"The most ridiculous virus in the history" – the role of devaluation in COVID-19 vaccine hesitancy

„Najsmešniji virus u istoriji" - uloga devalvacije u neodlučnosti u pogledu COVID-19 vakcinacije

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ABSTRACT

Keywords:
COVID-19,
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hesitancy,
Coping strategies,
Devaluation

A cross-sectional study was conducted during the first wave of the COVID-19 pandemic (March and April 2020) in the Republic of Serbia, with the aim to evaluate the relationship between coping strategies and readiness to get a vaccine against coronavirus. At that time vaccines against COVID-19 were not developed. Coping strategies were measured on the Cybernetic Coping scale. Results confirmed that coping strategies could predict someone's negative attitudes toward vaccination. Namely, more frequent usage of devaluation was negatively associated with someone's intention to get vaccinated. It seems that underestimating the danger, believing that pandemic is not real, that COVID-19 is "just another flu-like virus" reasonably decreases the chance that someone will take precautionary measures

SAŽETAK

Ključne reči:
COVID-19,
otpor prema
vakcinaciji,
strategije
prevladavanja,
devalvacija

Istraživanje je sprovedeno u Republici Srbiji tokom prvog talasa COVID-19 pandemije (mart i april, 2020.) sa ciljem da se ispita odnos upotrebe strategija prevladavanja i spremnosti za vakcinaciju protiv korona virusa. U momentu kada je istraživanje sprovedeno, vakcine protiv COVID-19 nisu bile razvijene. Dobijeni rezultati potvrdili su da strategije prevladavanja mogu da predvide nečiji negativniji stav prema vakcinaciji. Konkretno, upotreba devalvacije kao strategije prevladavanja bila je negativno povezana sa nečijom namerom da se vakciniše. Čini se da umanjivanje opasnosti, verovanje da pandemija ne postoji, da je COVID-19 samo „još jedan virus sličan gripu" očekivano smanjuje verovatnoću preduzimanja mera predostrožnosti.

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Introduction

COVID - 19 outbreak started a health crisis that affected all aspects of human functioning across the globe. In times of uncertainty, different people used various strategies to overcome the unknown that they suddenly faced. From the beginning, the vaccine was mentioned as one of the possible ways to terminate the global pandemic. While scientists put all efforts into developing COVID-19 vaccines, one important question arose: how many people will be ready to take those vaccines? In this study, we wanted to examine whether someone's coping strategies could affect their attitudes towards vaccination.

Coping strategies could be defined as someone's way of dealing with stressful situations. Consequently, they could explain why the same event has a different effect on different people. Additionally, depending on coping strategies that are typically used, different people will behave differently in the same stressful situation.

Studies that investigated the use of different coping strategies during the COVID-19 pandemic confirmed their association with mental health. It was shown that the use of positive thinking, active coping, as well as social support, were associated with well-being, while the same coping strategies were negatively associated with stress, depression, and anxiety (Budimir et al., 2021). The opposite trend was observed regarding substance use (Budimir et al., 2021).

Another study (Kar et al., 2021) showed a link between usage of particular coping strategies and anxiety and depression during the coronavirus pandemic. Participants who avoided thinking about the problem were unsure about coping strategies or were struggling to cope, reported higher levels of anxiety and depression. Finally, this study also showed that less frequent use of humor was associated with higher levels of anxiety. Consistently, another study (Savitsky et al., 2020) showed that usage of humor is associated with lower levels of anxiety while disengagement was associated with higher levels of anxiety.

In the literature, there is no agreement about the definition of coping strategies. Different authors are emphasizing different aspects of coping strategies: situational, cognitive, motivation, or even dispositional (Aldwin, 2007). As a theoretical framework for this study, we decide to use the Cybernetic theory of stress, coping, and well-being (Edwards, 1992). This theory defines stress as a mismatch between desired and perceived state. Stress activate coping mechanism, that are defined as different strategies that aim to minimize negative impact of stress on someone's well-being. The instrument we used (Cybernetic Coping scale) consists of five scales. *Change the situation* refers to someone's intent to actively resolve the problem. *Accommodation* involves changing persons' intentions and wishes in order to adapt to situation, *Devaluation* seeing the problem as unimportant, and *Avoidance* includes avoiding stressful events. *Symptom reduction* strategy refers to an attempt to actively reduce stress symptoms (Edwards &Baglioni, 1993). Cybernetic coping scale measures how someone usually reacts regardless of particular stressful events. Therefore, these coping strategies reflect someone's relatively stable tendencies (Edwards, 1998). This seemed important because we expected that at the vaccination decision-making moment, COVID-19 will not be a complete novelty, therefore people will process all available data in their typical manner.

Even before the coronavirus pandemic, one of the rising issues was increasing public doubt towards vaccinations. Vaccine hesitancy is defined as a "delay in acceptance or refusal of vaccines despite availability of vaccination services" (MacDonald, 2015, pp. 4163). These questions became subjects of various psychological studies that tried to identify factors that could predict vaccine hesitancy. Some demographic characteristics could be associated with more negative attitudes regarding vaccination. For example, it was shown that a more positive attitude toward vaccination is associated with higher educational and socioeconomic status (Larson et al, 2019). The same report also provided information about some gender differences, where females were less likely to agree that the seasonal influenza vaccine is important, but they were more likely to agree about the importance of the MMR vaccine.

According to our knowledge, there are no studies that investigated the role of coping strategies in attitude toward vaccination against coronavirus. However, previous studies showed that certain coping strategies could be associated with attitude towards the H1N1 vaccine. Namely, it was shown that usage of coping strategies focused on problem increase vaccination intent (Taha et al., 2013) while usage of avoidant coping strategies was common in the undecided group (Ashbaugh et al., 2013). The context of pandemics seems like the ideal setting for testing whether the use of coping strategies could predict vaccine hesitancy.

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This study was part of the big cross-sectional study that was conducted during the first wave of the coronavirus pandemic, during March and April of 2020 in the Republic of Serbia. Other results of this study were reported elsewhere (for details see Blanuša et al., 2020; Blanuša et al., 2021; Knežević et al., 2021). In this report, we focused on the relationship between coping strategies and attitudes toward coronavirus vaccination once the vaccine becomes available.

Based on the previous study (Larson e al., 2019) we assumed that educational level, as well as gender, will be predictors of someone's vaccination intent. Furthermore, we assumed that the usage of particular coping strategies will be associated with vaccination hesitancy. Namely, usage of more active coping strategies (e.g. Changing the situation) should be associated with higher vaccination intent while avoidant coping strategies (such as Devaluation and Avoidance) should be related to higher vaccination hesitancy.

Method

Participants: A total of 740 participants (537 female), average age 34.6±12.4 (range 18-71) from the Republic of Serbia took part in this study. Half of the participants have completed a higher education program, 46.8% have a high school education, while 3.2% of participants reported completion of primary school education.

Procedure: Participants from the Republic of Serbia took part in a cross-sectional online study, during the first wave of the coronavirus pandemic (March and April 2020). Before filling out questionnaires, all participants were informed about the aim of the study and the usage of collected data. Only participants that gave consent for participation by clicking on the "I agree" button were redirected for participation in the study.

Instruments: For measuring coping style we used Cybernetic Coping Scale (CSS; Edwards & Baglioni, 1993). Serbian adaptation of this scale (Knežević, 2015) replicates the original structure with 20 items. Participants should mark on a 4-point scale how often they use a particular strategy (from never to always). The scale showed high reliability in our sample ($α$ = .91). Furthermore, all CSS subscales had adequate reliability: *Changing the situation* ($α$ = .77), *Accommodation* ($α$ = .72), *Devaluation* ($α$ = .76), *Symptom reduction* ($α$ = .82) and *Avoidance* ($α$ = .80).

The attitude towards vaccination was measured with one item *I will take the vaccine against coronavirus once when it becomes available*[1]. This item has a 5-step scale from 1 (completely disagree) to 5 (completely agree).

Results

Descriptive statistics revealed that the mean attitude toward vaccination can be described as undecided (*M* = 2.89, *SD* = 1.18). Based on our data, we can further identify 3 groups based on the responses on the Likert scale: pro-vaccine (responses "5 - completely agree" and "4 - agree", 30.8%), undecided ("3 - neither agree nor disagree"; 35.4%), and anti-vaccine ("1- completely disagree" and "2 - disagree", 33.8%). Interestingly, the attitudes toward coronavirus vaccination were not related to gender, age, and not even education level.

In order to identify the effect of socio-demographic variables and coping strategies on attitude towards vaccination, we performed a hierarchical multiple regression analysis. At the first step, gender, age, and educational status were added to the model. Results revealed an insignificant model (presented in Table 1, step 1).

At the second step, coping strategies were added to the model. Results of regression analysis showed that, added to sociodemographic variables, coping strategies could explain attitudes towards vaccination (R^2= .03, $F(734, 5)$ = 3.18, p = .001). The only significant individual predictor was devaluation (b = -0.11, t = -2.21, p = .001). Details are presented in Table 1, step 2.

Discussion

The aim of this study was to examine the effect of gender, age, educational status as well coping strategies on attitude towards vaccination. Results of our study showed that one-third of participants are not planning to take a vaccine against coronavirus (33.8%), approximately one-third is undecided (35.4%). This data is comparable with a previous study (Taha et al., 2013) that investigated H1N1 vaccination intent.

Furthermore, it was shown that using devaluation as a coping strategy could be associated with someone's negative attitude towards vaccination against coronavirus. If someone underestimates the danger, believes that the coronavirus is "just seasonal flu", or

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Table 1. Hierarchical regression analysis on sociodemographic variables and Coping strategies as predictors of attitude towards vaccination

	Step 1			Step 2		
	b	t	p	b	t	p
Gender	0.018	0.489	.625	0.011	0.305	.76
Age	-0.027	-0,728	.467	-0.036	-0.975	.33
Educational status	-0.062	-1.684	.093	-0.053	-1.438	.151
Changing the situation				-0.063	-1.464	.144
Accommodation				0.062	1.354	.176
Devaluation				-0.113	-2.206	.028
Symptom reduction				0.095	1.856	.064
Avoidance				-0.092	-1.626	.104
Model	$R^2 = 0.005$, $F (3,736) = 1.22$, $p = .301$			$R^2 = 0.034$, $F (8,731) = 3.18$, $p = .001$		
				$\Delta R^2 = 0.029$		

(Source: Authors)

even considers it a "nonexistent virus" it is expected that they will be less likely to take the vaccine.

This result is perhaps comparable with a study (Kim et al., 2020) that showed that exposure to negative Facebook comments toward flu vaccination led to more negative attitudes. Another study (Ashbaugh et al., 2013) suggested that anti-vaccine, as well as undecided groups, are under the higher influence of media. In the group of participants that were against the N1H1 vaccine, 30% reported the Internet as the most influential source of information while 30% of people who were undecided relied on television and printed media. In Serbia, at the beginning of the pandemic, media and authorities underestimated the danger of COVID-19. Professor doctor Branimir Nestorović stated that SARS-CoV-2 is "the most ridiculous virus in the history of humankind" (Srpska napredna stranka, 2020).

Furthermore, it is interesting to note that in our study factors such as gender, age, and educational level were not associated with vaccine hesitancy. However, we had unrepresented people with lower educational levels, so our results could not provide sufficient data about vaccine hesitancy within group of individuals with primary or lower education.

Although based on our data, we could not predict eventual changes towards vaccination against coronavirus that occurred once when vaccines became available, it is interesting to note that at the time of writing this paper (February 2022) the percentage of the population vaccinated with 3 doses is 26.6%, while fully vaccinated (2 doses) are 47.1% of Serbian population (Our World in Data, 2022). Thus, it seems that initial attitudes toward vaccination did not change significantly over time. However, one of the limitations of this study is the fact that it was conducted before vaccination actually started. It would be interesting to do follow-up study and to also include the vaccination status of people as the variable.

Conclusion

According to our knowledge, this is the first study that confirms the relation between devaluation and attitudes towards coronavirus vaccinations. Although the percentage of explained variance was low, this result requires further examination on the effect of other factors on attitude towards vaccination. Using devaluation, could explain vaccine hesitancy in general.

During the COVID-19 pandemic, one of the problematic issues that arose was the way how recommendations were communicated to the public. Underestimating danger, perhaps could result in temporary relief, but it could lead to serious long-term consequences that affect not only the health and wellbeing of an individual but also society. This could be applied not only in the context of the current COVID-19 pandemic, but also regarding general health. Providing clear, fact-based information and not underestimating the consequences could be efficient ways in dealing with vaccine hesitancy.

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NAPOMENE

1   In Serbian „Primiću vakcinu protiv korona virusa kada bude dostupna."

STATEMENT

In their statements, authors confimed the absence of any conflict of interest.

REFERENCES

Aldwin, C.M. (1994). Stress, coping, and development. Guilford Press.

Ashbaugh, A. R., Herbert, C. F., Saimon, E., Azoulay, N., Olivera-Figueroa, L., & Brunet, A. (2013). The decision to vaccinate or not during the H1N1 pandemic: selecting the lesser of two evils?.*PLoS One, 8*(3), e58852. https://doi.org/10.1371/journal.pone.0058852

Blanuša, J., Barzut, V., & Knežević, J. (2020). Direct and indirect effect of intolerance of uncertainty on distress during the COVID-19 pandemic. *Primenjenapsihologija, 13*(4). pp. 473-487. https://doi: 10.19090/pp.20.4.473-487

Blanuša, J., Barzut, V., & Knežević, J. (2021). Intolerance of Uncertainty and Fear of COVID-19 Moderating Role in Relationship Between Job Insecurity and Work-Related Distress in the Republic of Serbia. *Frontiers in Psychology*, 12: 647972. https://doi: 10.3389/fpsyg.2021.647972

Budimir, S., Probst, T., & Pieh, C. (2021). Coping strategies and mental health during COVID-19 lockdown. *Journal of Mental Health*, *30*(2), 156-163. https://doi: 10.1080/09638237.2021.1875412.

Edwards, J. R. (1992). A cybernetic theory of stress, coping, and well-being in organizations. *Academy of management review*, *17*(2), 238-274. https://doi.org/10.2307/258772

Edwards, J. R., & Baglioni, A. J. Jr. (1993). The measurement of coping with stress: Construct validity of the Ways of Coping Checklist and the Cybernetic Coping Scale. *Work and Stress, 7*, 17/31. https://doi.org/10.1080/02678379308257047

Edwards, J. R. (1998). Cybernetic theory of stress, coping, and well-being: Review and extension to work and family. In C. L. Cooper (Ed.), *Theories of organizational stress* (pp. 122–152). Oxford University Press.

Kar, N., Kar, B., & Kar, S. (2021). Stress and coping during COVID-19 pandemic: Result of an online survey. *Psychiatry research*, *295*, 113598.https://doi: 10.1016/j.psychres.2020.113598

Kim, H., Han, J. Y., & Seo, Y. (2020). Effects of facebook comments on attitude toward vaccines: The roles of perceived distributions of public opinion and perceived vaccine efficacy. *Journal of Health Communication*, *25*(2), 159-169. https://doi: 10.1080/10810730.2020.1723039.

Knežević, J., Blanuša, J., & Barzut, V. (2021). Sociodemographic Variables Associated with Distress and Fear during COVID-19 Pandemic. In Z. Milić (ed.), *Collected Papers from the 12. International Interdisciplinary Profesional-Scientific Conference: "Horizons"*, Full paper. Subotica: College of Vocational Studies, Subotica Vocational Training of Preschool Teachers and Sports Trainers.

Knežević, J. (2015). The role of basic psychological needs and self-regulation in coping with the job instability perception. [Doctoral dissertation. University of Novi Sad, Faculty of Philosophy] National Repository of Dissertation in Serbia. .https://nardus.mpn.gov.rs/bitstream/handle/123456789/4816/Disertacija334.pdf?sequence=6

Larson, H., de Figueiredo, A., Karafllakis, E., & Rawal, M. (2019). State of vaccine confidence in the European Union in 2018. *European Journal of Public Health*, *29*(Supplement_4), ckz185-374.

MacDonald, N. E. (2015). Vaccine hesitancy: Definition, scope and determinants. *Vaccine*, *33*(34), 4161-4164.https://doi.org/10.1016/j.vaccine.2015.04.036

Our World in Data (2022, February 9). Share of people vaccinated against COVID -19. https://ourworldindata.org/covid-vaccinations?country=SRB

Savitsky, B., Findling, Y., Ereli, A., & Hendel, T. (2020). Anxiety and coping strategies among nursing students during the covid-19 pandemic. *Nurse Education in Practice*, *46*, 102809. https://doi.org/10.1016/j.nepr.2020.102809

Srpska napredna stranka (2020, February). *Vučić: U Srbiji nema zaraženih korona virusom* [Video]. YouTube. https://youtu.be/TraVNW2q3ik?t=1744

Taha, S. A., Matheson, K., & Anisman, H. (2013). The 2009 H1N1 influenza pandemic: The role of threat, coping, and media trust on vaccination intentions in Canada. *Journal of health communication*, *18*(3), 278-290. https://doi.org/10.1080/10810730.2012.727960

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