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Does employment determine self-awareness of biases? Sociodemographic aspects of metacognitive self before and during COVID-19

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Abstract. Two studies (study 1 n = 705, study 2 n = 263) were designed to investigate the importance of being employed vs. unemployed for self – awareness of biases (metacognitive self) before and during COVID-19 pandemic. Sociodemographic expectations that the age, level of education, place of residence (little or large town or huge city people live in) might impact metacognitive self were turned down via results of the pilot study (n = 78). On the contrary, two main studies showed the significant impact of being employed vs. unemployed on metacognitive self. COVID-19 pandemic times enhance the role of being employed for metacognition. Metacognitive – self growth was observed during pandemic. Results are explained in psychological and economic terms.

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1. INTRODUCTION

Metacognition is a crucial characteristic of human cognition. Metacognition, meaning one's knowledge about one's cognition, is a concept developed by philosophy (see paper of Sachs, 2001) and introduced into scientific psychology and experimental work by Wilhelm Wundt (1883, 1896), is increasingly explored nowadays by psychologists (Brinol & DeMarree (ed.), 2012; Efklides & Valachopoulos, 2012; Flavell, 1979; Koriat, 2007; Schwarz, 2015; Nelson & Narens, 1990; See Petty & Fabrigar, 2008). Jost, Kruglanski and

Nelson (1998) add some context by claiming that metacognition occurs when an individual thinks about his/her mental states or corresponding states in the minds of other people.

The need for metacognition, which is part of broadly defined epistemic needs (Kruglanski, 1989), is a motivational source of creating complex knowledge about how oneself and the others function – socially, cognitively, and emotionally. With metacognition, people can form lay theories of personality, mind, and attitudes. These lay theories, in turn, significantly influence one's behaviours and self-regulation (e.g., Dweck, 2000). Efklides (2008) provided empirical proof that three factors can be singled out within the metacognition construct. These are: metacognitive knowledge (e.g., regarding human abilities needed to complete a goal); metacognitive skills (e.g., procedural skills of completing goals); and metacognitive experiences (e.g., insight into one's emotions - monitoring the flow of the process, emotional regulation, etc.), evaluations that go with task implementation. Without a doubt, the quality of "thinking about thinking" and its result (such as a given mind theory or trait theory) determine the whole spectrum of social behaviours, such as making friends with specific people, successful planning, completing actions, correcting biases (e.g. Wegener, Petty, 1995), etc. Based on this brief description of approach to metacognition in this study, the construct of metacognitive self (MCS) is presented.

2. METACOGNITIVE SELF (MCS)

This study focuses on "metacognitive self" (MCS), which reflects the self-awareness of biases. The MCS is rooted in intrinsic motivation and a reflective, deliberate way of thinking about oneself (Bar-Tal, Brycz, Dolinska, & Dolinski, 2017). High-MCS individuals (as compared with low-MCS individuals) are more often motivated to use self–diagnostic information, which boosts self-knowledge and psychological self-improvement (Brycz, Wyszomirska-Góra, Bar-Tal, & Wisniewski, 2014; Brycz, Wyszomirska-Góra, Konarski, & Wojciszke, 2018). Moreover, experimental studies (Brycz & Karasiewicz, 2011) have indicated that high-MCS individuals are more intrinsically motivated to work under conditions of overload, have a higher need for achievement, and are more readily to accept the values such as self-directedness and achievement.

The MCS also includes an emotional aspect. The MCS is strongly and positively correlated with seeking future goal–oriented self-experiences, which is crucial for emotion regulation, and enhancement of positive affect (Szczepanik, Brycz, Kleka, Fanslau, Zarate, Nugent, 2020). Besides playing a positive and proactive role for goal pursuit and hope, the MCS is positively correlated with some other similar constructs, such as self-regulatory metacognition (Ghorbani et al., 2008), and adaptive metacognitive construct (Beer & Moneta, 2010). Further studies have revealed negative correlations between MCS and maladaptive metacognition, such as positive beliefs about worry, a strong tendency for rumination, and other thoughts associated with depression and various psychiatric disorders (Wells & Cartwright-Hatton, 2004). Research has shown that the MCS plays an adaptive role, is negatively correlated with rumination and psychiatric disorders, and is positively correlated with adaptive metacognition (Brycz et al., 2019). The authors also found that the higher the MCS is, the more conscious, agreeable, and emotionally stable the individual appears to be. Thus, the MCS might be understood as people's ability to accurately perceive their functioning within psychological rules, implicit biases, illusions, and this perception is correlated with positive dispositions and emotions.

The role of gender in metacognition is wildly investigated (Steward, 2011; Kolic–Vehovec, et all, 2010, Stancovic, Lee, 2008). In the last ten years, studies showed weak but significant differences between gender. Women present stronger MSC than men. (Brycz, Konarski, Kleka, Wright, 2019). It is assumed that the present study may also reveal an analogue tendency.

This study assumes that metacognitive self, meaning self-awareness of biases may be stronger among people who experience the work environment in contrary to individuals unemployed for many reasons.

These reasons might be retirement, pension, studding (emerging adulthood period), being sponsored by family. Workplace and interpersonal interactions among co-workers shed light on many biases. Thus, being employed vs. unemployed serve as experimental field for self-awareness of biases enhancement. The other issue is the impact of COVID pandemic on metacognitive self.

2.1. Socio-economic aspects of employment for self-awareness of biases

The philosophical background of socio-economic aspect of employment for consciousness and self-awareness turns back to Karl Marx and - as opposite ideas - Max Weber. Karol Marx denounced Hegelian metaphysics and provided laws of socioeconomic development, emphasizing the role of poverty and classes as keys to social change. Marxian utopia is now by certain philosophers departed from communist orthodoxy and employed to explain contemporary changing social and economic reality. Marx claimed moreover that consciousness is socially determined (Goryszewski, 1989). From the other direction of philosophy reasoning, Max Weber's conceptualization of the Protestant ethic has played a significant role in modern social and economic thought. Work itself played a crucial role for individual self- worth. Although love and work were the cornerstones of Freud's philosophy, a psychoanalytic theory of work had never been clearly formulated by Weber (Reuben, 1983).

The vast majority of organizational psychology articles assert the overwhelming role of work engagement during an individual lifetime. Work heals addictions and helps overcome brain deficits (Fortunate, Walsh, 2021). Work fosters creativity (Donal, et all, 2021). In economic relations work contributes to positive perception of well-being and incentives for further economic activity, being an essential constituent of economic dimension of well-being (Tvaronavičienė et al., 2021). Vice versa, dissatisfaction with work, caused by different factors, such as discrimination by gender, age and other social characteristics, inappropriate labour conditions can essentially shift personal motives of employment (Bilan et al., 2020; Cannas et al., 2019), which demands new approaches in HRM practices (Rozsa & Kmecová, 2020). Moreover, the other research helps clarify theoretical distinctions among work-nonwork fit constructs and extends the boundary fit literature through an atomistic fit perspective (Michel, et all, 2021).

Despite many problems raised by work, like burn out, mobbing, work – family conflict, and others, inevitably work and being an employee has a great impact on well-being, and other psychological functions. This study supposes that the workspace serves as an experimental plot for self-awareness of biases.

3. THE STUDIES

3.1. The pilot study

Overview of the study: N = 78 persons, aged 20 to 55 years of age (M = 25. 03, SD = 5. 52), half of them women (39) participated in the pilot study. Participants were informed about anonymity and scientific goal of the research. They provided information about their gender, age, number of inhabitants in the city they lived in, educational status. Next, they filled in Metacognitive Self Questionnaire (MCSQ-24, Brycz, Konarski, 2016).

Results: No relation between demographic variables and metacognitive self was found. Spearman's rho between MCS and subsequently: age was rho = - 0.144, p = 0.321; gender rho = 0.195, p = 0.087; the number of inhabitants lived in the city of residence rho = 0.161, p = 0.160; educational status r = 0.023, p = 0.843 appeared to be insignificant. The sample was small, nevertheless pilot study is not encouraging. However, the employment status of participants haven't been measured. The latter variable seems crucial for us for further investigations.

3.2. Study 1

Hypothesis: It is predicted that, employed people are stronger in self-awareness of biases than students, who require financial support. The other prediction is connected with gender differences. The literature show women perform better on metacognitive self than men.

Participants: All participants provided written informed consent to participate in the study. A sample of n = 705 adult Poles between the ages of 18 to 72 (M = 39.66, SD = 15. 18) participated in this part of the study. Among the participants, 389 were female and 316 were male. Mean age of the female sample was M = 40.45 years (SD = 15.08) and the male sample was M = 38.69 years (SD = 15.28). The employment structure of the sample was: n= 389 unemployed students, and n = 319 employed individuals.

Procedure: The participants were informed about the scientific aims of the research project and assured of their anonymity. There was no reward for participation in the study. Each participant provided information about gender, status of employment and completed the MCSQ-40 (paper form). They worked individually or in groups up to 30 persons. The whole sample completed the study at the end of 2018. Completion of the questionnaire took approximately 10-15 minutes. At the conclusion of each interview, all participants were thanked and fully debriefed.

Measurement – Instrument MCSQ-40: Brycz and Karasiewicz (2011) proposed the first version of the metacognitive-self questionnaire, MCSQ-40. The questionnaire turned out to be valid and reliable, even though groups of test subjects (N = 1 903) were recruited mainly from among students and young working adults. The questionnaire is composed of 40 items corresponding to the 40 previously isolated adaptive psychological regularities. Each of them was presented in an episodic form. Participants ranked each item, one by one, on a scale ranging from 0% (does not apply) to 100% (fully applies), to indicate to what extent a given regularity is manifested in their behaviours. The index value of metacognitive self was either the mean or the sum resulting from the assessment of all 40 regularities, calculated individually for each participant.

Thanks to further work on creating a more reliable tool to measure the level of metacognitive self in strict compliance with the strongest determinants of psychological research methodology on Polish population N = 1204, nationwide probe, allowed to proof validity and reliability of MCSQ-40 (Brycz, Konarski, 2016, Brycz, Konarski, Kleka, Wright, 2019).

The reliability in the sample N = 705 is Cronbach alpfa = 0. 781. Model based reliability coefficient omegaH (McDonald, 1999; Zinbard, Revelle, Yovel, & Li, 2005) for the MSCQ-40 general factor is .80.

Single factor model was used in this study (mean of 40 items), expressed in percentage of self – awareness of biases. 0% meant extreme self- unawareness of biases and 100% extreme self-awareness of biases.

Results: The normality of distribution for metacognitive self, as dependent variable, was checked by Kolmogorov – Smirnov test, using Monte Carlo draw, confidence interval (99%): M = 58. 457, SD = 9. 536; p = 0. 258. Normal distribution of dependent variable allowed to avail of analysis of variance: gender x employment, as independent variables, for the mean score of metacognitive self, as dependent measure (SPSS.25). Both: Box test and Leven's test were insignificant asserting once more normal distribution of dependent variable.

As predicted, the economically independent working adults have significantly stronger metacognitive self than unemployed F (1, 701) = 10. 454, p = 0.001, eta2 = 0.05 (Figure 1)

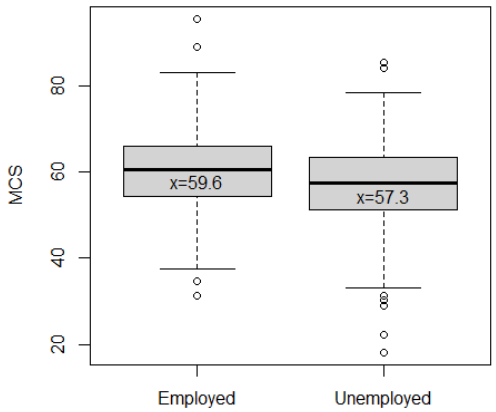

Figure 1. The role of kind of work for self-awareness of biases (MSC)

Source: own data

The main effect of gender has also appeared: F (1, 701) = 6. 306, p = 0. 012 eta 2 = 0. 01. (Figure 2)

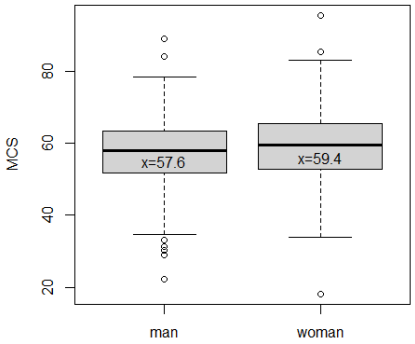

Figure 2. The role of gender for self-awareness of biases (MSC)

Source: own data

Discussion: Effect size in both cases is rather small, meaning modest impact of independent variables ~~of~~ on metacognitive self. Age has no relation to metacognitive self r = 0. 001, n.s. However, employment is a kind of beneficial condition for developing stronger self-awareness of biases in contrary to only – study condition.

3.3. Study 2

The replication of obtained effects was predicted in the study. The open question is how pandemic influences the value of being employed? Is it possible to get stronger prove for the beneficial role of the workplace for creating strong MCS?

Participants: Participants were recruited via webpage on Internet at the end of 2020 (November and December) and the beginning of 2021 (January, February). Total number of participants was: N = 263; 158 individuals identified themselves as females and 105 as males, respectively. No one tick the answer: can't say about my gender. Age ranged 18 to 51 years of age (M = 23. 996; SD = 4. 841). 157 individuals ascertained themselves as unemployed, and 106 ones as employed persons.

Procedure and method: Each participant was asked to fill in the metacognitive self questionnaire (MCSQ-24, Brycz, Konarski, 2016), next mark their gender (male, female, can't tell), and the status of

employment (got money and job or haven't job at all, in need of money). Individuals took part in the study voluntarily and did not get any reward for participation.

Instrument: MCSQ-24 (Brycz, Konarski, 2016) is a shorten version of MCSQ-40 (Brycz, Karasiewicz, 2011). MCSQ-24 comprises 24 biases, expressed in an episodic way. It means that each item of the MCSQ-24 is a colloquial behavioural description of a given bias. Memory biases were expressed, e.g., item 6 "I remember information better when I can relate it to the knowledge I already have"; attribution biases, e. g., item 10 "I think that causes are similar to their effects. When I realize that some event such as international conflict is very complex, I think that it was brought by many causes - economic, geopolitical, cultural, etc". The MCSQ-24 was created based on the bi-factor model solution of the MCSQ-40 on nationwide sample of Poles n = 1204. Participants use a six-point Likert scale, ranging from 1 (totally disagree) to 6 (totally agree), to indicate the extent to which they believe each behaviour applies to them. The model-based omega reliability coefficient (McDonald, 1999; Zinbard, Revelle, Yovel, & Li, 2005) for the general MCSQ-24 factor in the calibration sample was .77. This represents a very small decrement in estimated measurement reliability in comparison with the .80 coefficient obtained for the MSCQ-40 in the same sample.

In the present study, the internal consistency of the MCSQ-21 was satisfactory. Cronbach's alpha = 0. 741.

Results: The dependent variable (metacognitive self) was analysed for normality distribution. The Kolmogorov – Smirnov test with Monte Carlo draw confidence interval (99%) indicated: M = 4. 359, SD = 0. 485; p = 0. 219. Normal distribution of dependent variable allowed to avail of analysis of variance: gender x employment, as independent variables, for the mean score of metacognitive self, as dependent measure, was executed (SPSS.25). Both: Box test and Leven's test were insignificant asserting normal distribution of dependent variable. The main effect of employment appeared F (1, 259) = 71. 289, p < 0. 001, eta2 = 0.22, showing higher level of self-awareness of biases for employed individuals (M = 4. 63) than the analogues level among unemployed persons (M = 4. 15) (Figure 3).

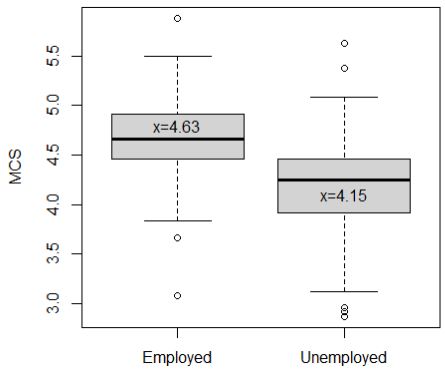

Figure 3. The role of employment for self-awareness of biases (MSC)

Source: own data

As was predicted the main effect of gender emerged F (1, 259) = 7. 861, p = 0.005, eta2 = 0.03, indicating slightly but significantly stronger metacognitive self among women M = 4. 468 in contrary to men M = 4. 310 (Figure 4).

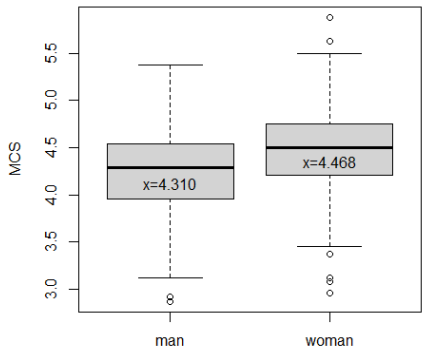

Figure 4. The role of employment for self-awareness of biases (MSC) during COVID-19
Source: own data

Datasets from study 1 and study 2 were combined to examine the effect of COVID-19 on the relation of employment and metacognitive self. Dependent variables (MCS) in study 1 (MCSQ-40) and study 2 (MCSQ-24) were measured in different scales. Thus, dependent variable in MSCQ-24 was changed to a percentage scale, in order to be consistent with the MSCQ-40, so 0% meant lack of accuracy while 100% showed maximum accuracy of self-awareness of biases. U Mann's – Whitney nonparametric test was used: timing (before and during pandemics) as the independent variable for MCS, separately for employed and unemployed participants. For unemployed participants was found Z = - 12. 811, p < 0. 001, indicating the huge difference between mean rank for metacognitive self before pandemic Mrang = 216, 47 versus during COVID times Mrang = 406, 45. The same pattern was found for employed individuals Z = - 13. 751, p < 0. 001; before pandemic: M/rand = 166. 29 vs. during pandemic M/rang = 536. 02. Analogously conducted t- Student's test for homogenized metacognitive self also showed significance: for unemployed participants: before COVID M = 57. 33 versus during COVID M = 69. 43; t (540) = - 13, p < 0. 001. For employed individuals: before COVID M = 59. 806 versus during COVID M = 77. 430, t (424) = - 18.398, p < 0.001.

As MCS has a normal distribution, the ANOVA was conveyed for timing and employment as independent variables and metacognitive self as the dependent variable. The main effect of timing appeared: F (1, 964) = 520. 097, p < 0. 001, eta 2 = 0. 35 (meaning that 35% of the variance was explained by timing). As expected, ANOVA revealed the main effect of employment: F (1, 964) = 64. 526, p < 0.001, eta2 = 0.63 (meaning that 6, 3 % of variance was explained by employment). What's more, the interaction between timing and employment was significant F (1, 964) = 18. 024, eta2 = 0. 02.

The results show general improvement on metacognitive self during the pandemic, as well as the impact of employment (Figure 5).

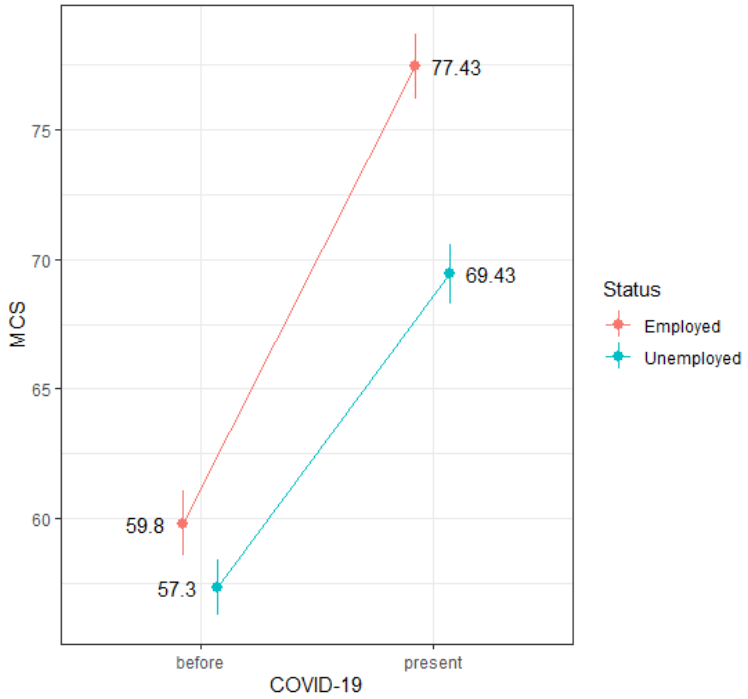

Figure 5. Interaction of timing and employment for self-awarness of biases (MSC)

Source: own data

Discussion: The pandemic situation caused stress and job loss. Participants differ in their financial situation (contrary to study 1, when we did not ask about money). 106 persons were employed and did not worry about money. 157 participants were unemployed (we don't know whether they lost their job, or this is their permanent situation) and worried about their financial situation. The effect size for financial status and the fact of being employed vs unemployed on MCS explained 22% of variance. It is much more than in the Study 1. Of special psychological concern is the improvement of self-awareness of biases during COVID pandemic in comparison to previous period of time (up to 2018). The effect is mediated by employment. Employed participants during COVID revealed significantly higher MCS in contrary to unemployed ones. Before pandemic the mean of MCS in both groups were similar.

4. CONCLUSION

The most important effect for this study is the significant impact of being employed vs. unemployed on self-awareness of biases. Especially during COVID19 pandemic 2020-2021 paid job impact solely metacognitive self.

During the 2020-2021 years participants became confused due to chaotic informational situations and a high level of uncertainty caused by the pandemic. The COVID19 pandemic evokes a massive, global health crisis. People lived under the threat of death and serious illness. Each outdoor activity was connected with risk and demanded risky decisions. Previous studies on the metacognitive self revealed the interactive impact of low ability to achieve cognitive structuring and metacognitive self on proclivity to biases (here confirmation bias) (Bar – Tal, Brycz, Dolińska, Doliński, 2017). Perceived personal ability to achieve cognitive structuring is highly connected with uncertainty. Uncertainty is an immanent part of COVID19 pandemic. Uncertainty needn't to be experimentally evoked. Uncertainty and fear are still present during world health catastrophes as COVID19.

People create and believe in conspiracy theories as a buffer towards their uncertainty and fear (Pummeerer, et all, 2021). Conspiracy theories reduce institutional trust and civic engagement. Lockdown, on the other hand, had a deteriorative impact on many brands of the market. The latter hit many people via job and wage loss, poverty, and resulted in more fear.

The pandemic is likely to function as a major stressor, especially in terms of chronic anxiety and economic difficulties.

Employment always has a beneficial role for self- esteem, and self- worth (Codina, Freire, 2020, Bilan, Hussain, Hasseb, Kot, 2020). The special psychological role of work can be observed during COVID19 pandemic. Financial recourses tick all the right boxes: food, medical support at a higher private level, good accommodation, online entertainment. A stable, well- paid job can't be overestimated.

Participants esteemed their job and under uncertainty were highly motivated to recognize their biases. These employees had higher motivation for enhancing self-awareness of biases. The latter help to control and monitor work (Yzerbyt, Lories, Dardenne, 1998)

Of special psychological concern is the improvement of self-awareness of biases during COVID pandemic in comparison to previous period of time (up to 2018). The effect may be explained via literature on posttraumatic growth (Tedeschi, Calhoun, 2009; Tedeschi, Park, Calhoun, 1998). Psychologically and philosophically, it is plausible to assert that trauma can result in positive outcomes (Caplan, 1964). Crises represent opportunities for individual growth. The fact was enquired by clinical psychologists, who observe the post-traumatic personality growth among depressed patients. Thus, metacognitive -self growth during pandemic means a positive impact of global trauma on cognitive functioning. The effect is mediated by employment: employed participants showed significantly stronger MCS during pandemic than their unemployed counter partners. It may be explained by beneficial impact of being an employee (sense of financial security) on strength of MCS during difficult pandemic times.

Limitation of the study: Participants comprise in two studies were not nationwide samples. Results shouldn't be generalized to the whole population of Poles.

Moreover, this studies serve only as ~~of~~ the beginning of further investigation on relations between employment and metacognitive self. There is sufficient conditions to check the role of being employed vs. unemployed on metacognitive self while the economic situation was stable versus during COVID19 pandemic. COVID19 was a unique situation for such a comparison.

The effort to study the real impact of employment on self-awareness of biases needs further consideration and investigation.

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