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# *Socioeconomic status and mental health during the COVID-19 crisis: Are sense of coherence, sense of community coherence and sense of national coherence predictors for mental health?*

## BACKGROUND

Evidence about the impact of the COVID-19 pandemic on existing health inequalities is emerging. This study explored differences in mental health, sense of coherence (SOC), sense of community coherence (SOCC), sense of national coherence (SONC), and social support between low and high socioeconomic (SES) groups, and the predictive value of these predictors for mental health.

## PARTICIPANTS AND PROCEDURE

A cross-sectional study was conducted using an online survey in the Netherlands in October 2021, comprising a total of 91 respondents ( $n = 41$ , low SES;  $n = 50$ , high SES).

## RESULTS

There were no differences in mental health, SOC, SOCC, SONC, and social support between the groups. SOC was

a predictor for mental health in both groups and SOCC for the low SES group.

## CONCLUSIONS

We found that both SOC and SOCC predict mental health during the pandemic. In the article we reflect on possible pathways for strengthening these resources for mental health.

## KEY WORDS

mental health; COVID-19; sense of coherence; socioeconomic differences; salutogenesis

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## BACKGROUND

Since the onset of the COVID-19 pandemic in March 2020, studies have suggested that the pandemic amplifies already existing health inequalities between lower and higher socioeconomic status (SES) groups (WHO, 2020). For example, the death rate due to the virus is two times higher among people with low SES compared to people with high SES in the Netherlands (CBS, 2021). Also, people with lower SES are reported to be more prone to develop adverse mental health problems as a result of chronic stress and lack of resources to cope with stressors (Crielaard et al., 2021). Additionally, according to a recent study, people with financial concerns and job insecurity report high levels of anxiety and depressive feelings (Wilson et al., 2020). Although studies about the possible impact of the pandemic on existing health inequalities are just emerging (WHO, 2020), it is crucial to examine possible differences in mental health and factors supporting people's ability from different SES groups to cope with stressors in a health-promoting way. Following Keyes (2002), mental health entails positive feelings and positive functioning in life, defined by the combination of "psychological, emotional and social well-being" (Lamers et al., 2011, p. 100).

The ability to cope well with stressors, such as the COVID-19 crisis, reflects the core concept of salutogenesis: the sense of coherence (SOC; Antonovsky, 1987). SOC is defined as the extent to which people perceive the world as comprehensible, manageable, and meaningful and acts as an underlying resource enabling people to choose effective coping strategies to avoid or overcome stressors (Antonovsky, 1987). In addition to how people perceive their world, the extent to which people perceive the community they are part of as understandable, manageable, and meaningful can also facilitate successful coping (Braun-Lewensohn & Sagy, 2011). Braun-Lewensohn and Sagy (2011, p. 535) argue that a strong sense of community coherence (SOCC) may offer "another resource to rely on when needed". Finally, people's perception of the strategies used in their countries to deal with the crisis may also influence their ability to deal with stressors, which represents the sense of national coherence (SONC; Mana et al., 2019). SONC is defined as an enduring tendency to perceive one's national group as comprehensible, meaningful, and manageable (Mana et al., 2019).

Concerning the role of SOC in coping with the pandemic, explorative studies have shown that SOC is positively associated with mental health (Super et al., 2021; Mana et al., 2021a, b), and there is ample evidence that a strong SOC relates to good mental health before the pandemic (Eriksson & Lindström, 2006). With regards to the role of SOCC, no studies have focused on the pandemic context yet. However, SOCC seems to support successful coping with

stressors during stressful events such as living in conflict areas (Braun-Lewensohn & Sagy, 2011; Mana et al., 2016). Therefore, SOCC may support successful coping during the pandemic as well, also because a recent study showed that social support from friends, neighbors, and family contributed to mental health during the first lockdown (Super et al., 2021). Finally, studies have suggested that a strong SONC is associated with mental health in conflict areas (Mana et al., 2019) and that SONC is positively associated with the mental health of the general population during the COVID-19 crisis (Super et al., 2021; Mana et al., 2021b).

Based on these recent empirical insights, we expect that SOC, SOCC, SONC and social support enable low and high SES groups to maintain or develop their mental health. Thus far, no studies have yet focused on the possible differences of these key salutogenic concepts in relation to mental health between both SES groups during the pandemic. Therefore, the current study aims to: 1) explore differences in mental health, SOC, SOCC, SONC, and social support between low and high SES groups, and 2) examine the extent to which mental health is predicted by SOC, SOCC, SONC, and social support for each SES group separately. By doing so, the knowledge gained in this study may inform health promotion interventions or initiatives to support mental health in times of a pandemic and possible future pandemics.

## PARTICIPANTS AND PROCEDURE

### PARTICIPANTS

We used a cross-sectional study design to (1) explore the differences between low and high SES groups concerning mental health, SOC, SOCC, SONC, and social support, and to (2) test to what extent mental health is predicted by SOC, SOCC, SONC, and social support for each SES group separately. Data were collected using an online survey combining several validated questionnaires and additional questions, which was distributed in September 2021 by an external research and consulting organization. They recruited participants based on the following inclusion criteria: participants had to be 1) Dutch citizens with a good command of the Dutch language, 2) between 25 and 65 years of age. In addition, during the recruitment process, particular attention was paid to ensure an equal gender distribution for each SES group. Participants were assigned to low and high SES groups based on educational level and income, which complied with standards used by Dutch research institutes such as the Central Bureau for Statistics (CBS, 2020). Specifically, participants who had not completed their primary or secondary school, had a vocational education diploma, and earned less than the

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average Dutch income were classified as having a low SES. Participants who had completed their primary and secondary education or held a (professional) bachelor's or master's degree, combined with earning a modal or above modal income, were classified as high SES. The study received ethical approval from the Social Sciences Ethics Committee at Wageningen University and Research. Participants could only start the questionnaire by giving informed consent. A total of 91 respondents ( $n = 41$  for low SES,  $n = 50$  for high SES) participated in this study, after which they received a financial incentive.

## MEASUREMENTS

*Mental Health Continuum.* Mental health was measured using the 14-item Mental Health Continuum (Short Form), which assesses three dimensions of mental health as defined in our study: emotional, psychological, and social well-being (Keyes, 2002; Lamers et al., 2011). An example item is: "In the past two weeks, I felt largely satisfied with my personality..." (1 – *never* to 6 – *every day*). In this study, the internal consistency of the questionnaire was  $\alpha = .92$ . An average positive mental health score was computed (range 1-6; 1 – low, 6 – high).

*Sense of coherence.* SOC was measured using the 13-item Orientation to Life questionnaire, using a 7-point scale (Antonovsky, 1987), and reflects the extent to which people experience life as comprehensible, manageable, and meaningful. An example item is: "Do you feel that you are being treated unfairly?" (1 – *very often* to 7 – *very rarely or never*). In this study, the internal consistency of the questionnaire was  $\alpha = .89$ . An average score of SOC was computed (range 1-7; 1 – low, 7 – high).

*Sense of community coherence.* SOCC was measured using the 7-item Sense of Coherence Community questionnaire (Mana et al., 2016), which reflects the extent to which people experience the community of which they are part of as comprehensible, manageable, and meaningful. The questionnaire uses a 7-point Likert scale. An example item is: "Do you ever feel that things in which you are involved in the community have no meaning?" (1 – *very seldom or never* to 7 – *very often*). The questionnaire was originally developed in a context where community was defined based on religious groups (Mana et al., 2016). In our study, we asked participants an open question about what they understood by 'community', which encompassed inter alia being with friends, family, and belonging to certain places such as cities. In this study, the internal consistency of the questionnaire was  $\alpha = .63$ . An average score for SOCC was computed (range 1-7; 1 – low, 7 – high).

*Sense of national coherence.* SONC was measured using the 8-item Sense of National Coherence ques-

tionnaire developed by Mana et al. (2019) and captures the extent to which participants experience the Dutch society as comprehensible, manageable, and meaningful. An example item is: "To date, the Netherlands has had..." (1 – *no clear objectives* to 7 – *very clear objectives*). In this study, the internal consistency of the questionnaire was  $\alpha = .72$ . An average score for SONC was computed (range 1-7; 1 – low, 7 – high).

*Social support.* Based on a previous study conducted in a similar context (Super et al., 2021), we used 3 items to measure the extent to which participants felt supported by (1) their family, (2) community/neighborhood, and (3) friends, to cope with the COVID-19 crisis during the last two weeks of September 2021. Participants could answer on a 6-point Likert scale (1 – *never*, 5 – *very often*, and 6 – *I do not know/do not want to answer*). The internal consistency for the questionnaire was in this study .62. An average score for social support was computed (range 1-5; 1 – low, 5 – high).

*Demographic variables.* The questionnaire also included questions focusing on gender, age, religion, and COVID-19 (previously infected with the virus or not).

## STATISTICAL ANALYSIS

The statistical software package IBM SPSS Statistics 25 was used to analyze the data. We obtained descriptive statistics of the variables, followed by Cronbach's  $\alpha$  of the study variables to assess their internal consistencies. To test for differences in the mean score of mental health, SOC, SOCC, SONC and social support between the two groups, we conducted an independent sample *t*-test using the grouping variable for low and high SES. Finally, we conducted multiple linear regression analyses to examine the predictive value of SOC, SOCC, SONC and social support (i.e., independent variables) for mental health for the SES groups separately (i.e., dependent variable).

## RESULTS

### SAMPLE CHARACTERISTICS

Concerning gender, there were more women (low SES: 56%, high SES: 52%) than men. The age of the respondents in the low SES group ranged from 27 to 55 with an average of 42 ( $SD = 9$ ), and ranged from 26 to 63 with an average of 43 ( $SD = 10$ ) for the high SES group. About half of the participants did report not being religious (low SES: 49%, high SES: 54%), followed by participants who identified themselves as Christian (low SES: 24%, high SES: 32%), Muslim (low SES: 17%, high SES: 6%), and other religions (low SES: 10%, high SES: 8%). The vast majority were vac-

cinated against COVID-19 (low SES: 63%, high SES: 82%) and not previously infected with the virus (low SES: 71%, high SES: 70%).

#### TESTING FOR DIFFERENCES IN SOC, SOCC, SONC AND SOCIAL SUPPORT BETWEEN GROUPS

Table 1 shows the means of mental health, SOC, SOCC, SONC and social support for both groups. The low SES group scored on average 4.25 on their mental health ( $SD = 0.96$ ), and the high SES group scored on average 4.22 ( $SD = 0.86$ ), indicating good mental health for both groups in the last two weeks of September 2021. Both groups also scored relatively high on SOC (low SES:  $M = 4.59$ ,  $SD = 1.06$ ; high SES:  $M = 4.70$ ,  $SD = 1.01$ ), SOCC (low SES:  $M = 3.95$ ,  $SD = 0.92$ ; high SES:  $M = 4.03$ ,  $SD = 0.95$ ), SONC (low SES:  $M = 3.76$ ,  $SD = 0.77$ ; high SES:  $M = 3.84$ ,  $SD = 0.91$ ), and social support (low SES:  $M = 3.53$ ,  $SD = 0.79$ ; high SES:  $M = 3.77$ ,  $SD = 0.75$ ). The results of the independent  $t$ -tests show that none of these concepts differed significantly between the two SES groups.

#### THE PREDICTIVE VALUE OF SOC, SOCC, SONC AND SOCIAL SUPPORT FOR MENTAL HEALTH FOR EACH GROUP

Table 2 shows the results of the regression analyses for each SES group separately. With regard to the low SES group, the model explained 52% of the variance of mental health, thereby indicating that the

model was a significant predictor of mental health,  $R^2 = .52$ ,  $F(4, 37) = 11.53$ ,  $p < .001$ . Mental health was most strongly predicted by SOC (standardized  $\beta = .46$ ,  $p = .002$ ) and SOCC (standardized  $\beta = .35$ ,  $p = .018$ ), but not by SONC and social support. Concerning the high SES group, the model significantly explained 42% of the variance, social support,  $R^2 = .43$ ,  $F(4, 42) = 8.95$ ,  $p < .001$ , and SOC showed the strongest predictive value of mental health (standardized  $\beta = .41$ ,  $p = .006$ ). SOCC, SONC and social support did not show any predictive value for mental health in this group.

## DISCUSSION

The present study explored differences in mental health, SOC, SOCC, SONC, and social support between low and high SES groups. The results showed no significant difference in means between low and high SES groups in any of these variables, showing that both groups had the same levels of mental health during the crisis. Therefore, our study did not confirm the earlier studies suggesting that low SES groups experience more mental health problems during crises than high SES groups (e.g., Crielaard et al., 2021). A possible explanation is that SOC, SOCC, SONC and social support scores also did not differ between the two groups, indicating that people from both groups were equally enabled to cope well with the crisis in relation to their mental health.

The average SOC scores reported in our study are similar to those reported by studies conducted in Israel, Italy, Spain, the USA, and the Netherlands (Mana et al., 2021a, b; Super et al., 2021), though the

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**Table 1**

*Testing differences between groups using t-tests of equality of means*

| Measure                               | Low SES ( $n = 41$ ) |      |                   | High SES ( $n = 50$ ) |      |                   |
|---------------------------------------|----------------------|------|-------------------|-----------------------|------|-------------------|
|                                       | $M$                  | $SD$ | Equality of means | $M$                   | $SD$ | Equality of means |
| Mental health<br>(1 – low, 6 – high)  | 4.25                 | 0.96 | ns                | 4.22                  | 0.86 | ns                |
| SOC<br>(1 – low, 7 – high)            | 4.59                 | 1.06 | ns                | 4.70                  | 1.01 | ns                |
| SOCC<br>(1 – low, 7 – high)           | 3.95                 | 0.92 | ns                | 4.03                  | 0.95 | ns                |
| SONC<br>(1 – low, 7 – high)           | 3.76                 | 0.77 | ns                | 3.84                  | 0.91 | ns                |
| Social support<br>(1 – low, 5 – high) | 3.53                 | 0.79 | ns                | 3.77                  | 0.75 | ns                |

*Note.* SES – socioeconomic status; SOC – sense of coherence; SOCC – community sense of coherence; SONC – sense of national coherence; ns – not significant.

**Table 2**

*Regression analysis between SOC, SOCC, SONC, social support and mental health*

|   | Mental health |        |     |         |                |
|---|---------------|--------|-----|---------|----------------|
|   | <i>b</i>      | 95% CI |     | $\beta$ | <i>t</i> -test |
|   |               | LL     | UL  |         |                |
| Low SES   |               |        |     |         |                |
| SOC   | .41           | .16    | .66 | .46     | 3.40**         |
| SOCC  | .36           | .06    | .66 | .35     | 2.50*          |
| SONC  | .08           | -.25   | .42 | .06     | 0.51           |
| Social support  | .07           | -.22   | .38 | .06     | 0.52           |
| <i>F</i> = 11.35***<br>adjusted <i>R</i> <sup>2</sup> = .52 |               |        |     |         |                |
| High SES  |               |        |     |         |                |
| SOC   | .35           | .10    | .59 | .41     | 2.93**         |
| SOCC  | .17           | -.06   | .40 | .18     | 1.49           |
| SONC  | .09           | -.14   | .33 | .10     | 0.83           |
| Social support  | .25           | -.05   | .56 | .22     | 1.69           |
| <i>F</i> = 8.95***<br>adjusted <i>R</i> <sup>2</sup> = .43  |               |        |     |         |                |

*Socioeconomic differences, sense of coherence and mental health during COVID-19*

*Note.* SES – socioeconomic status; SOC – sense of coherence; SOCC – community sense of coherence; SONC – sense of national coherence; *b* – unstandardized regression coefficient;  $\beta$  – standardized regression coefficient; LL – lower limit; UL – upper limit; \**p* < .05, \*\**p* < .01, \*\*\**p* < .001.

SOC scores in Germany, Austria, and Switzerland were half a point higher, indicating a stronger SOC in those countries (Mana et al., 2021b). Regarding the average scores on SONC, our results were similar compared to studies conducted during the first lockdown in Italy and Spain but lower than SONC scores in the Netherlands and Israel (Mana et al., 2021a). To our knowledge, no studies have measured the SOCC during the COVID-19 pandemic. However, the average SOCC scores are lower than scores reported in studies focusing on conflict areas (e.g., Elfassi et al., 2016). Although the pandemic cannot be directly compared with conflict areas in terms of stressor exposure and measures taken, both contexts share the fact that people are challenged to cope with the stressors in a health-promoting way, such as polarization in society. Our study shows that people who experienced their community as comprehensible, manageable and meaningful reported higher scores on mental health than people who did not experience their community as such.

We also aimed to examine the predictive value of SOC, SOCC, SONC, and social support for mental health in each group separately. Regarding the predictive value of the different SOC concepts for mental health, we found that SOC predicted mental

health in both groups and that SOCC was predictive for mental health in the low SES group, although with less predictive power than SOC. The observation that SOC explained most variance in mental health in both groups confirms that people cope better with stressors when they experience the world as comprehensible, manageable, and meaningful (Antonovsky, 1987; Eriksson & Lindström, 2006). Besides SOC, our study demonstrated that SOCC plays a role in developing or maintaining mental health for people with low SES. In contrast, social support did not have predictive value for mental health. This finding contradicts previous studies that showed the relevance of social support during the first lockdown (Mana et al., 2021a, b; Super et al., 2021). One possible explanation could be that the measures were alleviated, so that people may have experienced the crisis as less severe, needed less social support and used different coping styles as they did during more rigid lockdowns (Mana et al., 2021a, b; Super et al., 2021). Finally, SONC did not show any predictive power for mental health in both SES groups in our study, which may be explained by the possibility that people draw more on national coherence in times of severe crisis, such as during rigorous lockdowns (Mana et al., 2021b; Super et al., 2021).

Despite our findings, there is still a substantial amount of variance that remains unexplained for mental health in both groups, which indicates that other factors may also play a role in supporting mental health during the pandemic. For example, it would be interesting to examine how people who have had to deal with illness or loss in their community, or with high levels of job insecurity due to COVID-19, experienced their mental health and coping resources. Finally, there are other salutogenic concepts that may enhance mental health levels during crises, such as resilience (Veronese et al., 2021) and optimism (Schou-Bredal et al., 2021).

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### PRACTICAL IMPLICATIONS

Based on our results, strengthening SOC and SOCC would support mental health in both low and high SES groups during a pandemic. We know from earlier studies that SOC can potentially be strengthened through a behavioral pathway (empowerment) to enable people to use resources to cope well with stressors and a perceptual pathway (reflection) enabling people to understand their stressors and resources in their context (e.g., Super et al., 2016). So, to reinforce SOC levels during a pandemic, the field of health promotion should be 1) encouraged to provide opportunities for people to identify, mobilize and reflect on resources already available in their personal lives, which 2) requires working with other societal actors and disciplines. However, more research is needed to understand how to strengthen SOCC among low SES groups.

### STUDY LIMITATIONS AND STRENGTHS

The present study has various limitations and strengths that should be taken into account when interpreting the results. Since we used self-reported questionnaires to measure all SOC levels, common method biases, such as unclear questions or socially desirable answers, may have influenced the results. However, there are no objective methods yet for measuring SOC at various levels. The validity and reliability of the questionnaire used are widely recognized as strong (Eriksson & Lindström, 2005). Second, although a cross-sectional study design is valid for testing differences between groups and for examining the predictive power of resources for mental health, this design is less valid and reliable for making claims about causal relationships between mental health and the different predictors. Hence, we cannot comment on the direction of the possible relationship between mental health, SOC, and SOCC found in our study. Similarly, the data were collected in times where there were fewer societal measures compared

to the first lock-down, which might have impacted our findings. Therefore, future studies may consider the use of longitudinal or retrospective study designs to examine the role of coping resources supporting mental health during various pandemic contexts. Since we only included participants with a good command of the Dutch language, which may have caused selection bias, the generalizability of our findings should be taken into account. Contrarily, there was enough statistical power for conducting the statistical analyses, thereby enhancing the internal validity of the results presented.

### CONCLUSIONS

This study showed no difference in mental health, SOC, SOCC, SONC, and social support between low and high SES groups during the COVID-19 pandemic. SOC predicted good levels of mental health in both groups, and SOCC predicted mental health in the low SES group, although with less predictive power than SOC. Therefore, enhancing people's ability to use resources already present in their specific context, particularly in their community, seems a pivotal health promotion opportunity in supporting mental health during a pandemic.

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