistical analyses. Descriptive analyses were used to explore the levels of online teaching overload, preparedness for online teaching and satisfaction with online teaching. For examination of the structure and reliability of the *Perceived Stress Scale* and the *Teachers' attitudes towards the digital learning scale*, factor analyses and Cronbach alpha coefficients of internal consistency were used. Correlation analyses were applied for exploring the relationships between the perceived stress and teachers' attitude towards digital learning, online teaching overload, preparedness for online teaching and satisfaction with online teaching.

### Results

Descriptive analysis of the total scores' distribution (skewness =  $-.447$ , kurtosis =  $-.058$ ) showed a higher mean of the perceived stress than in the norms suggested by the scale author, in which the mean across different ages was  $12.82$  ( $SD = 6.20$ ) (Cohen, 1994)<sup>2</sup>. The registered level of the perceived stress implies that the majority of teachers had an increased level of stress.

Table 2.

#### Descriptive statistics and correlations

Variable	<i>n</i>	<i>M</i>	<i>SD</i>	1	2	3	4	5
Perceived stress	64	17.92	5.32	—				
Age	64	44.41	9.24	-.25*	—			
ATDL	64	54.73	15.01	.01	.12	—		
TOVER	62	3.79	1.10	.36**	.10	-.29*	—	
PREP	64	3.64	.80	-.08	-.02	.12	-.16	—
TSAT	64	3.19	.91	-.13	-.07	.49**	-.45**	.31*

\* $p < .05$ . \*\* $p < .01$ . ATDL – attitudes towards digital learning, TOVER – online teaching overload, PREP – preparedness for online teaching, TSAT – satisfaction with online teaching realisation

The perceived stress level in teachers is negatively correlated with age ( $r = -.25$ ,  $p < .05$ ) – older teachers experience the lower level of stress. No significant differences in the perceived stress level have been found according to employment length ( $r = -.09$ ,  $p = .49$ ), marriage status ( $r = -.09$ ,  $p = .44$ ) or having school-age children ( $r = -.07$ ,  $p = .60$ ).

2 This comparison should be used with reservation, since difference in size between our sample and Cohen's sample is very large and calculating Cohen's *d* would probably be artificial. Another reason for caution is the fact that Cohen's norms were made in the United States of America in 1994. One of the objectives of our main study will be to establish the up-to-date norms for the PSS on a larger Serbian sample.



The very first step in exploring the relationship between teachers' perceived stress and attitudes towards digital learning was to identify a latent structure of the ATDL scale (shown in Table 1). After obtaining the one-factor solution, in the next step, we explored the relation between the perceived stress and teachers' attitude towards digital learning and found no significant correlation ( $r = .01, p > .05$ ).

Our analysis showed a significant correlation between the perceived stress level and subjective perception of *teaching overload* ( $r = .36, p < .01$ ). Teachers who reported higher overload also experienced a higher level of stress. However, *preparedness for online teaching* and *satisfaction with online teaching realisation* were not significantly correlated with the perceived stress ( $r = -.08, p > .05$ ;  $r = -.13, p > .05$ ).

Further, the perception of teaching overload was negatively correlated with satisfaction with online teaching realisation ( $r = -.45, p < .01$ ) and with attitudes towards digital teaching ( $r = -.29, p < .05$ ). Finally, satisfaction with online teaching realisation was positively correlated with preparedness for online teaching ( $r = .31, p < .05$ ).

## Discussion

The increased stress level is expected in possible life-threatening circumstances and in the circumstances that require change in everyday routines (such as working in classroom, contact with family and friends, and reduced freedom of movement). These were the most frequent answers of our teachers to the open-ended question referring to the things that they missed most during the lockdown. On the other hand, after the new routine had been established, the expectation of "going back to classroom" (i.e. another change in the newly established routine) could also be perceived as a stressor. The results of studies in other countries found that a high percentage of teachers had symptoms of anxiety, stress and depression when the schools and universities had reopened (Ozamiz-Etxebarria et al., 2021). Putwain and von der Embse (2019) even suggested the concept of "stress related to change" in teachers.

An important result of our study is that younger teachers have shown a higher level of the perceived stress. Higher levels of stress among younger teachers are in line with the general trend observed in other studies (Lai et al., 2020; Ozamiz-Etxebarria et al., 2021). One of the possible explanations is that the younger teachers, who have less experience, found themselves more under pressure, since they felt that their basic teaching skills, needed in any type of teaching and possibly still "under development", were unreliable in the new circumstances.

The finding of no significant differences in the perceived stress among teachers with different family situation (married/unmarried, children or no children) is somewhat unexpected, having in mind that family and work demands could lead to multiple role overload and work-family role conflict (Abu Bakar & Saleh, 2015). Role overload is a state of conflict when a person is overburdened with the tasks that call for attention at the same time and the person's resources are lower than the demands (Reilly, 1982). There is evidence that work overload and inter-role conflict can aggravate symptoms of stress and strain, especially in employed mothers, who are exposed to role conflict due to multiple roles in their everyday life; still, the relationship is somewhat complicated: the family roles can also have a protective and positive effect on wellbeing (Cooke & Rousseau, 1984). In other words, having a family is correlated to wellbeing and increases life satisfaction, which could ease the effects of the work role overburden and job-related stress, even in unusual circumstances. Yet, the main study on a larger sample should provide a more reliable answer to the issue of family-work relations with the perceived stress.

Before the pandemic, the most prominent job stressors for teachers were workload and behaviour management (cf. Kim & Asbury, 2020). The pandemic placed new demands on students and teachers to adapt to online teaching (sometimes with limited resources or knowledge), which resulted in stress levels above normal (Sahu, 2020). This was also confirmed in our pilot study since teachers who reported higher subjective teaching overload also experienced a higher level of stress. Subjective overload could be understood as a degree to which teachers perceive themselves to be under pressure regarding time, commitments and the level of expected performance, and it could undermine mental health of teachers. It is widely accepted that stress, especially in work environments, occurs when the demands of the situation are higher than the resources of the person or "when the resources of the individual are not sufficient to cope with the demands and pressures of the situation" (Michie, 2002, p. 67). We could add that not only the objective demands themselves, but the *perception* of demands and own resources could be the cause of the perceived stress. This could have a very important practical implication for mental health protection – offering training on how to develop adequate perceptions of own resources, strengths and competences (i.e. working on self-confidence, self-efficacy, and discovering of own strengths) in teachers could prevent the occurrence of high perceived stress in highly-demanding situations.

Moreover, teachers with a higher level of the perceived subjective overload in our study had less positive attitudes towards digital learning. The explanation of this result is quite intuitive: the feeling of being overloaded could cause resistance towards the tasks that are perceived as imposing too much pressure. Previous research established that work overload was related to overall job dissatisfaction, fatigue (Beehr, 1981), and lesser job

commitment (Jones et al., 2007), which could be the signs of burnout. In teachers, the workload level has a significant effect on the level of burnout and performance (Jomoad et al., 2021).

Although our results showed that previous preparedness for online teaching was not significantly correlated with the perceived stress, they also indicated that satisfaction with online teaching was positively correlated with previous preparedness for online teaching. This would suggest that teachers who perceived themselves as better prepared found more satisfaction in the online teaching. This empirical result enforced the significance of the perception of preparedness for job satisfaction in general, which is in line with some previous studies. For example, Hughesa and Valle-Riestra (2008) showed that teachers reported a high level of preparedness for working with children with disabilities and a high level of job satisfaction at the same time.

This pilot study pointed to some directions for further research into the factors of success of online teaching, as well as into protective factors for the perceived stress. The main limitation of the pilot can be found in a small sample of teachers, which could be overcome in the main study.

## **Conclusion**

By utilizing digital technologies and the know-how in teaching and learning, which teachers, students and parents acquired during the previous year, it is possible to make a (r)evolution in schooling. In addition, education professionals and decision-makers should not only be focused on the achievements – their concern should also be to preserve the mental health of teachers, not only to improve the quality of teaching, but also in order to protect the mental health of students (Ozamiz-Etxebarria et al., 2021).

The results of our pilot research have implications for mental health protection and intervention in the educational context, and could be summarized as follows: teachers expressed a higher level of the perceived stress during the early phase of COVID-19 lockdown than the normative sample, and the older teachers reported a lower level of the perceived stress. Teachers who reported higher overload also experienced a higher level of stress, lower satisfaction with online teaching and more negative attitudes towards digital teaching and learning. Preparedness for online teaching and satisfaction with online teaching realisation were not significantly correlated with the perceived stress. However, teachers who perceived themselves as better prepared found more satisfaction in online teaching

Our results emphasize the need for mental health care interventions in stress reduction, which should be incorporated into new strategies for the coming months and years, especially with the return to the “normal” way of school functioning. A recommendation to policy makers and regional school

authorities would be that equal effort is needed in providing the continuation of education and the protection of mental health of all actors of education process in novel situations. The Model of Positive Education<sup>3</sup> (Seligman et al., 2012) could be adapted and used in that direction. Suggestions for further research and practical interventions would include the investigation of protective factors (such as positive orientation, character strengths, resilience and coping strategies) that could be promoted in teachers, students and parents in order to become more resilient to adversities that sudden changes in the routine bring. For instance, a previous study in our country found *higher resilience* to be a protective factor (Ignjatović Ristić et al., 2020).

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3 More can be found on the Institute of Positive Education website: <https://www.ggs.vic.edu.au/Institute>.

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## **Percipirani stres i iskustva nastavnika u onlajn poučavanju tokom rane faze COVID-19 pandemije**

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Stres utiče na različite aspekte ljudskog života, pa tako može da utiče na profesionalno funkcionisanje nastavnika. Istraživanje odnosa prema digitalnom, onlajn poučavanju i učenju pokazalo je da uspeh bilo kog onlajn obrazovanja u velikoj meri zavisi od odnosa nastavnika prema onlajn učenju. Istraživanja iz perioda pre pandemije pokazuju da su nastavnici, u poređenju sa drugim visoko stresnim zanimanjima, među najugroženijima u pogledu uticaja stresa na fizičko i psihološko blagostanje. Cilj ove pilot studije bio je istražiti kako nastavnici procenjuju nivo sopstvenog stresa tokom pandemije, kao i kakav je odnos nastavničkog stresa, stavova prema onlajn nastavi i subjektivnog osećaja opterećenosti onlajn nastavom, tokom rane faze pandemije COVID-19. Onlajn anketa je sprovedena tokom i neposredno nakon uvođenja mera zaključavanja (vanredne situacije) u proleće 2020. godine na području Vojvodine. Ukupan uzorak obuhvatio je 64 nastavnika (od toga 12,5% učitelja), između 26 i 63 godine starosti. Subjektivna percepcija stresa izmerena je Skalom percipiranog stresa, dok je upitnik od 19 stavki za procenu stavova prema onlajn nastavi adaptiran za potrebe ovog istraživanja. Rezultati pokazuju da je nivo percipiranog stresa povišen u poređenju sa normama koje je predložio autor skale. Procena opterećenosti onlajn nastavom je pozitivno povezana sa nivoom percipiranog stresa nastavnika ( $r = ,385, p < ,01$ ). Nastavnici nisu izrazili izuzetno pozitivne niti negativne stavove prema onlajn nastavi. Ipak, stav prema onlajn nastavi je u negativnoj korelaciji sa subjektivnim osećajem opterećenosti onlajn nastavom ( $r = -,294, p < ,05$ ). Rezultati ne ukazuju na značajnu korelaciju između opaženog nivoa stresa i stava prema onlajn nastavi nastavnika.

**Ključne reči:** nastavnici, onlajn nastava, percipirani stres, stavovi prema onlajn nastavi, opterećenost onlajn nastavom.

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