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## The Mediating Role of Affective Organisational Commitment for Employees' Health: Between Stress, Satisfactory Payment and Optimism

Jožica Čehovin Zajc, PhD, Assistant Professor\*

University of Ljubljana, Faculty of Social Sciences

Kardeljeva ploščad 5, 1000 Ljubljana, Slovenia

E-mail: Jozica.cehovin-zajc@fdv.uni-lj.si

and

University of Ljubljana, Faculty of Health Sciences

Zdravstvena pot 5, 1000 Ljubljana, Slovenia

E-mail: Jozica.cehovin-zajc@zf.uni-lj.si

Marija Milavec Kapun, PhD, Senior lecturer

University of Ljubljana, Faculty of Health Sciences

Zdravstvena pot 5, 1000 Ljubljana, Slovenia

E-mail: marija.milavec@zf.uni-lj.si

Matic Kavčič, PhD, Assistant Professor

University of Ljubljana, Faculty of Health Sciences

Zdravstvena pot 5, 1000 Ljubljana, Slovenia

E-mail: Matic.kavcic@zf.uni-lj.si

and

University of Ljubljana, Faculty of Social Sciences

Kardeljeva ploščad 5, 1000 Ljubljana, Slovenia

E-mail: Matic.kavcic@fdv.uni-lj.si

### Abstract

**Background and Originality:** This paper aims to examine the role of organisational commitment in employee's health, especially in the context of other work-related psychosocial factors (optimism, empowerment, stressful working conditions, job insecurity, and satisfactory payment). The study statistically examines the conceptual research model, where contrary to many other studies, it does not stop on bivariate correlations, or model with one dependent variable, as found in many other studies, but explore inner correlations among factors, thus provide more detailed insight to the relations among organisational commitment, employee's health and work-related psychosocial factors.

**Method:** An ISSP survey on a representative sample of citizens in Slovenia, the subsample of 589 workers was statistically analysed, using 1) a bivariate Pearson correlation test; 2) a hierarchical multivariate linear regression to compare two models, where to see the role of organisational commitment, health was predicted by work-related psychosocial factors in a model with and in a model without organisational commitment, and 3) structural equation modelling to understand interrelations amongst analysed concepts.

**Results:** The study provide a model of employee's health predicted by personal and work-related psychosocial factors. The results shows all analysed factors contribute to health, but not all directly. Health was found to be directly related to stressful working conditions, optimism, and affective organisational commitment. The latter was found to have a crucial role also in mediating the effects of stressful working conditions, satisfactory payment and optimism on health. With our findings we contribute to the discussion on a constructive and future oriented approach to provide working conditions that would lead to committed and healthier workforce. We suggest that policy makers and human resource managers in organisations create working conditions that are focused on improving health. By doing so, affective organisational commitment should be one of the top priorities.

**Society:** The results have a significant impact on a more detailed review of the factors that contribute to better working conditions for healthier employees. When employees are committed, they not only stay in the organisation, but they are also healthier and consequently perform better, thus benefits could be seen for employers and employees. It is useful for managers to have knowledge of psychological empowerment, job satisfaction, and organizational commitment, as they can utilize these elements to motivate, develop, and manage employees. As working population is the one that represent the main active population in society, it is important to generate working conditions for healthier workforce. Understanding the role of organisational commitment, and other work-related psychosocial factors for health could benefit not only for organisations and employees, but for other society members, that rely on active working population, as well.

**Limitations / further research:** The study was limited by cross-sectional approach and our sample was limited to employees in Slovenia. The study was also limited by the scope of secondary data available; health predictors were selected in accordance with theory and available indicators in the existing survey; limited to main factors: health, organisational commitment and work-related psychosocial factors (optimism, empowerment, stressful working conditions, job insecurity, and satisfactory payment). Future research could focus also on other health related factors (such as genetics, certain lifestyles, the environment, and susceptibility to diseases), include longitudinal approach and compare different geographical contexts.

**Keywords:** organisational commitment, workplace health, satisfactory payment, optimism, stressful working condition, empowerment.

## 1 Introduction

Working conditions are among the most important social determinants of workers' health. The World Health Organisation (WHO) considers the influence of working conditions on workers' health to be a recognised fact (Wilkinson & Marmot, 2003). Historically, the importance of the work environment for health was primarily observed in the context of occupational diseases. Later, psychosocial risk factors in the workplace were associated with coronary heart disease, musculoskeletal disorders, and mental illness (Marmot et al., 2006). However, studies show that employment is still better for health than unemployment (e.g. Johansson, Böckerman, & Lundqvist, 2020). Although the detrimental effects of long-term unemployment on health have been confirmed in the past, changing work patterns-such as increasing demands for effectiveness, flexible work arrangements, precarious work, or multiple jobs-call for further research on the health effects on workers. Some studies suggest

that the nature of work organisation, management style and social relationships in the workplace affect health (see Hall, Garabiles, & Latkin, 2019; Wilkinson & Marmot, 2003). Employers are responsible for workplace health and safety, creating an appropriate work environment, and preventing health hazards in the workplace. Consequently, a better understanding of the relationships between psychosocial factors, workplace conditions, and health could lead to knowledge-based management decisions about working conditions and result in healthier employees.

The aim of this study is to examine conceptual relationships between health and work-related psychosocial factors (organisational commitment, optimism, empowerment, stressful work conditions, job insecurity, and satisfactory payment).

## **2 Theoretical framework**

### **2.1 Organisational Commitment (OC)**

Over the years, Organisational Commitment (OC) has been conceptualised in various ways. Sometimes related constructs such as identification, engagement and loyalty have been used interchangeably with commitment or included in definitions and measurements of commitment (see Klein et al., 2012). However, in this study, OC is defined as an employee's psychological attachment to the organisation and a psychological state of not leaving the current organisation (see Meyer & Allen, 1991; Meyer & Maltin, 2010; Darus et al., 2016; Nesje, 2017).

OC consists of three dimensions: 1) affective commitment (AC) - positive emotional attachment of an employee to the organisation, identification with and commitment to the organisation, employees want to stay in the organisation, 2) continuance commitment (CC) - perceived costs (financial and psychological) associated with leaving the organisation, employees need to stay in the organisation, 3) normative commitment (NC) - employees feel obligated to stay in the organisation because of a sense of loyalty or duty. It often arises from internal pressures caused by norms that develop during family and cultural socialisation processes. AC influences behaviour that benefits the employee and the employer, while CC is associated with concerns about social or economic costs and actual turnover (Nesje, 2017). Despite decades of research, there is still no consensus on the meaning, structure, and measurement of engagement as a unidimensional or multidimensional concept (see Klein et al., 2012). Many scholars use only the general OC (e.g., Jain, 2013, Huyghebaert, 2019) or affective dimension of OC (e.g., Jackson & Rothmann, 2006; Mercurio, 2015; Nesje, 2017) and draw generalised conclusions about OC.

## **2.2 Inconclusiveness about relationships between concepts in the literature**

Current studies have not been consistent regarding the relationships between health and OC. Some researchers argue that OC protects individuals from negative consequences at work and that all three dimensions of OC (affective, normative, and continuance) are positively correlated with health (e.g., Yi et al., 2022). Other researchers suggest that each dimension of OC has different effects on workplace behaviour. Positive correlations with health have been found primarily with AC, and negative correlations with NC and CC (see Meyer and Maltin, 2010). AC tends to be positively related to health and negatively related to strain or stress (see Meyer & Maltin, 2010; Jain et al., 2013; Darus et al., 2016).

Two theoretical perspectives on OC, stress, and health have been developed. The first perspective suggests that highly committed employees may be more susceptible to stress and perceive more stress than less committed employees because they put more of themselves into work (Viljoen & Rothman, 2009). The second perspective argues that OC (especially AC) buffers the negative effects of work stressors on employee health and has received relatively unambiguous support. The buffering effect is explained by the fact that emotional attachment to the organisation provides workers with a sense of stability and belonging, making them better equipped to deal with stressors, less vulnerable to the negative effects of high stress, and more resilient to stress (e.g., Schmidt and Diestel, 2012; Jain et al., 2013; Nesje, 2017).

Despite the buffering effect of OC in the relationship between stressors and health, some other correlations with significant health predictors have been found. For example, Darus, Azizan, and Ahmad (2016), whose study results suggest that OC is negatively associated with work stress, also show that pay satisfaction, psychological empowerment, and OC have significant positive relationships with each other. They also show that empowerment mediates the relationship between OC and pay satisfaction (ibid.). In addition, lack of control and resources have been found to contribute to low OC and low OC to poor health (see Viljoen & Rothmann, 2009). OC has also been found to moderate the effects of job insecurity on health (see Jackson & Rothmann, 2006). A recent study by Huyghebaert et al. (2019) found that AC partially mediates the relationship between perceived career opportunities, which can be viewed as job security, and health. Optimism is also an important predictor of health in the literature (Rasmussen et al., 2009; Mens, Scheier, & Carver, 2020). The following section describes the theoretical conceptual relationships between health and work-related psychosocial factors (including optimism, empowerment, stressful working conditions, job insecurity, and satisfactory pay, in addition to organisational commitment).

## **2.3 Personal and work-related psychosocial factors.**

There is ample evidence in the literature of a negative correlation between stressful work conditions and mental or physical health (e.g., de Cieri, Shea, Cooper, & Oldenburg, 2019; O'Connor, Thayer, & Vedhara, 2020). Long-term stress is known to transform into physical symptoms of diseases or illnesses over time and directly affecting the cardiovascular and immune systems. However, there are also indirect effects of stress in the form of heart diseases, diabetes, cancer, stroke, and depression (Kivimäki et al., 2018; Seiler, Fagundes, & Christian, 2020).

There is also a broad literature suggesting that job insecurity, defined as perceived powerlessness to maintain desired continuity in a threatened job situation (e.g., downsizing, reduction in the size of the workforce), negatively impacts health (de Jong et al., 2016; Richter & Näswall, 2019; Bhattacharya and Ray, 2021). Studies report several negative effects of job insecurity on physical and mental health, such as increased psychological problems, i.e., anxiety and depression, poor sleep, increased prevalence of illnesses, such as heart diseases, and is risk factors for the development of different chronic diseases. Job insecurity has been shown to impact health when workers begin to expect unemployment. The effects of job insecurity increase over time, so do the prevalence of illnesses, presenteeism, absenteeism, and the increased need for healthcare services (Kim et al, 2020; Dobson et al., 2020). The most vulnerable to the negative effects of job insecurity are older, less-skilled workers with fixed-term contracts, who are in risky financial situations, and who have a history of unemployment (Malnar & Kurdija, 2012).

Although it is well known that some work-related factors are detrimental to health, people differ in their ability to remain healthy despite adverse conditions. Antonovsky's salutogenic model (Antonovsky, 1996; Mittelmark et al., 2017) shows that the way people view the world influences their ability to cope with tension and stress: "The strength of one's sense of coherence is shaped by three kinds of life experiences: consistency, underload-overload balance and participation in socially valued decision-making" (Antonovsky, 1996). Not all socially disadvantaged workers suffer from poor health. Salutogenesis provides a theoretical basis for holistic research that also considers factors that positively influence health. This element emphasises the importance of factors such as resilience, which is the ability to recover or successfully overcome significant adversity (Rutter, 1985), and other salutogenetic influences, including optimism, internal locus of control, empowerment, and more (Antonovsky, 1996).

Optimism is the tendency to believe that one will experience good rather than bad outcomes in the future (dispositional optimism). Optimism has been found to be directly positively correlated with health (see the meta-analysis of 84 studies by Rasmussen et al., 2009; Scheier, 2021) and to improve immune function and health habits through active problem-solving modes (Nelson & Simmons, 2003). Optimism has been found to have valuable effects and to moderate the relationship between work-related stressors, including poor organisational climate, mental distress, and health (Mäkikangas & Kinnunen, 2003; Ajdin, 2022). Although

many studies (see Simons & Buitendach, 2013) have shown the importance of optimism in relation to OC, others (e.g., Youssef & Luthans, 2007) have not confirmed the correlation between optimism and OC.

In the past studies have shown that lack of control over work, i.e., lack of empowerment at work, has a negative impact on health (e.g., Wilkinson & Marmot, 2003; Hochwaelder & Brucefors, 2005), as workers' health is related to their ability to foresee, control, and especially cope with difficult events (Green, 2006). Independent of other psychological factors, lack of control over one's work is decisively related to increased risk of low back pain, cardiovascular disease, illness, and absenteeism (Wilkinson & Marmot, 2003). Empowerment, measured as perceived autonomy support, has been shown to increase OC and improve employee mental health (Holliman, Revill-Keen & Waldeck, 2022). Empowerment, understood as the ability of individuals to make decisions or exercise control at work (Schulz et al. 1995), has been shown to help employees cope with stressful work conditions and increase OC (see Spreitzer & Mishra, 2002, Charman & Benett, 2021).

Marmot, Siegrist, & Theorell (2006) reviewed studies on psychosocial factors in the workplace and confirmed their influence on physical and mental illness. Karasek's conceptual model of job demand-control (Karasek & Theorell, 1990) and Siegrist's model of effort-reward imbalance (Siegrist, 2008) have shown that work characterised by high demands and strain, combined with a lack of control/empowerment, reduces feelings of self-efficacy and mastery, which are salutogenic, and thus increases stress, which has a long-term negative impact on workers' health. Similarly, a lack of reciprocity between work tasks and benefits triggers negative emotions that increase health risks, especially for coronary heart disease. An essential element of work is the agreement on the amount of compensation for work. Salary (not only an objective amount of money but, more importantly, the subjective perception of a sufficient quantity of monetary exchange for work) is considered an essential element of employee contribution and employer reward. Therefore, satisfactory pay is a necessary monetary compensation for the effort invested in work tasks. It reduces the potential for negative emotions, which can lead to sustained activation of the autonomic nervous system and neuroendocrine system (Marmot et al., 2006). When satisfaction with pay increases (e.g., pay structure, pay plan efficiency), OC increases (Malik et al., 2010 in Darus et al., 2016). The importance of satisfaction with pay was also evident in a recent study of nurses' intentions to care patients with Covid-19. Monetary compensation was found to increase their job satisfaction and improve their OC in a high-risk and stressful work environment during the Covid-19 pandemic. In addition, OC was found to fully mediate the association between workload and additional intention to care for patients with Covid-19 (Sharif-Nia et al., 2021).

Based on the theoretical background presented above, our research rationale is to further explore the role of three dimensions of OC (affective, normative, and continuance) in health and expanding the scope of other potentially important factors to include other workplace-



related psychosocial factors: optimism, empowerment, stressful working conditions, job insecurity, and satisfactory payment. Therefore, rather than presenting the current situation, we focus on empirically examining the conceptual relationships. Following the studies mentioned above, and in particular the work of Darus, Azizan, & Ahmad (2016) and Jain, Giga, & Cooper (2013), in which OC plays a mediating role between health and psychosocial and work-related factors, we will test a structural model in which we assume the following: *Stressful working conditions, job insecurity, satisfactory payment, empowerment, and optimism are correlated: 1) with each other, 2) with OC as a mediator, and 3) all of the above factors are directly correlated with health* (see Figure 1).

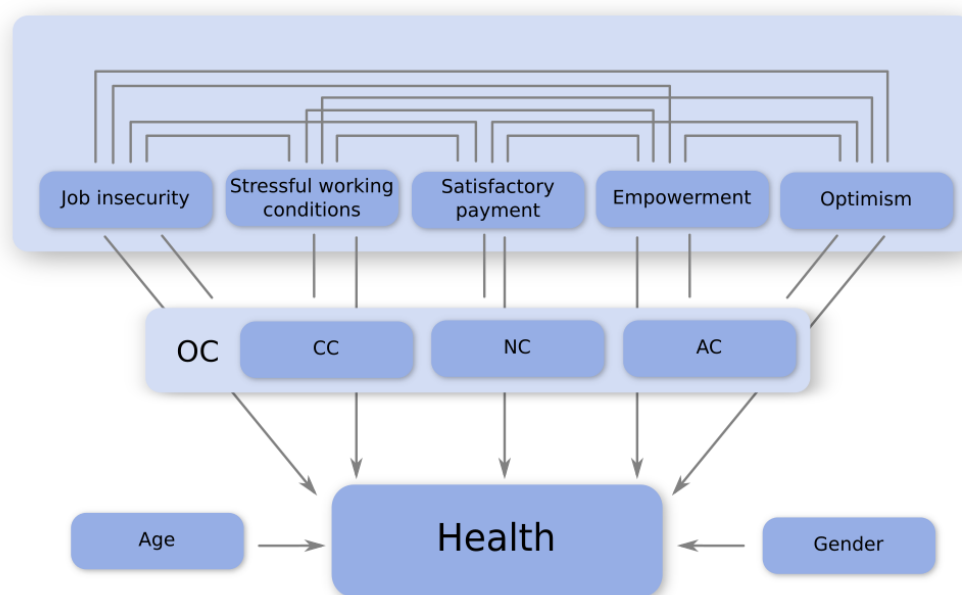


Figure 1. Theoretical model for predicting health with personal and work-related psychosocial factors

### 3 Method

To empirically examine the theoretical assumptions and conceptual framework outlined above, this study analyses secondary microdata from the International Social Survey Programme (ISSP): Health and Health Care 2011, which was part of an extended survey on work and family in Slovenia (Slovenian Public Opinion SJM 2011/1). While this is not the most recent study, it is still the most recent survey that includes measurements of mentioned concepts/variables. And since our goal is not to describe the current situation, but to examine conceptual relationships, we do not consider these data to be outdated. Data were collected between March and June 2011 from a representative random sample of adult residents of Slovenia ( $N = 1,082$ ). However, to explore employees' health in this study the subsample of 589 individuals with current work experience was analysed. Of them, the majority (77.4 %) were employed full-time, 5.8 % were self-employed, 8.7 % were working students, and the rest (8.1%) were occasional workers. On average, they were 40.34 ( $SD=11,99$ ) years old, while their ages ranged from 19 to 78 (the high upper age is explained by the inclusion of

retirees who work occasionally). Of the respondents analysed, 53.5 % ( $n = 315$ ) were male and 46.5 % were female ( $n = 274$ ).

*Health* was measured by four reliable (Cronbach  $\alpha = 0.75$ ) indicators (on a Likert scale, later recoded to 1 for worst health and 5 for best health). Respondents were asked how often (in the past four weeks) they: a) experienced difficulties with work or household activities because of health problems, b) experienced physical pain, and c) felt they could not overcome their problems. They were also asked how they would rate their self-perceived health in general. According to a screeplot, all four indicators constitute one factor explaining 53.42 % of the variance (eigenvalue  $> 1$ ). For further analysis, a new factor, health, was formed using exploratory Principal Axis Factoring (PAF), the Anderson-Rubin factor scores method and oblimin rotation. *OC* was measured with nine indicators on a five-point Likert scale of agreement (1 means totally disagree, 5 means totally agree) with statements based on the theoretical assumptions of Meyer and Allen (1991). Confirmatory PAF analysis was used to form three main factors. The reliability of the indicators in each factor is acceptable (Cronbach  $\alpha$  is 0.672 for CC, 0.646 for AC and 0.643 for NC). Together, the three factors (CC, AC, and NC) explained 61.997 % of the variance (eigenvalue  $> 1$ ).

The first factor, *continuance commitment (CC)*, consists of a) too few opportunities to leave the current organisation, b) working in the current organisation out of necessity, and c) thinking that it would be too stressful to leave the job. A common feature of this factor is staying in the organisation due to internal or external pressures that would make leaving the current organisation too costly, either practically or psychologically. The second factor consists of indicators that measure *affective commitment (AC)*: a) the desire to finish one's career in the same organisation, b) the pleasure of coming to work, and c) recommending this organisation to one's children. The common feature of this factor is certain positive feelings and preferences about working in the organisation, which reflect employees' desire and satisfaction with their work. The third factor, *normative commitment (NC)*, consists of a) remaining in the organisation because of a moral obligation, b) considering other employment unethical, or c) having a guilty conscience about leaving the organisation. A common feature of this factor is remaining in the organisation due to a specific moral obligation.

*Stressful working conditions* were measured by four reliable (Cronbach  $\alpha = 0.668$ ) indicators related to workload and working conditions on a 5-point Likert scale (1 means totally disagree, 5 means totally agree): a) time pressure at work, b) a stressful job, c) working under hazardous or unhealthy working conditions, and d) overwork. From the scree plot, these indicators constitute one main component explaining 50.62 % of the variance (eigenvalue  $> 1$ ).

For further analysis, a new factor, stressful working conditions, was created using exploratory PAF, the Anderson-Rubin factor scores method and oblimin rotation. *Job insecurity* (concern about job loss) and satisfactory payment (perceived satisfaction with payment to meet own

and family needs) were each measured with one indicator on a 5-point Likert scale (1 means totally disagree, 5 means totally agree). *Optimism* was measured using an 11-point self-assessment scale (0 – pessimist to 10 – optimist). *Empowerment* was measured by the rate at which one can make decisions about one's life on a scale (0 – never to 10 – always). The condition of normal distribution of all mentioned variables was fulfilled (Shapiro-Wilk  $p > 0.05$ ; Kurtosis and Skewness  $\leq |\pm 1|$ ). The sociodemographic variables gender (as dummy variable) and age were used as control variables.

Our first objective is to examine whether stressful working conditions, job insecurity, satisfactory payment, empowerment, optimism, and OC (affective, normative, and continuance) are independently correlated with each other and health. To test for correlations between individual pairs of different factors and worker health, we will use a bivariate Pearson correlation test. Since we assume that OC plays an important role, we will next compare two hierarchical regression models in which health is predicted by personal and workplace-related psychosocial factors, first without and then with the three dimensions of OC.

A weakness of hierarchical multivariate linear regression models is that they only measure direct correlations between observed variables. To understand direct and indirect correlations and the reciprocal effects of the analysed variables on health (as assumed in the theoretical model), we used structural equation modelling (SEM) in the final step of the analysis. SEM (also known as analysis of covariance structures or causal modelling) allows for the combination of path modelling and confirmatory factor analysis and is particularly useful in models that observe relationships between multiple variables simultaneously (Kline, 2016). The software used to analyse our data was IBM SPSS 21, while our SEM model was analysed using Amos extension.

## 4 Results

### 4.1 Bivariate correlations with health

The following subsection presents a bivariate analysis between health, OC (affective, normative, and continuance), and other psychosocial and work-related factors (stressful working conditions, job insecurity, optimism, satisfactory payment and empowerment). Then, the comparison of two hierarchical regression models is presented, where health is predicted by the previously mentioned factors with and without OC. Finally, the model SEM is presented with included correlations between the analysed factors, showing indirect correlations with health.

The Pearson correlation test shows health is significantly positively correlated with optimism, empowerment, satisfactory payment and AC, and negatively correlated with job insecurity,

stressfull working conditions, CC and NC. Namely, health is significantly ( $p < 0,05$ ) better among employees who are more optimistic ( $r = 0.205$ ), have more opportunities to make decisions about their lives (empowerment) ( $r = 0.150$ ), have a high enough salary to meet their needs and those of their family ( $r = 0.189$ ), have lower job insecurity ( $r = -0.180$ ), and have less stressful working conditions ( $r = -0.256$ ). As for OC, individuals with higher AC ( $r = 0.202$ ,  $p \leq 0.001$ ) and lower CC ( $r = -0.167$ ,  $p \leq 0.001$ ) and NC ( $r = -0.086$ ,  $p \leq 0.05$ ) have better health.

Table 1. Descriptive statistics, Pearson correlation test and hierarchical multivariate linear regression test for predicting health with personal and workplace related psychosocial factors.

	Descriptive Statistics			Pearson correlation test										Multivariate hierarchical regression model					
	Mean	SD	N	Health	Gender	Age	Stress	Op.	SP	JI	Em	AC	CC	Model 0		Model 1		Model 2	
														$\beta$	p	$\beta$	p	$\beta$	p
Health	0	0.92	585	1										Const.	0.000		0.923		0.461
Gender			589	-.134**	1									-0.134**	0.003	-0.136**	0.002	-0.145***	0.001
Age	39.90	11.34	589	-.120**	.006	1								-0.119**	0.009	-0.096*	0.028	-0.101*	0.026
Stress	0.00	0.85	579	-.232***	-.028	.075	1									-0.190***	0.000	-0.142**	0.002
Op	7.34	2.14	585	.200**	.039	-.033	-.084	1								0.132**	0.007	0.118**	0.017
SP	3.23	1.01	581	.191**	-.042	-.036	-.142**	.265***	1							0.104*	0.022	0.051	0.284
JI	2.65	1.11	578	-.135**	.046	-.039	.135**	-.201***	-.146***	1						-0.061	0.174	-0.056	0.218
Em	7.67	1.81	580	.159***	-.040	-.104*	-.139**	.424***	.194***	-.127**	1					0.033	0.499	0.020	0.684
AC	0.00	1.00	499	.199***	.077	.133**	-.187***	.209***	.335***	-.007	.153**	1						0.15**	0.002
CC	0.00	1.00	499	-.188***	.035	.219**	.294**	-.148***	-.223***	.258**	-.137**	-.009	1					-0.072	0.135
NC	0.00	1.00	499	.094*	-.018	-.114*	-.174***	-.049	.002	-.064	.058	.013	.010					0.055	0.208
R <sup>2</sup> <sub>adj</sub>															0.028		0.121		0.139
F (df)														7.881 (2)		10.305 (7)		8.662 (10)	
p														0.000		0.000		0.000	

Legend: N – numerus; SD – standard deviation,  $\beta$  - standardized coefficients beta, R<sup>2</sup><sub>adj</sub> - corrected goodness-of-fit; F- F statistic, (df) –degrees of freedom; p – significance value, Variables: Stress – stressful working conditions; Op – optimism; SP – satisfactory payment; JI – job insecurity, Em – empowerment, AC – Affective commitment, CC – continuance commitment, NC – normative commitment.

\*\*\* p≤0.001, \*\* p≤0.01, \* p≤0.05; Listwise N=476

#### **4.2 Hierarchical multivariate linear model for health.**

According to previous bivariate analysis, all of the above personal and work-related psychosocial factors are significantly correlated with health. However, Pearson correlation test only measures correlations among two variables, while it neglects the effect of other variables. That is why also multivariate analysis were conducted to observe the influence of more independent variables on health at the same time. In the initial hierarchical linear regression model 0, with only age and gender (as dummy variable, where 0 means women, 1 means men) included as sociodemographic controls, the results show, unsurprisingly, that women and older workers are less healthy. In the next step, personal and work-related psychosocial factors (stressful working conditions, job insecurity, satisfactory payment, empowerment, and optimism) were added, and in the third step, three dimensions of OC (AC, NC, CC) were added. A comparison of regression model 1 (without OC) and model 2 (with OC) shows interesting differences.

Our first model (without OC) explains 12.1 % of the variance, suggesting that workers have better health when they work under less stressful conditions, are more optimistic, and perceive their payment as satisfactory. On the other hand, job insecurity and empowerment were not directly correlated with health in this model. However, the final regression model (including OC) explained 13.9 % of the health variances and showed that only AC, stressful working conditions, and optimism were directly correlated with health, while satisfactory payment, which played a significant role in the previous model, empowerment, and job insecurity were not directly correlated with health. In particular, the results of our study highlight the importance of the affective dimension of OC on an employee's health, while NC and CC are not directly correlated with health.

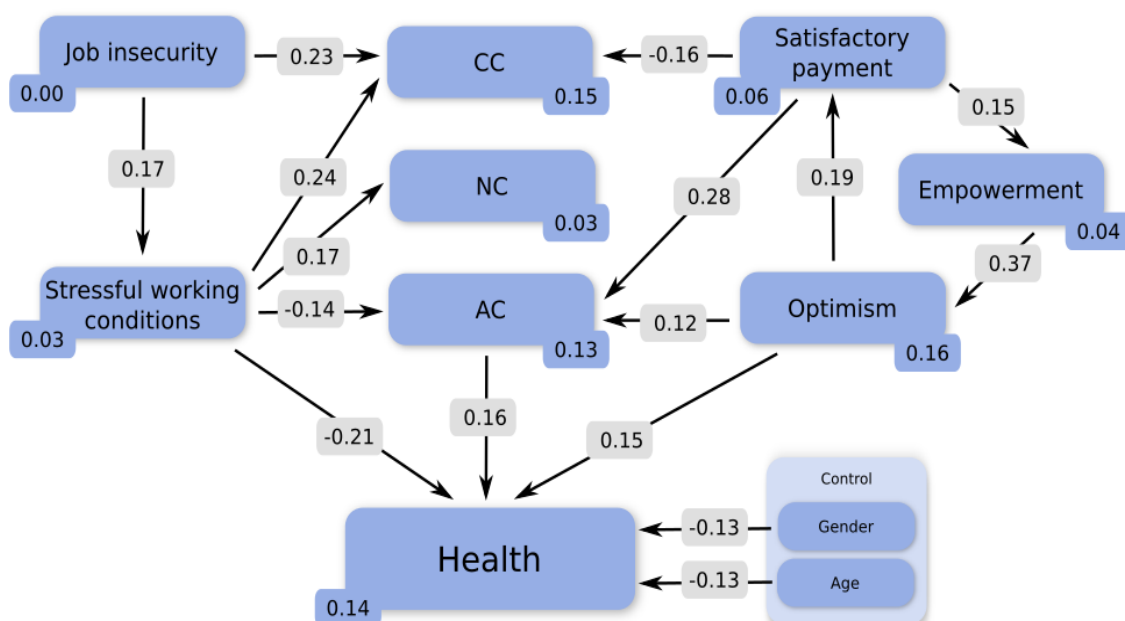
In sum up, when comparing two models in which health was predicted by the analysed factors without and with the three dimensions of OC, empowerment and job insecurity were found to correlate directly with health, while satisfactory payment correlated with health only in a model without OC, whereas satisfactory payment did not correlate with health in the overall model in which health was predicted by all the factors analysed.

Our extended hierarchical regression model suggests that stressful working conditions significantly worsen health, while optimism and AC improve health. Only one dimension of OC (affective) was confirmed to have a significant (positive) correlation with health. No correlation with health was found for the other two dimensions of commitment (NC and CC). By comparing the two models - one without OC and the other with OC – we can conclude that AC is a significant predictor of employee health that also modifies the effect of satisfactory payment.

Since we can only observe direct correlations with one variable (in our case, health) using multivariate linear regression models, and theory also suggests correlations between observed personal and work-related factors and the mediating role of OC, the SEM analysis was conducted to obtain a more comprehensive picture of the correlations between all observed factors.

### 4.3 Structural equation model

Based on the theoretical background and the results of hierarchical regression analysis, we first modelled a saturated model in which stressful working conditions, job insecurity, satisfactory payment, empowerment, and optimism are correlated: 1) with each other, 2) with three dimensions of OC as mediators between health, and 3) all analysed work-related psychosocial factors (including OC) were directly correlated with health. In the second step, we removed relationship paths between variables that had statistically insignificant effects (e.g., between health and directly unrelated factors: Job insecurity, satisfactory payment, empowerment, NC, CC). To improve the fit of the model, we also excluded variables and paths whose regression weights were below the absolute value of 0.10. We believe the final model (see Figure 3.2) provides a better explanation of which factors have a greater impact on health in the psychosocial work environment. Blue numbers in SEM model are R<sup>2</sup> values, standardized path coefficients that shows the strenght and direction of correlations while gray ones are variance explained with correlated factors. Only paths with significant correlations are included in the model below.



$$\chi^2(39) = 139.76, p < 0.001; NFI = 0.756, IFI = 0.812, CFI = 0.802, RMSEA = 0.066, AIC = 215.760$$

Figure 2. SEM model: Predicting health with personal and work-related psychosocial factors

In the presented SEM model (Figure 2), we used the following terminology: Chi-square value is used to compare if the observed variables and expected results are statistically significant; it indicates if the sample data and hypothetical model are an acceptable fit in the analysis. NFI = Normed Fit Index consists of values scaling between 0 (terribly fitting) independence model and 1 (perfectly fitting) saturated model. IFI = Incremental Fit Index where values close to 1 indicates a very good fit while 1 indicates a perfect fit. CFI = Comparative Fit Index has value truncated between 0 and 1 where values closed to 1 show a very good fit while 1 represents the perfect fit. RMSEA = Root Mean Square Error of Approximation and measures the difference between the observed covariance matrix per degree of freedom and the predicted covariance matrix; alues higher than 0.1 are considered poor, values between 0.08 and 0.1 are considered borderline, values ranging from 0.05 to 0.08 are considered acceptable, and values  $\leq 0.05$  are considered excellent. AIC = Akaike Information Criterion is used to measure the quality of the statistical model for the data sample used. The AIC is a score represented by a single number and used to determine model is the best fit for the data set. AIC score is useful only when compared with other AIC scores of the same data set. The lower the AIC value the better.

As it turned out, NC and CC do not have a statistically significant effect on health (see no paths in SEM model, Figure 3.2), while AC carries most of the load among OC dimensions. However, several variables correlated with NC and CC have an independent effect, directly on health (e.g., stressful working conditions:  $R^2 = -0.207$ ,  $p < 0.001$ ) or have an effect through a mediator variable, such as AC (e.g., satisfactory payment:  $R^2 = 0.279$ ,  $p < 0.001$ ). The predictor variables explaining most of the model variance were optimism (16 %) and AC (13.0 %). The final model had an acceptable, albeit weak, fit: ( $\chi^2$  (39) = 139.76,  $p < 0.001$ ; NFI = 0.756, CFI = 0.802, RMSEA = 0.066).

The constructs in the structural model explained 14 % of the variance in health. Stressful working conditions are among the most important health predictors of the constructs analysed and are significantly and directly correlated with health and all three dimensions of OC. Workers who work under stressful conditions are more likely to have deteriorating health and are less affectively committed. More affectively committed workers are healthier. The structural model shows the buffering effect of AC between stress and health. Job insecurity was found to be indirectly negatively correlated with health through the mediator stressful working conditions. Greater job insecurity and stressful working conditions also contribute to more instrumental reasons for staying with the organisation (i.e., CC). Satisfactory payment is inversely (negatively) correlated with CC. Job insecurity, stressful working conditions, and satisfactory pay explain 15 % of the variance in CC. Those who find their payment satisfactory are less likely to stay with the organisation because there are no other employment opportunities (CC), but rather because they want to (AC).

AC is a full mediator between satisfactory payment and health. Satisfactory payment is also correlated with empowerment and optimism. Empowerment explains 16 % of the variance in



optimism and has a medium strong significant positive correlation with optimism. Optimism is positively correlated (similarly to stressful working conditions, but with the opposite result) with health directly and indirectly (via AC). In both cases, AC has a partial mediating effect.

Stressful working conditions, satisfactory payment and optimism explain 13 % of the variance in AC. Job insecurity and empowerment are indirectly related to AC (via stressful working conditions and optimism, respectively). Although only stressful working conditions, AC and optimism show a direct correlation with health, none of the constructs included in the model should be neglected, as all the factors analysed are interrelated. The structural model shows a significant indirect correlation with health via the main mediator AC.

## 5 Discussion and conclusion

Good health is important for quality in all aspects of life, and since workers spend most of their waking time at work, it is critical to understand the impact of work-related psychosocial factors on health. Because previous studies have only partially examined health-related factors, the value of our study is to explore inter-relational paths in a more comprehensive model in which we find the underlying mediating effect of the affective dimension of OC on health. Previous literature has not clearly established the relationship between health and OC and its dimensions (see the first section of the article). In order to compare the results of our study with the results of other studies, we need to consider different measurement instruments, samples, as well as different statistical methods. While all analysed work-related psychosocial factors in our study have a significant impact on health when considered individually in bivariate analyses, a somewhat different picture emerges when we compare their direct effects in a multivariate regression model or a structural equation model. Multivariate analyses in our study show that only stressful working conditions, optimism, and the affective dimension of OC are directly correlated with self-assessed health.

Comparing the direct correlations in two models of health prediction (without and with OC) led us to an interesting result: satisfactory payment was directly correlated with health in a model in which OC was excluded, while satisfactory payment lost influence on health when OC was added to the model. Thus, one might conclude that our analysis shows that AC reduces the effect of satisfactory payment on health, which is contrary to previous studies (Marmot et al., 2006) and also to our further statistical examination. Our model SEM confirms direct correlations between stressful working conditions, optimism, and AC with health, as shown by the multivariate regression model. These findings are not new, as stressful working conditions were identified several decades ago as an important factor in deteriorating health (Karasek & Theorell, 1990; Wilkinson & Marmot, 2003; Marmot et al., 2006), while optimism has been shown to improve health (Rasmussen et al., 2009). With respect to OC, only one dimension, AC, was found to be important for health in our study. Thus, our study supports the findings of Meyer & Maltin (2010), who assume that each

dimension of OC has different effects on health, and emphasise the positive relationship between the AC dimension and health (see also Jain et al., 2013; Darus et al., 2016). This result is also consistent with the study of Mercurio (2015), who considers AC as a core component of OC. Thus, the results of our study suggest that AC should not be overlooked in the study of workers' health, as the AC dimension of OC has been shown to be a crucial direct predictor and mediator of health.

Our further statistical investigation using our SEM model, which can be understood as an approach to gain new insights on workplace health, led us to another interesting finding. Namely, the most important finding of our study is that AC mediates (intensify) the effect of optimism and satisfactory payment on health and mediates (buffers strongly, in accordance with numerous previous studies) the effect of stressful working conditions. Our model SEM extends the findings from the previous literature by demonstrating a more complex, interrelated conceptual nexus in which satisfactory payment was found, on the one hand, to indirectly significantly intensify better health by being positively correlated with AC, empowerment, and optimism. As mentioned earlier, AC and optimism were found to be directly correlated with health, and SEM showed a correlation between them. AC fully mediated (intensify) the effects of satisfactory payment and optimism on health, which could be considered a new finding in research on the role of OC on health. Since satisfactory payment is not directly correlated with health, it appears to play an important role in AC, which in turn is positively correlated with health. Consistent with the meta-analysis of 84 studies on the relationship between optimism and health by Rasmussen et al. (2009), our study confirms a positive correlation between optimism and health. Moreover, our study extends previous research on optimism to include the full mediation effect between empowerment and health. Following Karasek's model of job demand-control in previous research (Marmot et al., 2006), which found that low control at work negatively affects health, the results of our study suggest that empowerment (control over one's own life) is positively correlated with health only indirectly through optimism as a mediator. In addition, our study finds that general optimism increases satisfactory payment, which also has a significant positive correlation with empowerment and a negative correlation with CC. Thus, a general sense of empowerment is predicted to some degree by satisfactory amount of payment – those who earn the amount of money necessary to meet their needs logically feel more autonomous, self-determined, empowered, and in control of their lives. This in turn contributes to their optimism, which correlates positively with health. Our study also confirms a negative correlation between satisfactory payment and CC, which makes sense because it suggests that those who feel their payment is satisfactory are more likely to stay with the company because they want to (higher level of AC) than to change jobs for lack of financial or other resources (low level of CC).

On the other hand, most studies (Wilkinson & Marmot, 2003; Malnar & Kurdija, 2012; Bhattacharya & Ray, 2021) show that job insecurity has a direct and strong negative impact on health, while the present study only partially confirms these findings. In our model SEM,

we were unable to demonstrate a direct relationship because job insecurity indirectly affects health by exacerbating stressful working conditions (a full mediator), which in turn leads to worsening health. Although permanent jobs are less common than in the past, it appears that the perception that one's job is threatened also exacerbates the experience of working conditions as stressful, which in turn has a negative impact on health. Consistent with numerous studies (e.g., Jackson & Rothmann, 2006; Viljoen & Rothman, 2009; Schmidt & Diestel 2012; Darus et al., 2016; Nesje, 2017), AC was found to buffer the negative effects of stressful working conditions on health. Begeley & Czajka (1993) argue that (only) the AC dimension of OC can buffer the negative effects of work stressors on employee health. We could conclude by confirming that AC exhibits salutogenic effects, as employees' positive emotional responses have been shown to help reduce the negative effects of stressors on health (Jain et al., 2013).

This means that job security and monetary compensation for work will not directly improve workers' health. Indirectly, however, satisfactory payment could contribute to a more empowered, optimistic, and affectively committed workforce, which in turn leads to better workers' health. Thus, adequate satisfactory payment and job stability not only imply a stable work-money or effort-reward compensation among employees and employers, but also lead to a healthier workforce. According to Henseke (2018) job insecurity might even pose greater health risks if it affects potentially fatal acute conditions, therefore better working environment can have positive effect on mental health and musculoskeletal disorders – two key work-related health dimensions. He concludes that the health gradient by job quality and pay are quantitatively moderate at the individual level, but can add up to a substantial number of avoidable conditions at the population level. Assuming that healthier employees are less likely to be absent from work, less likely to engage in health presenteeism (work despite illness), and could do more and better work, stable monetary investments in employees could lead to quantity and quality of work performed.

Much research shows that low organisational commitment also contributes to turnover intentions and withdrawal cognitions (see Tett & Meyer, 1993; Guzeller & Celiker, 2019; Haque, Fernando, & Caputi, 2019; Suárez-Albanchez, Blazquez-Resino, Gutierrez-Broncano, & Jimenez-Estevez, 2021; Safei, Kustiawan & Lestari, 2022). Thus, when employees are committed, they not only stay with the organisation, but they are also healthier and consequently perform better. Moreover, other studies show that a lack of OC has a negative impact on "the organisation's performance and efficiency, thereby discouraging its development" (Al Zeer, Alkhatib, & Alshrouf. 2019, p. 136), while committed employees are more motivated and dedicated to achieving organisational goals (Bashir & Gani, 2020). Since a high-commitment working environment is fostered by appropriate leadership (Haque, Fernando, & Caputi, 2019; 2020), managers and human resources practitioners could enhance practices for improving commitment among employees.

Given the limitations, our study was limited by the scope of available data. Therefore, health predictors were selected in accordance with theory and available indicators in the existing survey. One possible limitation could be the self-reported data. Few concepts were also measured with only one indicator. The concepts used in our study are not empirically defined as causes or consequences. The path directions in our model are set according to the theoretical assumptions because the data collected are from a cross-sectional study. This allows us to analyse only a temporary effect, while health is the result of a long-term effect of previous life circumstances. Therefore, for further research, we propose measures specifically designed for this objective and the use of a longitudinal approach to study the effects of work-related (or other) factors on health. Furthermore, poor health is not necessarily a direct result of the personal and workplace factors considered in this study, but also of a complex system of other factors, such as genetics, certain lifestyles, the environment, and susceptibility to diseases. Nevertheless, the results of this study confirm that the psychosocial work environment is an important determinant of health and contributes to the social gradient in health (Wilkinson & Marmot, 2003). It is useful for managers to have knowledge of psychological empowerment, job satisfaction, and organizational commitment, as they can utilize these elements to motivate, develop, and manage employees (Jordan et al., 2017).

Studies show that healthier workers are less likely to perform absenteeism, thus by providing a healthier work environment, benefits could be seen for employers and employees. Recently, the Covid-19 pandemic has further demonstrated the importance of health to all aspects of individual lives and the functioning of economies and societies. The United Nations (n.d.) has recognised that ensuring healthy lives and promoting well-being at all ages is essential for sustainable development and is an important goal to achieve. From a health perspective, according to our study, it is important that employees like working in the organisation (high AC), feel optimistic, and do not perceive their working conditions as stressful, which has been shown to have a direct negative impact on health. Job security, satisfactory payment and empowerment contribute indirectly to health and should also be considered in management practises. We suggest that policy makers and human resource managers create working conditions that are focused on improving health and, in particular, strive to create conditions in which employees feel an optimism, a sense of belonging, have an attachment to the organisation, and like their work. As pointed out Akkaya (2020), managers and leaders must create an environment that encourages employees to go beyond their formal duties in order to achieve this goal. Therefore, the results of this study are relevant to the promotion of (psychosocial) health and wellbeing in the workplace.

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**Jožica Čehovin Zajc** holds a PhD in Sociology, Human Resource Management and the Employment Relationship from the University of Ljubljana, Faculty of Social Sciences. She is a research associate and assistant professor at the Faculty of Social Sciences and the Faculty of Health Sciences, both under the umbrella of the University of Ljubljana, Slovenia. Her recent research interests cover a broad spectrum of the sociology of work and health.

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**Marija Milavec Kapun**, PhD, is a senior lecturer at the Department of Nursing at the Faculty of Health Sciences, University of Ljubljana. She teaches in the field of nursing and health care at the primary level. She researches health care treatment of vulnerable populations and accessibility of health care services.

At the same time, she focuses on integration and an interdisciplinary approach to and person-centred health care.

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**Matic Kavčič** holds a PhD in Sociology from the University of Ljubljana, Faculty of Social Sciences. He works as an assistant professor at the Faculty of Health Sciences and the Faculty of Social Sciences, both under umbrella of the University of Ljubljana, Slovenia. His research topics are in the field of sociology of health and illness, quality of life, care and e-care for older people, interprofessional collaboration and user involvement.

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## **Povzetek:**

### **Mediatorska vloga čustvene organizacijske pripadnosti za zdravje zaposlenih: med stresom, zadovoljivim plačilom in optimizmom**

**Ozadje in izvirnost:** Namen tega prispevka je preučiti vlogo organizacijske pripadnosti pri zdravju zaposlenih, zlasti v kontekstu drugih psihosocialnih dejavnikov povezanih z delom (optimizem, opolnomočenje, stresni delovni pogoji, negotovost zaposlitve in zadovoljivo plačilo). Študija statistično preučuje konceptualni raziskovalni model, kjer se v nasprotju s številnimi drugimi študijami ne ustavi na bivariatnih korelacijah ali modelu z eno odvisno spremenljivko, temveč proučuje medsebojne korelacije med dejavniki in tako zagotavlja podrobnejši vpogled na razmerja med organizacijsko pripadnostjo, zdravjem zaposlenih in z delom povezanimi psihosocialnimi dejavniki.

**Metoda:** Anketa ISSP na reprezentativnem vzorcu prebivalcev v Sloveniji, pod vzorec 589 delavcev je bil statistično analiziran z 1) bivariatnim Pearsonovim korelacijskim testom; 2) hierarhično multivariatno linearno regresijo za primerjavo dveh modelov, v katerih je bilo zdravje napovedovano s psihosocialnimi dejavniki, in pri tem v enem modelu modelu z in v drugem modelu brez organizacijske pripadnosti, in 3) strukturnim modeliranjem, ki omogoča razumevanje medsebojnih odnosov med vsemi analiziranimi koncepti.

**Rezultati:** Študija prikaže model zdravja zaposlenega, ki ga napovedujejo osebni in z delom povezani psihosocialni dejavniki. Rezultati kažejo, da vsi analizirani dejavniki prispevajo k zdravju, vendar ne vsi neposredno. Ugotovljamo, da je zdravje neposredno povezano s stresnimi delovnimi pogoji, optimizmom in čustveno organizacijsko pripadnostjo. Za slednjo ugotavljamo, da ima ključno vlogo tudi pri mediranju učinkov stresnih delovnih razmer, zadovoljivega plačila in optimizma na zdravje. Z našimi ugotovitvami prispevamo k razpravi o konstruktivnem in v prihodnost usmerjenem pristopu k zagotavljanju delovnih pogojev, ki bi vodili do pripadne in bolj zdrave delovne sile. Predlagamo, da snovalci politik in kadrovske menedžerji v organizacijah ustvarijo delovne pogoje, ki so osredotočeni na izboljšanje zdravja. Pri tem bi morala biti čustvena organizacijska pripadnost ena glavnih prednostnih nalog.

**Družba:** Rezultati pomembno vplivajo na podrobnejši pregled dejavnikov, ki prispevajo k boljšim delovnim pogojem za bolj zdrave zaposlene. Ko so zaposleni pripadni, ne le ostanejo v organizaciji, ampak so tudi bolj zdravi in posledično bolje delajo, kar prinaša vidne koristi tako za delodajalce kot za zaposlene. Za vodje je koristno, da imajo znanje o psihološkem opolnomočenju, zadovoljstvu pri delu in organizacijski pripadnosti, kar lahko uporabijo za učinkovitejšo motiviranje, razvoj in vodenje zaposlenih. Ker je delovno aktivno prebivalstvo tisto, na kateri slonijo vsi ostali v družbi, je pomembno ustvariti delovne pogoje, ki omogočajo boljše zdravje zaposlenih. Razumevanje vloge organizacijske pripadnosti in drugih z delom povezanih psihosocialnih dejavnikov za zdravje bi tako lahko koristilo ne le organizacijam in zaposlenim, ampak posredno tudi drugim članom družbe, ki se zanašajo na aktivno delovno populacijo.

**Omejitve / nadaljnje raziskave:** Študija je bila presečna, vzorec je bil omejen na zaposlene v Sloveniji. Naša študija je bila omejena z obsegom razpoložljivih sekundarnih podatkov; napovedovalci zdravja so bili izbrani v skladu s teorijo in razpoložljivimi indikatorji v obstoječi raziskavi; omejeni na glavne dejavnike: zdravje, organizacijsko pripadnost in psihosocialne dejavnike, povezane z delom (optimizem, opolnomočenje, stresni delovni pogoji, negotovost zaposlitve in zadovoljivo plačilo). Prihodnje raziskave bi se lahko osredotočile tudi na druge



dejavnike, povezane z zdravjem (kot so genetika, določen življenjski slog, okolje in dovzetnost za bolezni), vključile longitudinalni pristop in primerjale različne geografske kontekste.

**Ključne besede:** organizacijska zavezanost, zdravje na delovnem mestu, zadovoljivo plačilo, optimizem, stresni delovni pogoji, opolnomočenje

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## The Rise of Cyberbullying Among Adolescents During Covid-19 – Perspective of the Adolescents

Romana Likar\*

Faculty of organisation studies, Ulica talcev 3, 8000 Novo mesto,  
Slovenia  
romana.likar@fos-unm.si

Maja Pucelj

Faculty of organisation studies, Ulica talcev 3, 8000 Novo mesto,  
Slovenia  
maja.pucelj@fos-unm.si

### Abstract

**Background and Originality:** The aim of the article was to research if the occurrence of cyberbullying among Slovenian adolescents during the Covid-19 compared to the period before Covid-19. The originality of the article lies in the fact that it deals with a very relevant social issue, which affects the so far little-researched impact of the Covid-19 era on peer bullying and cyberbullying among adolescents.

**Methods:** In the article we used the descriptive method, with the help of which we described the theoretical starting points. In the empirical part of the thesis, we used a quantitative method, with the help of the survey method. In the survey questionnaire the Likert scale was used, in order to measure the extent to which the respondents agree with various statements in the field of cyberbullying.

**Results:** According to the surveyed adolescents, they rarely experienced cyberbullying both before and during the Covid-19 period, but some of the adolescents more often reported receiving messages with inappropriate content and messages that they did not want to receive and see. We also found that, compared to adolescent men, adolescent girls received messages with inappropriate content to a greater extent, which they did not want to receive and see, and which made them feel afraid, and they also more often received rude and insulting comments about their appearance, others threatened them more often online.

**Society:** The article deals with a socially relevant topic, as it deals with the presence of cyberbullying among adolescents in the period between Covid-19. Due to the fact that Covid-19 is a relatively new challenge in the field of virology, the mentioned area currently remains under-researched, so the present research represents only the beginning of the study of the selected area. The results of the present research can be used by many experts who want to study the topic further, or by adolescents, parents and teachers who want to get to know the mentioned field in more detail.

**Limitations/Future Research:** The limitations of the research are reflected in the limitation of the studied sample and in incompletely completed questionnaires. The research could be expended to include in-depth interviews among the participants, both adolescents and parents as well as education professionals, as the quality of a school is strongly related to a safe and stimulating learning environment. As a result, this kind of a research could also be linked to the prevention of cyberbullying. Further research could allow us to understand open communication in school, which creates a stronger sense of belonging to the school, because a favourable climate can allow a

school to transform into a learning community, which means building a stimulating learning environment characterized by mutual respect and trust both for students and their teachers.

**Keywords:** bullying, cyberbullying, Covid-19, web, social media, adolescents.

## 1 Introduction

Because of the Covid-19 pandemic, people had to get use to a new normal, which included maintaining interpersonal distance and new forms of social contact. Thus, virtual interactions were encouraged, replacing real gatherings, and public meetings were also replaced by virtual calls. In addition, home-based work and distance learning were promoted and introduced, work meetings were moved online, and e-teaching supported by video conferencing was also introduced. Pandya and Lodga (2021, p. 1) note that the aforementioned social interactions led people to begin using digital devices more widely for social contact, which included virtual dating, virtual tourism, virtual parties, and virtual meetings with friends and families.

Alheneidi, AlSumait, AlSumait, and Smith (2021, p. 1-2) point out that information and communication technologies generally had a good effect in limiting social contact, which led many experts to suggest the use of these technologies at the beginning of the pandemic to manage feelings of anxiety, social isolation, stress, and panic. Thus, increased use of the internet led to greater feelings of social support and decreased loneliness. Pandya and Lodga (2021, p. 1) noted that during periods of limited social contact, there was a possibility that time spent online did not negatively impact individual well-being because it was the only way to remain socially connected. However, caution is needed as too much time spent online can lead to anxiety, sadness, insecurity, and negative emotions such as irritability and anger.

The aim of this article is to examine the area of cyberviolence among Slovenian adolescents in the Covid-19 period. In this article we want to investigate whether it is possible to detect an increase in cyberviolence among adolescents in the period of Covid-19, and how the presence and possible increase of the latter in the period of Covid-19 is perceived by adolescents.

The objectives of the research are to:

- Present a review of the literature on violence in general, types of violence, portrayal of intergenerational violence, and cyberbullying in particular.
- Conduct and analyse a survey among adolescents with the aim of investigating the area of cyberbullying among adolescents in Slovenia.
- Determine whether cyberbullying among adolescents in Slovenia has increased or decreased over the period of the Covid-19.
- Using the literature review and the empirical research conducted, identify, review and present the area of cyberbullying among adolescents in Slovenia and propose solutions to the above challenges.

## 2 Theoretical framework

In recent decades, increasing attention has been paid to the problem of peer aggression, both in school settings and online. For example, the World Health Organization defined peer violence as one of the major health problems in adolescence and emphasized the importance of protecting minors, which is particularly important in the online environment (Feijóo et al., 2021, p. 95).

Due to the lack of conceptual clarity, the topic of cyberbullying is also difficult to define (Notar, Padgett, & Roden, 2013, p. 2). However, Menesini and Nocentini (2009, p. 230) state that cyberbullying is an aggressive and targeted act that can be carried out by individuals or groups. It uses electronic means of communication, can occur over a long period of time, and victims cannot easily fight back.

Myers and Cowie (2019, p. 1-2) state that the definition of cyberbullying falls into two categories: (1) cyberbullying is a new form of traditional violence and follows the definition of Olweus (1993, p. 8-9) that such violence takes place over an extended period of time, involves an imbalance of power, and the purpose of such violence is to harm, with Olweus accepting cyberbullying as a mere extension of the traditional concept of violence that occurs in the virtual world; (2) cyberbullying differs from traditional bullying in that it targets an individual's private life, both during the day and at night, both at home and in a school setting. In addition, perpetrators of cyberbullying can successfully disguise their identities, reinforcing the violence against the individual.

Cyberbullying is any malicious and repeated use of information and communication technology with the intent to harm another, i.e., humiliate, tease, ridicule, threaten, or otherwise injure. Typically, cyberbullying manifests itself in the form of the following actions:

- Anonymous messaging, as online anonymity can serve to decrease self-awareness, leading to deindividuation, and a deindividuated person has a weakened ability to regulate their behaviour, leading to a decreased likelihood of caring what others think about their behaviour (Ang, 2015, p. 38).
- Sharing pictures without consent (Kričkić, Šincek & Babić Čike, 2017, p. 16).
- Hate speech or insults, such as spreading violent and abusive comments that promote group hatred (Miro-Llinares & Rodriguez-Sala, 2016, p. 406).
- Promoting violent privacy attacks, such as publicly posting personal information or even assuming the victim's identity, hacking into a private electronic site, e.g., e-mail, social network profile, more recently hacking into online classrooms and meetings (e.g., so-called zoom bombing) (Lee, 2021, p. 147).
- Creating websites that contain text or images to make fun of another person (Peterson & Densley, 2017, p. 193-194), but can also create fake profiles whose purpose is to steal the victim's online identity and harm that person (Policija, 2022).

- Stalking, harassment, extortion, e.g., through direct messages or emails (Peterson & Densley, 2017, p. 194), where the victim can be observed and monitored online (Policija, 2022).
- Sexual seduction or harassment (Kričkić, Šincek, & Babić Čike, 2017, p. 16).
- Stealing a personal profile using the victim's social network without permission and, as a result, publishing it in their name.
- Tricking the victim into reacting angrily; or various forms of defamation, insult, spreading false information, etc. (Policija, 2022).

From the findings of the aforementioned authors, it can be concluded that the traditional form of peer violence is basically not anonymous, since the victim usually knows the perpetrator and it takes place in schools or other physical spaces. The victim can report it to the authorities, which makes the perpetrator face the consequences of his or her actions. Whereas cyberbullying, despite the easier evidence and at the same time longer lasting consequences of such behaviour, is often not reported due to the anonymity of the perpetrator and the victim's fear of the possibility of further access to the Internet, which manifests itself in the fact that the perpetrator does not feel the consequences and consequently does not regret his inappropriate actions.

Hicks, Clair, Waltz, Corvette, and Berry (2019, p. 2-3) note that cyberbullying involves multiple individuals:

- *The role of bystanders:* These are any individuals who are present when the violence occurs or know that the violence is occurring. These individuals passively observe the violence but do not participate in the violent acts or take action. They often feel the consequences, such as guilt, anger, or sadness, but do not help the victim because they are afraid of these consequences. Those who choose to help victims are more empathetic, confident, and angry about the cruel actions of others.
- *The role of the perpetrator:* perpetrators are those who repeatedly make fun of or harass others. They differ in their popularity and self-confidence. However, what they have in common is that they want to control other people, they pay attention to how popular they are, and they have a parent or other caregiver that they look up to regarding their behaviour. Perpetrators are often encouraged by bystanders.
- *The role of instigators:* even if they are not the direct perpetrators, instigators encourage this behaviour by enabling this form of violence. They make the perpetrator feel like they have an audience and break down any internal boundaries the perpetrator may have.

In the context of cyberbullying, we can highlight some legal provisions, such as Article 297 of the Criminal Code (KZ-1), which speaks of public incitement to hatred, violence or intolerance. Thus, the first point of Article 297 of the Criminal Code (KZ-1) states that persons who publicly incite hatred, violence or intolerance at various levels may be punished

by imprisonment for up to two years: Nationality, race, religion, ethnicity, gender, colour, origin, wealth, education, social status, political or other beliefs, disability, sexual orientation, or other circumstances (KZ-1, Article 297).

In addition, as part of KZ-1, we can highlight Article 176, which deals with the display, production, possession, and distribution of pornographic material. According to this article, anyone who sells, shows or otherwise makes available various pornographic content to persons under the age of 15 shall be punished by imprisonment of up to two years or a fine. Similarly, anyone who obtains or encourages pornographic content from various persons, including minors, shall be punished by imprisonment for between six and eight years (KZ-1, Article 176).

Finally, we can highlight Article 173a as part of KZ-1. According to it, whoever recruits persons under fifteen years of age to a meeting through the Internet with the intention of committing the crime of producing pornographic content is punished with imprisonment for up to one year (KZ-1, Article 173a).

It is also worth highlighting Article 145 of the Code of Criminal Procedure (CCP, 1995), which deals with the duty to report. According to this article, state authorities and all organizations with public powers must report criminal offenses when they become aware of them. Article 91(2) of the Social Assistance Act (ZSV, 1992) states that authorities must inform the social work agency when they find that children and adolescents are at risk. Article 6 of the Domestic Violence Prevention Act (ZPND, 2008) states that various authorized agencies and organizations must inform the Social Work Centre when violence occurs, and the victim is a child or a person who is unable to care for himself or herself.

### *Consequences of cyberbullying by adolescents*

Cyberbullying has the same risk factors as traditional peer violence, but includes additional factors, such as limited control over personal information, which can result from individuals being unaware of the consequences of sharing personal information, passwords, addresses, and phone numbers online and being unaware of the harmful consequences of communicating with strangers.

The Odklikni Project (2019, p. 9) notes that many people can engage in cyberbullying also as an audience, and that the victim is sensitive, accessible, and vulnerable and therefore can feel even stronger consequences, which can often be worse than an example of traditional peer violence. With cyberbullying, it is difficult for the victim to distance themselves because the messages can reach them wherever they are. Cyberbullying can be permanent, as certain messages, posts, and videos are not deleted, and a single click is all it takes for a victim to experience this form of violence, which reveals an imbalance of power. The fact that it is not possible to identify the perpetrator of cyberbullying is often problematic and contributes to the victim not feeling safe.

Lim and Lee (2021, p. 28-29) point out that victims suffer social and psychological consequences. Thus, cyberbullying is associated with internalizing and externalizing problems, and cyberbullying can increase suicidal thoughts and behaviours, depression, anxiety, psychotic, psychosomatic, and psychological symptoms, illicit substance use, emotional problems, sleep disturbances, decreased self-esteem, and a decline in academic performance. For this reason, the quality of the school that promotes a strong connection with a safe and stimulating learning environment is of great importance. This is also supported by Peled (2019, p. 6), who points out that in addition to the psychological impact on victims, their academic performance can also suffer, as the negative effects of cyberbullying prevent victims from achieving good grades and other academic performance, as well as creating a safe learning environment.

#### *Using the internet during Covid-19 among adolescents*

Because of the Covid-19 pandemic, people had to get used to a new normal, which included maintaining interpersonal distance and new forms of social contact. Thus, virtual interactions were encouraged, replacing real gatherings, and public meetings were also replaced by virtual calls.

In addition, home-based work and distance learning were encouraged and implemented, work meetings were moved online, and various educational lectures were also delivered via video. Pandya and Lodga (2021, p. 1) note that the aforementioned social interactions led people to begin using digital devices more widely for social contact, including virtual dating, virtual tourism, virtual parties, and virtual meetings with friends and families.

Adolescents used the Internet extensively before the Covid-19 outbreak, and they often did so to cope with negative feelings and thoughts, as the time they spent online was a form of escapism for them, however, usage only increased during the pandemic (Fernandes et al., 2020. p. 62). Pandya and Lodga (2021, p. 1) find that internet use among adolescents increased by 50 to 70 percent during the pandemic, with 50 percent of that time spent on social networks. Ozlem Ozturk and Ayaz-Alkaya (2021, p. 595-596) also find that the amount of time youth spent online increased, and that this also increased the risk of internet addiction.

The Covid-19 pandemic and limited social interactions with friends have many consequences for adolescents, such as feelings of loneliness and a higher risk for developing mental health problems such as depression, anxiety, traumatic experiences, and sleep disorders (Siste et al., 2021, p. 2). Englander (2021, p. 547) cites the results of a survey showing that 17 percent of adolescents always or often felt depressed during the pandemic or movement restrictions, a quarter of them reported anxiety, nearly a third had sleep problems, and 30 percent of adolescents were afraid of infection with the Covid-19 virus.

Because of the adolescents' urgent need to connect with their peers, they felt an even greater need to maintain these contacts online during the pandemic, and using the Internet allowed them to stay in touch with their friends and cope with the effects of the pandemic (Fernandes,

Biswas, Tan-Mansukhani, Vallejo, & Essau, 2020, p. 62). Thus, they used the internet for various purposes, such as maintaining communication with friends, playing games, solving homework problems, and obtaining information on various topics (Ozlem Ozturk & Ayaz-Alkaya, 2021, p. 595-596).

### *Cyberbullying and the impact on the mental health of adolescents during Covid-19*

Because people were socially isolated during the pandemic, they were more active on the Internet and visited it more frequently, which often resulted in them being more vulnerable to various forms of cyberbullying (Jain, Gupta, Satam & Panda, 2020, p. 2). It is also a fact that schools were closed and therefore adolescents spent more time at home, which led to higher exposure to various forms of violence, including domestic violence and cyberbullying (Han, Wang, & Li, 2021, p. 2). Thus, adolescents have been given more opportunities for cyberbullying, which can also be attributed to increasing digitalization. Due to the increasing use of the Internet, adolescents are often victims of cyberbullying, online sexual exploitation, risky acts, and exposure to violent or harmful online content (Nazir & Thabassum, 2021, p. 481). Adolescents who increased their use of the social network Instagram, played online games, and expressed their opinions on various platforms during the pandemic were more susceptible to cyberbullying (Shoib et al., 2022, p. 1).

The Covid-19 pandemic has led to an increased risk of mental health problems due to the increased occurrence of cyberbullying during a time when social contact is limited (Nazir & Thabassum, 2021, p. 481). Victims of cyberbullying often report feelings of anger, helplessness, fear, and sadness, which is consistent with traditional forms of violence. However, the difference between the two forms of violence is that anonymity is also an important factor in cyberbullying, which makes victims feel powerless and do not know how to stop this form of violence (Jain, Gupta, Satam & Panda, 2020, p. 2).

### *High-quality, safe and stimulating learning environment in schools*

Numerous studies show the importance of a safe and stimulating learning environment for the quality and success of education, and this is also important for the study and prevention of cyberbullying. Authors Kranjc et al. (2019, p. 7) highlight several studies: In schools where the school climate was rated higher and more positive, there were better results in science and mathematics (TIMSS, 2007, in Kranjc et al., 2019, p. 7), and also in schools where a more positive climate is perceived, there is better cooperation between teachers, better teamwork, and more active participation of students in class. As a result, they read more readily, participate to a greater extent, achieve better results, and their attitudes toward school are evaluated more positively.

Effectively organized work also establishes clear rules and procedures in which important matters are agreed upon, has interesting and designed lessons in which students are actively involved, is encouraging, respectful, and open in communication, gives constructive



feedback, treats fairly, and involves all students. By acting wisely and leading the class, we can indirectly influence factors seemingly independent of us, such as conflict management, peer relationships, student stress, systemic issues, and social conditions. Instruction must be designed to enhance student self-esteem and empower students to self-regulate their learning. Involving students in discussions about all topics that are important to them contributes to a good climate (Kranjc, 2019, p. 28).

This shows that cyberbullying can also be examined from the perspective of a high-quality, safe, and stimulating learning environment, as it is at the school level that cyberbullying among adolescents can be actively addressed and eliminated.

Based on the literature we examined, we formulated the following hypotheses in the theoretical part of the article:

H1: Cyberbullying among adolescents increased during Covid-19.

H2: Female adolescents were more likely to experience cyberbullying than male adolescents.

H3: Adolescents are insufficiently educated about the challenges of cyberbullying.

### **3 Method**

In the empirical part, we used the questionnaire within the survey method. In the questionnaire that we used to investigate the attitudes of adolescents and the possible increase of cyberbullying among them during Covid-19, we used a Likert scale that measured the extent to which respondents agreed with various statements in the area of cyberbullying. The questionnaires were designed so that respondents answered three sets of questions in addition to demographic data: One set of questions, "Cyberbullying before Covid-19," included 13 statements about cyberbullying before Covid-19; the second set of questions, "Cyberbullying during Covid-19," also included 13 statements about cyberbullying during Covid-19; and for both sets of questions, a Likert scale was used with values ranging from 1, meaning "did not occur," to 5, meaning "occurred very often." The final set of questions, "Challenges from cyberbullying," contained 14 questions for which we also used a Likert scale with values ranging from 1, meaning "strongly disagree," to 5, meaning "strongly agree." We analysed the collected responses from the respondents using the program IBM SPSS and presented them using the arithmetic mean. The survey was conducted through the online application 1ka and was done completely anonymously in the month of May 2022. Figure 1 below shows the research model we created for the purpose of this article.

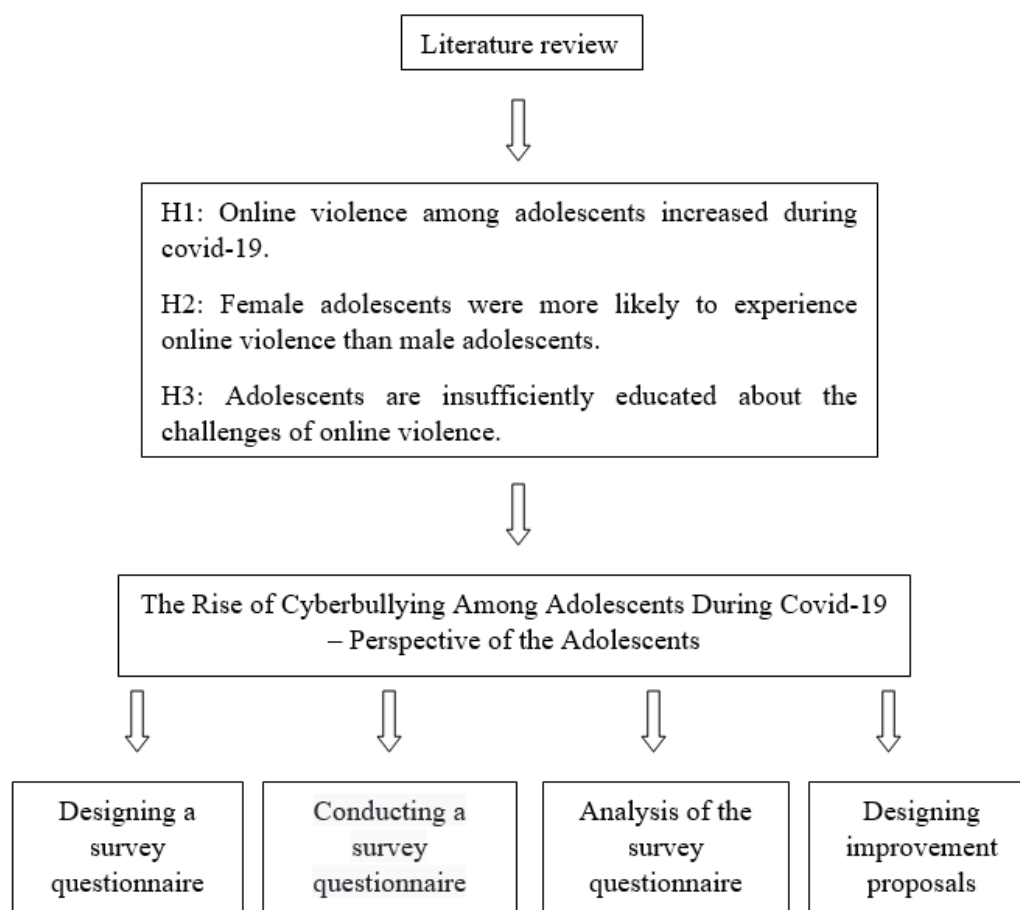


Figure 1. Research model

After collecting data from the questionnaires, they were transferred to the program IBM SPSS, where incomplete questionnaires were eliminated. In this program, we analysed the data, created frequency distributions, and calculated relevant descriptive statistics, and last but not least, we checked the reliability and validity of the measurement instruments, which we present in the next chapter.

Before conducting the questionnaires, we checked on a small sample whether both questionnaires were suitable and slightly adjusted them based on the results and responses. Their reliability was checked using Cronbach's alpha coefficient, whose value should be above 0.7 (Nunnally, 1975).

Table 1 shows that the questionnaire is reliable. From the interpretation of the results of the reliability analysis, it can be seen that the questions have a good level of reliability for adolescents, as Cronbach's alpha is between 0.70 and 0.90 (Statistics, 2022).

Table 1. Results of the reliability analysis of measuring instruments

Question set	Cronbach's Alpha	Reliability
Cyberbullying before Covid-19	0.792	Good
Cyberbullying between Covid-19	0.778	Good
Challenges of cyberbullying	0.760	Good

## 4 Results

Tables 2 and 3 show that half of the adolescents (15 respondents) were female, and the other half were male. None of the youth respondents selected the "I don't wish to answer" option. The adolescents were on average 15.9 years old with a standard deviation of 2.057 years. The adolescents surveyed were from all over Slovenia. Table 4.3 shows the time spent online daily by the adolescents surveyed.

Table 2. Adolescents gender

Gender	Number	Percentages
Male	15	50 %
Female	15	50 %

Table 3. Adolescents age

Age group	Number	Percentages
11 years	2	6.7 %
12 years	1	3.3 %
14 years	2	6.7 %
15 years	6	20 %
16 years	7	23.3 %
17 years	5	16.7 %
18 years	5	16.7 %
19 years	2	6.7 %

Table 4 shows that most adolescents (18 or 60%) spent between 1 and 3 hours per day online, followed by 9 respondents (30%) who spent between 3 and 6 hours per day online, and 2 respondents (6.7%) who spent more than 6 hours per day online, and one respondent (3.3%) who spent up to 1 hour per day online.

Table 4. The time that the interviewed adolescents spend daily online

Time spent online	Number	Percentages
Up to 1 hour	1	3.3 %
Between 1 and 3 hours	18	60 %
Between 3 and 6 hours	9	30 %
More than 6 hours	2	6.7 %

Table 5 below shows the most common purpose of Internet use by the youth respondents. Most respondents (27 respondents or 90%) use the Internet for chatting with friends, online dating, and other social contacts, while two respondents (6.7%) use the Internet to obtain various articles, information, news, or other online resources for both study and personal purposes, while one respondent (3.3%) uses the Internet most frequently for shopping.

Table 5. The most common purpose of using the web

The most common purpose of using the web	Number	Percentages
For chatting with friends, for online dating and other socializing.	27	90 %
For shopping.	1	3.3 %
To obtain various articles, information, news, or other online resources (both for study and for private purposes).	2	6.7 %

In addition, we focused on the results of the adolescents' questionnaire regarding the frequency of using certain social networks, which are presented in Table 6. Adolescents used the social network YouTube the most (AM = 4.60, SD = 0.563). Most respondents used it very often (19 respondents or 63.3 %), 10 adolescents (33.3 %) often, and one sometimes (3.3 %). It is followed by the social network Snapchat (AM = 4, SD = 1.414), which was used very often by 16 respondents (53.3 %), often by 7 respondents (23.3 %), not at all by 4 respondents (13.3 %), sometimes by 2 respondents (6.7 %), and rarely by 1 respondent (3.3 %). The third most used social network was TikTok (AM = 3.67, SD = 1.155), which was used frequently by 16 respondents (53.3%), very frequently by 6 respondents, rarely by 4 respondents (13.3 %), and either rarely or sometimes by 2 respondents (6.7 %). The next social network was Facebook (AM = 3.57, SD = 1.194), which most respondents (9 or 30 %) used very often, followed by those who used it rarely (8 respondents or 26.7 %) or often (7 or 23.3 %), while the fewest respondents (6 or 20 %) used Facebook sometimes. The least used social network was Twitter (AM = 1.30, SD = 0.596), which was never used by 23 respondents or 76.7 %, rarely used by 5 respondents or 16.7 %, and sometimes used by 2 respondents or 6.7 %. None of the respondents used the Tumblr or 9gag social network.

Table 6. Frequency of use of social networks

Social network	I do not use it at all	I rarely use it	I sometimes use it	I frequently use it	I use it very often	AM	SD
Youtube	0	0	1 (3.3 %)	10 (33.3 %)	19 (63.3 %)	4.60	0.563
Snapchat	4 (13.3 %)	1 (3.3 %)	2 (6.7 %)	7 (23.3 %)	16 (53.3 %)	4	1.414
TikTok	2 (6.7 %)	4 (13.3 %)	2 (6.7 %)	16 (53.3 %)	6 (20 %)	3.67	1.155
Facebook	0	8 (26.7 %)	6 (20 %)	7 (23.3 %)	9 (30 %)	3.57	1.194
Facebook Messenger	2 (6.7 %)	6 (20 %)	5 (16.7 %)	11 (36.7 %)	6 (20 %)	3.34	1.223
Instagram	4 (13.3 %)	6 (20 %)	5 (16.7 %)	6 (20 %)	9 (30 %)	3.33	1.446
Viber	7 (23.3 %)	7 (23.3 %)	9 (30 %)	5 (16.7 %)	2 (6.7 %)	2.60	1.221
Discord	24 (80 %)	4 (13.3 %)	0	0	2 (6.7 %)	1.40	1.037
Reddit	24 (80 %)	4 (13.3 %)	1 (3.3 %)	0	1 (3.3 %)	1.33	0.844
Whatsapp	22 (73.3 %)	7 (23.3 %)	1 (3.3 %)	0	0	1.30	0.535
Twitter	23 (76.7 %)	5 (16.7 %)	2 (6.7 %)	0	0	1.30	0.596
Tumblr	30 (100 %)	0	0	0	0	1	0.000
9gag	30 (100 %)	0	0	0	0	1	0.000

Below, we sought to determine the prevalence of cyberbullying among youth in the pre-Covid-19 pandemic period. The responses of the youth are presented in Table 7, which shows that the youth respondents rarely received messages with inappropriate content in the pre-Covid-19 pandemic period (12 and 40 %, respectively), and 9 respondents or 30 % never received them. 8 respondents or 26.7 % received them sometimes and 1 respondent or 3.3 % received them often. It never happened to the majority of the adolescent respondents that they received messages they did not want to receive or see (18 respondents or 60 %), 8 respondents (26.7 %) rarely received them and 4 (13.3 %) sometimes received them. 20 respondents (66.7 %) said that it has never happened to them that untrue rumours have been

spread about them on the Internet, 9 respondents (30 %) it has happened rarely and one respondent (3.3 %) sometimes. 24 respondents (80 %) have never had the problem of their recordings and photos being shared, even if they were not intended for the public, while this has rarely happened to 4 respondents (13.3 %) and sometimes to 2 respondents (6.7 %). 24 respondents or 80 % never received a message that scared them, while 6 respondents (20 %) rarely received this message ( $AM = 1.20$ ,  $SD = 0.407$ ). 27 respondents or 90% said they had never been blackmailed online, while 2 respondents (6.7 %) rarely experienced it and one sometimes (3.3 %) ( $AM = 1.20$ ,  $SD = 0.407$ ). There were similar responses in the case of claiming that respondents were threatened online ( $AM = 1.10$ ,  $SD = 0.403$ ), as we can see from the responses that 28 respondents (93.3%) never experienced this, one (0.3 %) responded answered either rarely or sometimes. When it came to the statements that they had received rude and insulting comments about their appearance and that they had been entrusted with secrets that they had only confided in one person ( $AM = 1.07$ ,  $SD = 0.254$ ), it was the case that this had never happened to 28 respondents (93.3 %) and rarely to 2 respondents (6.7 %). None of the respondents had created a fake social network profile in their name, set up a fake website, altered their photos in an offensive way, and impersonated a respondent and spread harmful messages in their name in the time leading up to Covid-19.

Table 7. Prevalence of cyberbullying among adolescents in the pre-Covid-19 era

Statement	It didn't happen	Rarely	Some-times	Often	Very often	AM	SD
I have received messages that had inappropriate content.	9 (30 %)	12 (40 %)	8 (26.7 %)	1 (3.3 %)	0	2.07	0.944
I have received messages that I did not want to receive and see.	18 (60 %)	8 (26.7 %)	4 (13.3 %)	0	0	1.53	0.730
There were false rumours about me on the Internet.	20 (66.7 %)	9 (30 %)	1 (3.3 %)	0	0	1.37	0.556
My videos and photos have been shared even though they were not meant for the public.	24 (80 %)	4 (13.3 %)	2 (6.7 %)	0	0	1.27	0.583
I received messages that scared me.	24 (80 %)	6 (20 %)	0	0	0	1.20	0.407
I have been blackmailed online.	27 (90 %)	2 (6.7 %)	1 (3.3 %)	0	0	1.13	0.434
I have been threatened online.	28 (93.3 %)	1 (3.3 %)	1 (3.3 %)	0	0	1.10	0.403
I have received rude and insulting comments about my appearance.	28 (93.3 %)	2 (6.7 %)	0	0	0	1.07	0.254
Secrets have been shared about me that I have only confided in one person.	28 (93.3 %)	2 (6.7 %)	0	0	0	1.07	0.254
A fake social network profile was created in my name.	30 (100 %)	0	0	0	0	1	0.000
A fake website was created about me.	30 (100 %)	0	0	0	0	1	0.000
My photos were altered in an offensive way.	30 (100 %)	0	0	0	0	1	0.000
They impersonated me online and shared hurtful messages in my name.	30 (100 %)	0	0	0	0	1	0.000

Table 8 shows that respondents rarely received messages with inappropriate content even during Covid-19 (13 respondents or 43.3 %), followed by 12 respondents (40 %) to whom this never happened, 4 respondents (13.3 %) to whom this sometimes happened, while one respondent (3.3 %) indicated that he received messages with inappropriate content very often.

Regarding the claim that respondents received messages that they did not want to see and receive, it should be noted that this was never the case for 19 respondents (63.3 %), rarely for 6 respondents (20 %), and sometimes for 5 (13.3 %). 22 respondents (73.3 %) never received messages that made them feel distant, and 8 respondents (26.7 %) rarely received this message (AM = 1.27, SD = 0.450).

Table 8. Frequency of violence against adolescents during Covid-19

Statement	It didn't happen	Rarely	Sometimes	Often	Very often	AM	SD
I have received messages that had inappropriate content.	12 (40 %)	13 (43.3 %)	4 (13.3 %)	0	1 (3.3 %)	1.83	0.913
I have received messages that I did not want to receive and see.	19 (63.3 %)	6 (20 %)	5 (13.3 %)	1 (3.3 %)	0	1.57	0.858
I have received messages that scared me.	22 (73.3 %)	8 (26.7 %)	0	0	0	1.27	0.450
My videos and photos were shared even though they were not meant for public consumption.	22 (73.3 %)	8 (26.7 %)	0	0	0	1.27	0.450
False rumours were spread about me on the Internet.	25 (83.3 %)	3 (10 %)	2 (6.7 %)	0	0	1.23	0.568
I have been blackmailed online.	25 (83.3 %)	4 (13.3 %)	1 (3.3 %)	0	0	1.20	0.484
I received rude and insulting comments about my appearance.	25 (83.3 %)	5 (16.7 %)	0	0	0	1.17	0.379
I have been threatened online.	27 (90 %)	3 (10 %)	0	0	0	1.10	0.305
A fake social network profile was created in my name.	30 (100 %)	0	0	0	0	1	0.000
A fake website was created about me.	30 (100 %)	0	0	0	0	1	0.000
My photos were altered in an offensive way.	30 (100 %)	0	0	0	0	1	0.000
Secrets were spread about me that I only confided in one person.	30 (100 %)	0	0	0	0	1	0.000
They impersonated me online and spread harmful messages in my name.	30 (100 %)	0	0	0	0	1	0.000
I have received messages that had inappropriate content.	30 (100 %)	0	0	0	0	1	0.000

When claiming that their recordings and photos were shared even though they were not intended for the public, 25 respondents (83.3 %) answered that untrue rumours about them were never shared online, 3 respondents (10 %) rarely did, and 2 respondents (6.7 %) sometimes did (AM = 1.23, SD = 0.568). 25 respondents (83.3 %) have never been

blackmailed online, 4 respondents (13.3 %) rarely did and one (3.3 %) sometimes did ( $AM = 1.20$ ,  $SD = 0.484$ ). 25 respondents (83.3 %) have never received rude and insulting comments about their appearance, 5 respondents have rarely received such comments ( $AM = 1.17$ ,  $SD = 0.379$ ), and 27 respondents (90 %) have never been threatened online, while 3 respondents (10 %) have rarely been threatened ( $AM = 1.10$ ,  $SD = 0.305$ ).

It has never happened to the respondents that a fake profile was created in a social network, or a fake website was created in their name. Also, their photos were not altered in an offensive way, they did not reveal secrets about themselves that only one person would trust, and they did not impersonate them online and share harmful messages in their name.

Below, we were interested in the adolescents' attitudes toward challenges related to cyberbullying, and the responses to the questionnaire are shown in Table 9.

The surveyed adolescents highly agreed that cyberbullying can lead to suicide ( $AM = 4.77$ ,  $SD = 0.430$ ), as 23 respondents (76.7 %) fully agreed with this statement, while 7 respondents (23.3 %) agreed. This is followed by the statement that cyberbullying is a serious problem ( $AM = 4.70$ ,  $SD = 0.794$ ), which 24 respondents (80 %) fully agreed with, 5 respondents (16.7 %) agreed, and one respondent (3.3 %) disagreed at all.

The statement that cyberbullying is detrimental to adolescents's mental health ( $AM = 4.47$ ,  $SD = 0.629$ ) was fully agreed by 16 respondents (53 %), agreed by 13 respondents (40 %), and undecided by 2 respondents (6.7 %). 14 respondents (46.7 %) either agreed or strongly agreed with the statement that schools should pay more attention to cyberbullying, while one respondent (3.3 %) indicated they strongly disagreed and one agreed ( $AM = 4.33$ ,  $SD = 0.844$ ). 24 respondents (80 %) agreed with the statement that most youth have noticed cyberbullying toward another person but have not taken action, and 6 respondents (20 %) strongly agreed with this statement ( $AM = 4.20$ ,  $SD = 0.407$ ).

Most respondents (24 or 80 %) agree with the statement that Covid-19 has increased the occurrence of cyberbullying ( $AM = 4.07$ ,  $SD = 0.450$ ), followed by those who fully agree (4 respondents or 13.3 %) and 2 (6.7 %) who do not. 18 respondents (60 %) agreed, and 6 respondents (20 %) strongly agreed with the statement that poor relationships between parents and adolescents can lead to cyberbullying, while 3 respondents (10 %) either strongly disagreed or disagreed with the statement ( $AM = 3.90$ ,  $SD = 0.845$ ).

Regarding the statement that girls are more likely to be victims of cyberbullying, 11 respondents (36.7 %) were undecided, 9 respondents (30 %) strongly agreed, 7 respondents (23.3 %) agreed, 2 respondents (6.7 %) disagreed with the statement at all, while one respondent (3.3 %) disagreed. Regarding the statement that people who spend more time online are more likely to be victims of cyberbullying, 13 respondents (43.3 %) were either undecided or agreed. 2 respondents (6.7 %) disagreed with the statement, one respondent (3.3 %) indicated they agreed with the statement, and one respondent fully agreed.

Most respondents (17 or 56.7 %) agreed with the statement that parental rules on Internet use can lead to a lower incidence of cyberbullying ( $AM = 3.37$ ,  $SD = 0.928$ ), followed by those who were undecided (10 respondents or 33.3 %), and those who disagreed at all (3 respondents or 10 %). Regarding the statement that poor family financial situation can lead to cyberbullying ( $AM = 3.33$ ,  $SD = 0.994$ ), 13 respondents (43.3 %) were undecided, 10 respondents (33.3 %) agreed with the statement, 3 respondents (10 %) fully agreed, and 2 respondents (6.7 %) either disagreed or disagreed at all.

Regarding the statement that youth with poor academic performance are more likely to be victims of cyberbullying, half of the respondents were undecided, 11 respondents (36.7 %) agreed with the statement, and 2 respondents (6.7 %) indicated that they disagreed with the statement and two that they fully agreed. Most respondents were undecided on the statement that cyberbullying is less of a problem than traditional forms of violence (14 respondents or 46.7 %), 7 respondents (23.3 %) agreed with the statement, 5 respondents (16.7%) strongly agreed, 3 respondents (10 %) disagreed, and one respondent (3.3 %) strongly agreed ( $AM = 2.87$ ,  $SD = 1.074$ ).

The lowest rated statement in the group of questions about the challenges of cyberbullying was that teachers in schools have enough knowledge about the problems of cyberbullying ( $AM = 2.80$ ,  $SD = 1.064$ ). Most respondents (11 or 36.7 %) were undecided, followed by those who disagreed (9 or 30 %), those who agreed (5 or 16.7 %), and those who disagreed at all (3 or 10 %), while the fewest respondents (2 or 6.7 %) fully agreed with the statement.

Table 9. Attitudes of adolescents regarding the challenges of cyberbullying

Statement	It didn't happen	Rarely	Some-times	Often	Very often	AM	SD
Cyberbullying can lead to suicide.	0	0	0	7 (23.3 %)	23 (76.7 %)	4.77	0.430
Cyberbullying is a serious issue.	1 (3.3 %)	0	0	5 (16.7 %)	24 (80 %)	4.70	0.794
Cyberbullying is harmful to adolescents's mental health.	0	0	2 (6.7 %)	13 (40 %)	16 (53 %)	4.47	0.629
Schools should pay more attention to cyberbullying.	1 (3.3 %)	1 (3.3 %)	0	14 (46.7 %)	14 (46.7 %)	4.33	0.844
The majority of adolescents have noticed that another person is being cyberbullied but have not acted.	0	0	0	24 (80 %)	6 (20 %)	4.20	0.407
Covid-19 has increased the incidence of cyberbullying.	0	0	2 (6.7 %)	24 (80 %)	4 (13.3 %)	4.07	0.450
Poor relationships between parents and teens can lead to cyberbullying.	3 (10 %)	3 (10 %)	0	18 (60 %)	6 (20 %)	3.90	0.845

“to be continued”



“continued”							
Girls are more likely to be victims of cyberbullying.	2 (6.7 %)	1 (3.3 %)	11 (36.7 %)	7 (23.3 %)	9 (30 %)	3.67	1.155
People who spend more time online are more likely to be victims of cyberbullying.	1 (3.3 %)	2 (6.7 %)	13 (43.3 %)	13 (43.3 %)	1 (3.3 %)	3.37	0.809
Parents' rules for Internet use can lead to a lower incidence of cyberbullying.	3 (10 %)	0	10 (33.3 %)	17 (56.7 %)	0	3.37	0.928
A family's poor financial situation may lead to cyberbullying.	2 (6.7 %)	2 (6.7 %)	13 (43.3 %)	10 (33.3 %)	3 (10 %)	3.33	0.994
Adolescents with poor academic performance are more likely to be victims of cyberbullying.	2 (6.7 %)	2 (6.7 %)	15 (50 %)	11 (36.7 %)	0	3.17	0.834
Cyberbullying is less problematic than traditional forms of violence (physical violence, family violence, etc.)	5 (16.7 %)	3 (10 %)	14 (46.7 %)	7 (23.3 %)	1 (3.3 %)	2.87	1.074
I think that teachers in schools have enough knowledge about the topic of cyberbullying.	3 (10 %)	9 (30 %)	11 (36.7 %)	5 (16.7 %)	2 (6.7 %)	2.80	1.064

In the following sections, we wanted to show the differences in cyberbullying in the pre-Covid-19 and during Covid-19 periods from the adolescent's perspective, which can be seen in Table 10, which shows that there were no major differences between the respondents' answers in the studied periods.

However, prior to Covid-19, respondents were more likely to report receiving inappropriate messages, rude and insulting comments about their appearance, having untrue rumours spread about them online, and confiding secrets to only one person.

During the Covid-19, respondents were more likely to report receiving messages they did not want to receive, having their videos and photos shared even though they were not intended for public consumption, receiving messages that scared them, and having others blackmail them online.

Table 10. Differences in pre- and during the Covid-19 period, concentrating on the level of cyberbullying from the perspective of adolescents by mean and standard deviation

Statement	Before the Covid-19	During the Covid-19
I have received messages that had inappropriate content.	2.07 (0.944)	1.83 (0.913)
I have received rude and insulting comments about my appearance.	1.97 (0.254)	1.17 (0.379)
I have received messages that I did not want to receive and see.	1.53 (0.730)	1.57 (0.858)
False rumours have been spread about me on the Internet.	1.37 (0.556)	1.23 (0.568)
My videos and photos were shared even though they were not meant for the public.	1.27 (0.538)	1.37 (0.450)
I received messages that scared me.	1.20 (0.407)	1.27 (0.450)
I was blackmailed online.	1.13 (0.434)	1.20 (0.484)
Secrets were spread about me that I only confided in one person.	1.07 (0.254)	1 (0.000)
I have been threatened online.	1,10 (0.403)	1.10 (0.305)
A fake social network profile was created in my name.	1 (0.000)	1 (0.000)
A fake website has been created about me.	1 (0.000)	1 (0.000)
My photos were altered in a way that was offensive.	1 (0.000)	1 (0.000)
They impersonated me online and spread harmful messages in my name.	1 (0.000)	1 (0.000)

Last but not least, we can show below the difference in the occurrence of cyberbullying during the life year according to the gender of the adolescents, which can be seen in Table 11. This table shows that adolescent girls received to a greater extent messages with inappropriate content that they did not want to see and receive and that scared them, and they also received to a greater extent online rude and insulting comments about their appearance and were also threatened online. Adolescents, on the other hand, experienced untrue rumours being spread about them online to a greater extent.

Table 11. Differences in youth cyberbullying by gender during Covid-19 by mean and standard deviation

Statement	Adolescent girls	Adolescent boys
I have received messages that had inappropriate content.	2.00 (1.195)	1.67 (0.488)
I have received rude and insulting comments about my appearance.	1.67 (0.976)	1.47 (0.743)
I have received messages that I did not want to receive and see.	1.33 (0.488)	1.20 (0.414)
False rumours have been spread about me on the Internet.	1.27 (0.458)	1.27 (0.458)
My videos and photos were shared even though they were not meant for the public.	1.20 (0.414)	1.27 (0.704)
I received messages that scared me.	1.20 (0.561)	1.20 (0.414)
I was blackmailed online.	1.20 (0.414)	1.13 (0.352)
Secrets were spread about me that I only confided in one person.	1.13 (0.352)	1.07 (0.258)
I have been threatened online.	1 (0.000)	1 (0.000)
A fake social network profile was created in my name.	1 (0.000)	1 (0.000)
A fake website has been created about me.	1 (0.000)	1 (0.000)
My photos were altered in a way that was offensive.	1 (0.000)	1 (0.000)
They impersonated me online and spread harmful messages in my name.	1 (0.000)	1 (0.000)

## 5 Discussion

With the help of the survey conducted, we were able to show that cyberbullying was not common among the respondents in our study, both before and during Covid-19. The prevalence of cyberbullying has also been studied by other authors, such as Dehue, Bolman, and Völlink (2008, p. 217), who perceived a more significant presence of cyberbullying,

finding that 16 % of the adolescents surveyed had already engaged in cyberbullying and 23 % of youth were victims of cyberbullying. Hamm et al. (2015, p. 770) also reported that the incidence of cyberbullying in the literature ranged from 11 to 42.6 %. In our opinion, the stated deviation can be related to a relatively low, non-representative sample of the survey, as we captured a smaller number of respondents, but at the same time we can also show a slight scepticism about the reality of the answers given by respondents regarding the non-perception of cyberbullying, which is reflected in a more noticeable perception of the occurrence of (online) violence towards others due to their own inactivity, which can also be explained by the fact that due to the more frequent use of the Internet, adolescents infer the increase of the mentioned form of violence, which they did not perceive in themselves.

Differences in the period before and during the Covid-19 pandemic in relation to cyberbullying among adolescents were also examined by authors Jain, Gupta, Satam, and Panda (2020, p. 1), who found that in the period before the pandemic, respondents differentiated according to the extent to which they communicated online with unknown people and whether they maintained online relationships, and that during the Covid-19 pandemic, they shared their opinions more frequently on social networks. The aforementioned statement supports the claim that there are differences between and before the Covid-19 pandemic in the occurrence of cyberbullying. The aforementioned finding is partially consistent with the results of the current study, as more than three-quarters of youth agreed with the statement that Covid-19 had an impact on the increase in the amount of cyberbullying, which is otherwise not evident from the responses of the youth surveyed, as no significant change in the increase in perceptions of cyberbullying was noted in their responses compared to the time before and during Covid-19. The wide range of views on the impact of Covid-19 on the increase in the level of violence may also be related to the aforementioned assumption that, due to the more frequent use of the Internet, the adolescents inferred an increase in the aforementioned form of violence that they did not perceive in their own case. Nevertheless, it can be noted that for the period before Covid-19, the interviewed adolescents rated slightly higher the statement that they receive messages with inappropriate content and rude and insulting comments about their appearance, and for the period during Covid-19, they rated slightly higher the statement that they receive messages that they do not want to receive and see.

From the results of our research, it cannot be concluded that cyberbullying among adolescents increases during the Covid-19. The mentioned result is in line with the findings of author Petri (2022, p. viii-ix), who investigated the relationship between social isolation, dependence on electronic devices, and differences in cyberbullying before and during the Covid-19 pandemic. Based on a survey of 331 university students, he found that the majority of respondents felt more isolated and consequently used more social networks, and the author also found that cyberbullying among adolescents not only did not increase during the Covid-19 pandemic, but actually decreased. In contrast to the results of our study, Barlett, Simmers,

Roth, and Gentile (2021, p. 408) found that during Covid-19 cyberbullying was more common.

In our research, we showed that adolescents are aware of the seriousness of the challenges posed by cyberbullying, as they agreed with the fact that cyberbullying is a serious problem, and that more attention should be paid to this form of violence and its mitigation and prevention. as we now intend, as it has many negative consequences for adolescents, which may include suicide. However, in the context of the above, the result of our study is worrying, because according to the adolescents, the majority of adolescents perceived the occurrence of violence against another person, but did not take any action, which indicates that in the future, more attention should be paid to increasing awareness in order to empower victims or bystanders (witnesses) to report such behaviour to competent/adult persons (teachers, parents, police...).

The first hypothesis, "Cyberbullying among adolescents increased during Covid-19," is rejected, as the adolescents' responses do not reveal any significant changes in the frequency of cyberbullying before and during the Covid-19. It is interesting to note, however, that when asked if the frequency of cyberbullying increased because of Covid-19, respondents answered yes on average. This may be related to the fact that respondents assumed that there was an increase in cyberbullying during Covid-19 because adolescents were online more frequently during that time, which they believed contributed to the increase in the aforementioned form of violence that was not found in their own case.

The second hypothesis, "Female adolescents were more likely to experience cyberbullying than male adolescents" can be confirmed. Adolescent girls were more likely to receive messages with inappropriate content that they did not want to see and receive and that scared them, and they were also more likely to receive rude and offensive comments about their appearance and were also more likely to be harassed by others online. threatened than adolescents. On the contrary, male adolescent were more likely than female adolescent to report that untrue rumours were spread about them online. Differences in cyberbullying according to gender were examined by Alsawalqua (2021, p. 1), who found that male adolescents are more likely to be perpetrators of cyberbullying than female adolescents, which was also confirmed by Sun, Fan, and Du (2016, p. 61), while Heiman and Olenik-Shemesh (2015, p. 146) further added that females are more likely to be victims of cyberbullying compared to males.

We reject the last, third hypothesis "Adolescents are insufficiently educated about the challenges of cyberbullying " as we have shown that both groups considered are sufficiently educated about the challenges associated with cyberbullying. They are aware that cyberbullying can lead to suicide, that it is a serious problem, that it can be detrimental to adolescents' mental health, that schools should pay more attention to cyberbullying, and that most adolescents noticed that cyberbullying was being perpetrated against someone else but did not act. They were least likely to agree that cyberbullying is less problematic than

traditional forms of violence (physical violence, family violence, etc.) and to believe that teachers in schools are sufficiently informed about the issues surrounding cyberbullying. Of concern, however, is the fact that youth agreed that they believe some youth witnessed cyberbullying but did not act on it, suggesting that awareness needs to be raised to encourage victims or bystanders (witnesses) to report such behaviour to competent adults (teachers, parents, police, etc.).

Regardless of a young person's role in cyberbullying, such violence is unacceptable, and for this reason we must not remain passive in awareness, but take an active role in reporting such perceptions, for which it is important to raise people's awareness. The detection and prevention of cyberbullying should be included in the quality systems in education, as this issue can also be approached from an institutional point of view, which is very important.

## 6 Conclusion

The research we have carried out is very important because it can be used by various educational and non-educational professionals, as well as by researchers dealing with the mentioned area, in their work. We have shown that the adolescents interviewed believe that teachers in schools often do not have enough knowledge about the problem of cyberbullying. This problem needs to be addressed in an appropriate way, as teachers are often the first professionals to come into contact with adolescents who are perpetrating or exposed to cyberbullying and can therefore be the professionals who can most influence adolescents, either by talking to and helping victims individually or by teaching students about the problem of cyberbullying in classrooms. For this reason, this article highlights the fact that teachers should strengthen and expand their knowledge about cyberbullying. For this reason, the article provides good guidelines for the topic of cyberbullying to be studied and included in educational quality systems, as the article is based on both the theoretical starting points of the selected topic and empirical findings that point to real responses regarding the occurrence of cyberbullying.

Violence among adolescents is an important social problem, that is why cyberbullying has become very pressing in recent years with the spread of the use of the Internet and social networks, leading to great and threatening negative psychological and physical consequences. For this reason, with this article we have tried to contribute to the social awareness of the chosen topic, which is also increasingly common in Slovenia, with an additional focus on the Covid-19 period, which also had great social consequences in the context of online presence among adolescents.

In the article, especially in the empirical part, we have highlighted several aspects of cyberbullying by adolescents that need to be studied in more detail for the benefit of the society. We have shown the prevalence of cyberbullying in different time periods, which we have studied from the perspective of both male and female adolescents. This article is therefore also useful for studying the aforementioned social groups, as it provides a solid

basis for dealing with cyberbullying, what to look out for, how to prevent it, and how to generally deal with the challenges we may encounter in this group.

Despite the fact that the article on the topic of the increase in cyberbullying among adolescents during Covid-19 provides useful information from the field, including empirical research, we can also point out some of the limitations that we found after completing the analysis. First, we can highlight the fact that the sample of respondents could be larger than it is now. If the sample were more extensive, the results could also be more useful, because if the representativeness of the sample were achieved, they could be generalized to the whole population and would not apply only to our sample.

In the future, research on cyberbullying during Covid-19 could be expanded in several ways. Expanding the quantitative survey could include more respondents, which would provide the opportunity to make comparisons across different groups of respondents - for example, differences between youth based on age, school performance, and frequency of Internet use could be examined. In the future, quantitative research could also be conducted to focus only on a specific sample of respondents, thus examining cyberbullying in one school, one class, or in a single location.

It would be also very useful to expand the research by supplementing the results of this existing research and supporting it with qualitative research. For example, we could conduct various interviews, starting by pointing out that we could conduct interviews with adolescents who frequently encounter cyberbullying, as this would give us a realistic insight into the issue of cyberbullying, the reasons why it occurs, and their feelings about it. The results could then be used to derive relevant findings that would help prevent this form of violence. Furthermore, the qualitative research could be extended by interviews with teachers in elementary schools, as they are often confronted with different forms of violence, with cyberbullying also playing a role. In this way, we would get a good insight into the topic from a professional's point of view, which would make our conclusions even more professional. Finally, the research could also be extended by conducting different focus groups with adolescents of different demographics who are not necessarily victims of cyberbullying, as this would give us a good and useful insight and allow us to explore in more depth the selected topic of the increase of cyberbullying among adolescents during Covid-19.

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**Romana Likar** se je po končani srednji Farmaceutski šoli zaposlila kot Obratni tehnik v obratu Sterilna proizvodnja injekcij v Krki d.d. Zaradi želje po znanju se je vpisala na dodiplomski študij Fakultete za organizacijske študije v Novem mestu., ki ga je v oktobru 2022 tudi uspešno zaključila. Pridobljeno znanje na Fakulteti za organizacijske študije si želi uporabiti v dobrobit podjetju, kjer je trenutno zaposlena.

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**Maja Pucelj** je docentka na Fakulteti za organizacijske študije. Diplomirala je na Fakulteti za javno upravo in Fakulteti za management ter zaključila magistrski študij na Fakulteti za državne in evropske študije ter Evropski pravni fakulteti. Prvi doktorat je opravila na Alma Mater Europaea -ISH s področja humanistike, trenutno pa zaključuje drugi doktorat na Fakulteti za državne in evropske študije s področja mednarodnih študij s poudarkom na človekovih pravicah. Njeno raziskovalno področje posega na področje človekovih pravice, vprašanje spolov, integracije muslimanov, sovražnega govora in še posebej na presečišča teh območij. Je avtorica ali soavtorica številnih akademskih publikacij.

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## Povzetek:

### Porast nasilja na spletu med mladostniki v času covida-19 – perspektiva mladostnikov

**Ozadje in izvirnost:** Namen pričujočega članka je raziskati, ali je moč zaznati porast nasilja na spletu med slovenskimi mladostniki v času covida-19 v primerjavi z obdobjem pred covidom-19. Originalnost pričujočega članka je moč zaznati v preučevanju zelo aktualnega družbenega vprašanja, ki posega na zaenkrat še malo raziskan vpliv obdobja covida-19 na medvrstniško in spletno nasilje med mladostniki.

**Metoda:** V pričujočem članku smo uporabili deskriptivno metodo, s pomočjo katere smo opisali teoretična izhodišča. V empiričnem delu članka smo uporabili kvantitativno metodo, v kateri smo uporabili metodo anketiranja. V anketnem vprašalniku je bila uporabljena Likertova lestvica, ki je merila, v kolikšni meri so se anketiranci strinjali z različnimi trditvami na področju spletnega nasilja.

**Rezultati:** Po mnenju anketiranih mladostnikov so le-ti tako v času pred covidom-19 kot tudi v času covida-19 redko doživljali spletno nasilje, vseeno pa so nekateri anketirani mladostniki pogosteje poročali o tem, da so prejeli sporočila z neprimerno vsebino in sporočila, ki jih niso želeli prejeti in videti. Ugotovili smo tudi, da so mladostnice v primerjavi z mladostniki v večji meri prejemale sporočila z neprimerno vsebino, ki jih niso želele prejeti in videti in zaradi katerih so čutile strah, prav tako pa so pogosteje prejemale nesramne in žaljive komentarje glede svojega videza, drugi so jim na spletu pogosteje grozili.

**Družba:** Članek se ukvarja z družbeno relevantno temo, saj obravnava prisotnost nasilja med mladostniki v času med covidom-19. Omenjeno področje zaradi dejstva, da je covid-19 relativno nov izziv na področju virologije, trenutno ostaja pod raziskano področje, zato pričujoča raziskava predstavlja zgolj začetek preučevanja izbranega področja. Rezultate pričujoče raziskave lahko

uporabijo številni strokovnjaki, ki želijo temo nadalje preučiti, oziroma mladostniki, starši in učitelji, ki želijo omenjeno področje podrobneje spoznati.

**Omejitve/nadaljnje raziskovanje:** Omejitve raziskave se kažejo v omejenosti preučevanega vzorca, poleg tega pa so se pri izvedbi anketnega vprašalnika pojavili nepopolno izpolnjeni vprašalniki. Hkrati bi se raziskava morala razširiti do te mere, da bi lahko zagotovili reprezentativnost vzorca. Raziskava bi se lahko razširila na način, da bi se med udeleženci izvajali poglobljeni intervjuji, tako med otroci in starši kot tudi med strokovnjaki v šolstvu, kajti kakovost šole je močno povezana z varnim in spodbudnim učnim okoljem.

**Ključne besede:** medvrstniško nasilje, spletno nasilje, covid-19, splet, družbena omrežja, mladostniki.

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