Order out of chaos: Sense of coherence and the mediating role of coping resources in explaining mental health during COVID-19 in 7 countries

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Abstract: In the midst of the COVID-19 pandemic and the universal chaos created by it, this study explores the role of sense of coherence (Soc, Antonovsky, 1979) and how it enables coping with a stressful situation and staying well. SOC is a generalized orientation which allows one to perceive the world as comprehensible, manageable, and meaningful. In an attempt to understand 'how does the SOC work' we employed the salutogenic assumption that a strong SOC allows one to reach out in any given situation and find those resources appropriate to the specific stressor. Thus, we hypothesized that the positive impact of SOC on mental health outcomes would be mediated through coping resources that are particularly salient in times of crisis. One resource is related to the micro level (perceived family support) and the other concerns the macro level (trust in leaders and social-political institutions). Data collection was conducted in different countries during May-June 2020 via online platforms. The data included 7 samples of adult participants (age 18-90) from Israel (n = 669), Italy (n = 899), Spain (n = 476), Germany (n = 708), Austria (n = 1026), Switzerland (n = 147), and the U.S. (n = 506). The questionnaires included standard tools (MHC-SF, SOC-13) as well as questionnaires of perceived family support and trust that were adapted to the pandemic context. As expected, SOC was associated with mental health in all the samples. Perceived family support and trust in leaders and social-political institutions mediated the relationships between SOC and mental health, controlling for age, gender, and level of financial risk. It appears that SOC has a universal meaning, not limited by cultural and situational characteristics. The discussion focuses on the theoretical, social, and political applications of the salutogenic model - and its core concept of SOC - in the context of coping with a global pandemic across different cultural contexts and countries.

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Order out of chaos: Sense of coherence and the mediating role of coping resources in explaining mental health during COVID-19 in 7 countries

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ABSTRACT

In the midst of the COVID-19 pandemic and the universal chaos created by it, this study explores the role of sense of coherence (Soc, Antonovsky, 1979) and how it enables coping with a stressful situation and staying well. SOC is a generalized orientation which allows one to perceive the world as comprehensible, manageable, and meaningful. In an attempt to understand ‘how does the SOC work’ we employed the salutogenic assumption that a strong SOC allows one to reach out in any given situation and find those resources appropriate to the specific stressor. Thus, we hypothesized that the positive impact of SOC on mental health outcomes would be mediated through coping resources that are particularly salient in times of crisis. One resource is related to the micro level (perceived family support) and the other concerns the macro level (trust in leaders and social-political institutions). Data collection was conducted in different countries during May–June 2020 via online platforms. The data included 7 samples of adult participants (age 18–90) from Israel (n = 669), Italy (n = 899), Spain (n = 476), Germany (n = 708), Austria (n = 1026), Switzerland (n = 147), and the U.S. (n = 506). The questionnaires included standard tools (MHC-SF, SOC-13) as well as questionnaires of perceived family support and trust that were adapted to the pandemic context. As expected, SOC was associated with mental health in all the samples. Perceived family support and trust in leaders and social-political institutions mediated the relationships between SOC and mental health, controlling for age, gender, and level of financial risk. It appears that SOC has a universal meaning, not limited by cultural and situational characteristics. The discussion focuses on the theoretical, social, and political applications of the salutogenic model – and its core concept of SOC – in the context of coping with a global pandemic across different cultural contexts and countries.

1. Introduction

The COVID-19 pandemic has created chaos and changed the predictable reality and regular way of life of societies worldwide. It appears that this acute stressor has become chronic, as we still do not know when and where the virus will cause an epidemic outbreak, and what damages it will cause in the short and long term. Such a stressor, that introduces entropy into the global system, might shake one’s perception of the world as a predictable and comprehensible place, and, as a result, could evoke high levels of anxiety and impede mental health (for a review see Xiong et al., 2020; Rajkumar, 2020; Jetten, Reicher, Haslam, & Crows, 2020).

Facing such a severe stressor in our global system has led researchers to ask pathogenic questions about the virus’ potential damage and the pathological consequences (Ren, Gao, & Chen, 2020). However, the salutogenic model developed by Antonovsky (1979, 1987), encourages us to understand how people struggle with this global crisis, succeed in

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increasing their sense of order within the chaotic system, and remain healthy. Antonovsky's main answer to this salutogenic question lies in his core construct the ‘Sense of coherence’ (SOC).

SOC is defined as a generalized orientation of a person towards the world, perceiving it, on a continuum, as comprehensible, manageable, and meaningful (Antonovsky, 1979). According to Antonovsky (1987), SOC is a global orientation that expresses the extent to which one has a pervasive, enduring though dynamic feeling of confidence (1) The stimuli from one’s internal and external environments in the course of living are structured, predictable, and explicable; (2) the resources are available to one to meet the demands posed by these stimuli; and (3) these demands are challenge, worthy of investment and engagement (p.19).

The SOC construct has been studied for the last few decades across many countries and cultural groups (Sagy, 2014). Strong SOC has been found as a significant factor in facilitating the movement of a person along the disease – ease continuum towards health (Eriksson & Lindström, 2005). Moreover, in research findings, SOC appears to be a resource that enables the individual to cope successfully not only with navigating the regular stressors which occur during their lifetime but also with various kinds of acute and chronic stressful life events. In addition, high SOC scores have been found to help in coping successfully with different types of personal and collective crises, and, as a result, to help people enjoy high levels of physical and mental health (for a review, see Eriksson & Lindström, 2005; Eriksson & Mittelmark, 2017).

A few recent studies have already reported the main contribution of SOC to coping with the COVID-19 pandemic. SOC was correlated with emotional distress among different cultural groups (Barni et al., 2020; Braun-Lewensohn, Abu-Kaf, & Kalagy, 2021) SOC was reported as a better predictor of mental health than demographic variables (e.g., gender, age, and education); risk factors (e.g., health and economic level of risk); or other coping resources (e.g., trust, family support) in different social contexts during the acute stage of the pandemic (Généreux & Roy, 2020; Hardy et al., 2021; Mana & Sagy, 2020; Mana et al., in press).

1.1. Research questions and context

Based on the previous research findings during the pandemic, in which SOC appeared to be a significant factor in predicting mental health, our main question in this study relates to the following: How does the SOC work? How does a strong SOC function positively in coping with the pandemic crisis and contribute to mental health?

The salutogenic model suggests that there are many ways in which a strong SOC could lead to successful coping and subsequently to improved health outcomes (Antonovsky, 1987). One of these ways is related to the term generalized resistance resources (GRRs), defined by Antonovsky (1987) as the characteristics of a person, a group, or a community that facilitate the individual’s ability to cope effectively with stressors. Such resources could include, for example, knowledge and intelligence, material resources, family roots, and cultural stability. However, according to the salutogenic model, the crucial point is that GRRs are potential resources. They must be adopted before they can function to combat and overcome pathogen. Antibiotic, for example, is of no use unless it is taken appropriately. Surely, people differ in the potential resources available to them. But, beyond this, they also differ significantly in the readiness and willingness to exploit the potential resources that they do have at their disposal. This is what distinguishes between people with a stronger and weaker SOC. The former will search hard for those coping resources which are potentially available to him or her; the latter are more likely to give up (Elnav & Margalit, 2020; Sagy, 1994).

Thus, there is some reciprocal relationship between SOC and GRRs (Antonovsky, 1979). During childhood and adolescence, until early adulthood, the GRRs mainly contribute to the development and maintenance of the individual’s SOC, and successful applications of GRRs lead to the development of a stronger SOC (Sagy & Antonovsky, 2000). However, once the SOC is formed and stabilized, the level of SOC is the meaningful factor that contributes to mobilize GRRs for enhancing the ability to manage stress. Individuals with stronger SOC can better use their GRRs in time of crisis compared to people with lower levels of SOC (Antonovsky, 1987).

While Antonovsky’s assumptions about SOC-health connections have been widely studied, the mediating role of GRRs on the relationships between SOC and health has been less extensively studied (Mittelmark, Bull, Daniel, & Urke, 2017). Our research has attempted to address this omission. Our hypotheses are in accordance with this aspect of the salutogenic model: The positive association of SOC with mental health outcomes would be mediated through GRRs that are particularly salient in times of crisis. We examined the mediating effect of two GRRs-perceived family support (a micro-level factor) and trust in governmental institutions (a macro-level factor) by comparing the mediating model in different cultural and social contexts against the backdrop of the pandemic crisis.

In addition to exploring this suggested mediating model, our research relates to the assumption that SOC is a universal construct, not only a culturally bound concept. According to the salutogenic model “culture sets limits, but within these limits, it is the level of SOC that matters” (Antonovsky, 1987, p. 148). Antonovsky (1996) claimed that only the concrete translation of SOC into context-related coping strategies can vary widely according to cultural codes. Some recent studies among Jews and Arabs living in Israel support this distinction (Sagy, 2014). In these studies, it was the individual with a strong SOC, whether Arab or Jew, who presented better mental health. The specific coping strategies, however, were found to be different within each culture.

Thus, these considerations of culture and SOC comprise our second question in this study: Does SOC matter in all cultural groups? And if so, does the above postulated mediating mechanism between SOC and mental health through GRRs, particularly salient in times of crisis, work similarly in different cultural and social settings that are all being confronted with the same stressful factor of the pandemic?

This study was carried out in the midst of the COVID-19 pandemic (May–June 2020). It included 7samples from Israel, Italy, Spain, Germany, Austria, Switzerland, and the United States of America (U.S.). In each context the pandemic exposure was different in terms of number of deaths, testing, COVID-19 cases, as well as governmental responses and restrictions (for a comparison, see Roser, Ritchie, Ortiz-Ospina, & Hasell, 2020). Moreover, at the macro level, the reactions of the political, social, and economic systems to the crisis in each country were different and perhaps related to level of public trust in the relevant institutions responsible for managing the pandemic. There are also differences at the micro level between and within groups in level of familial closeness and strength of intergenerational ties that may influence the accessibility to coping resource of family support. Analysing those differences, however, is beyond the scope of the current study.

Beyond all these varieties and different contexts, COVID-19 has created chaos and changed the well-known reality in the whole world for an intensive period. Employing the salutogenic model, we expected that in this chaotic global context, SOC could be a universal concept in explaining mental health in all 7 samples. We assumed that people with stronger SOC would be able to create ‘order out of chaos’ and would also tend to better use GRRs and, as a result, strengthen their mental health, controlling for variables of gender, age, and the level of economic risk. Previous studies revealed that demographic factors of age, gender and income were strongly related with COVID-19 stress responses. Women and elders were reported as having higher levels of stress and anxiety as compared to men and younger people; decreased income during the pandemic was found to be strongly associated with levels of anxiety (Volk, Brazil, Franklin-Luther, Dane, & Vaillancourt, 2021). By controlling these variables, we try to explore a universal pattern related to the relationships between SOC and mental health, mediated by relevant GRRs, during the time of the pandemic.
1.2. Research concepts and hypotheses

The World Health Organization (WHO) definition of mental health is “a state of well-being in which the individual realizes his or her abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community” (World Health Organization, 1998). This definition is in accordance with the salutogenic perspective and, therefore, we examined the dependent variable of mental health as including emotional, psychological, and social well-being (Lamers, Westerhof, Bohmeijer, ten Klooster, & Keyes, 2011).

1.3. GRRs: perceived family support and trust

In his writing, Antonovsky (1987) considered supportive social environments, and especially social support one gets from his/her surroundings, as main GRRs that a person with strong SOC will use in stressful situations. The current study explored the mediating role of two GRRs on the relationships between SOC and mental health: at the micro level—one’s perceived support from one’s family, and at the macro level—trust in leaders, social, and political institutions that are responsible for managing the pandemic. Those GRRs have been found in previous studies as relevant to coping with the COVID-19 pandemic in various countries (Mana & Sagy, 2020; Mana et al., 2021).

Social support has been considered a significant coping resource for several decades (Ge, Yap, Ong, & Heng, 2017; Howick, Kelly, & Kelly, 2019). It was found to have both direct as well as buffering effects in warded off illness and advancing health (Srensen, Klungsy, Kleiner, & ). The subjective perception of one's surroundings as supportive is very important during stressful and traumatic events (Schäfer et al., 2019). Recent studies during COVID-19 have found social support to have a significant direct effect on mental health (Saltzman, Hansel, & Bordinick, 2020). At the micro level, perceived family support is related to one's belief that there are people in one's family who can potentially help in this time of distress. The literature on the relationships between perceived family support and SOC has mainly focused on the role of family support in strengthening levels of SOC during childhood (Sagy & Antonovsky, 2000). However, perceived family support was also found as reducing psychological distress during catastrophic situations (Banks & Weems, 2014; Sagy & Dotan, 2001) and during the COVID-19 pandemic (Saltzman et al., 2020).

At the macro level, perception of political leaders and other social institutions responsible for managing the COVID-19 crisis as trustworthy was found to have a strong and direct effect on mental health (Fancourt, Steptoe, & Wright, 2020; Mana & Sagy, 2020; Sibley et al., 2020). On the other hand, lower levels of trust were correlated with developing conspiracy theories about the nature and the cause of the threatening event and to increasing feeling of stress (Marinthe, Brown, Delouvée, & ). According to the data of the OECD (2021) and the Edelman trust barometer (2021), in many parts of the world during the outbreak of the COVID-19 pandemic, the level of trust in governments increased. This tendency was explained as the citizens needs for guidance and support in the chaotic situation. However, by January 2021, the trust in government had fallen by 8 points globally, showcasing the challenges in sustaining high trust (Saltzman et al., 2020).

In the present research, we specifically examined the mediating role of trust in media, legal courts, prime minister, police, the government, ministry of finance, ministry of health, health-care workers, and hospitals, on the relationships between SOC and mental health.

To conclude, the research aim is to develop an understanding of the association of SOC with mental health during this time of the pandemic, and especially how it works beyond specific contexts or cultures. More specifically, we asked about the potential universality of the positive effect of SOC in times of a global crisis and examined a mediating model in which main GRRs at the micro level (perceived family support) and at the macro level (trust in the leaders and governmental institutions who are in charge of managing the COVID-19 crisis) mediate the relationships between SOC and mental health. We examined the following hypotheses:

1. SOC, perceived family support and trust in the governmental institutions will be related to higher levels of mental health in all 7 samples.

2. Perceived family support and trust in the governmental institutions will mediate the relationships between SOC and mental health (after controlling for levels of age, gender, and exposure to financial risk).

2. Methods

2.1. Participants and data collection

The current data analysis includes 7 samples of adult participants (age 18–90) from Israel (n = 669), Italy (n = 899), Spain (n = 476), Germany (n = 708), Austria (n = 1026), Switzerland (n = 147), and the U.S. (n = 506). Significant differences were found between the samples regarding the sociodemographic variables of age, gender, and marital status. The number of males in most countries was between 15% and 30% of the sample, while the number of males in the Israeli and the Italy samples was higher. The participants from the USA were older than participants in other countries while the participants from Israel were younger participants. In Switzerland most of the participants were single (52.4%), in Italy and Germany about 50% were married, while in Austria, Israel and Spain more than 59% were married. The number of people who reported that they or their family member had tested positive for coronavirus was very low in all the samples except in Spain (where 18% reported that they have had a close family member who has been diagnosed with COVID-19). As for the financial risk, the Italian participants estimated more than others that they would suffer financially from the Corona virus crisis and 8.1% preferred not to answer this question. On the other hand, the participants from Germany, Switzerland, and Austria estimated less than the others that they would suffer financially.

Data collection took place during May–June 2020. Prior to data collection, we obtained approval from the ethics committees of the participating academic institutions in each country as required. Recruitment of participants was conducted via online survey. In Israel, we used a pre-recruited panel sampling, and the data were collected via a nonprobability, general population panel, which includes about 100,000 panelists. In the other countries we used a list-based sampling strategy, conducted by the web via social media networks (like Facebook, Instagram), and by e-mail, using Qualtrics or Goggle Forms. The invitation letter was distributed among a large variety of social networks and e-mail lists (colleagues in different workplaces, students in various academic institutions, social aid groups in different geographic locations, etc.). To reduce the sample selection problem, we also used snowball sampling and the participants were asked to help in further distributing the link to the questionnaire. In this letter we explained that the research objective was to understand the participant's experience during the period of COVID-19. The anonymity of the participants was guaranteed, and no identifying data was collected in the questionnaire. This method is a nonprobability cost-efficient method to quickly obtain large amount of data (Alvarez & VanBesseare, 2005, pp. 955–962).

Data was analyzed using SPSS Statistics and R. Descriptive data was compared using ANOVA and separated mediating models (Hayes, 2013) were conducted for each country. Since the percent of missing data was less than 1% of observations (see Tables 1 and 2), we used Full Information Maximum Likelihood (FIML) method (Olinsky, Chen, & Harlow, 2005). The FIML approach computes a case-wise likelihood function with observed variables for each case and estimates parameters on the basis of the available complete data as well as the implied values of the missing data given the observed data. The FIML was calculated by R program (Lavaan package).
2.2. Instruments

The study instrument comprised structured self-report questionnaires that were back translated from English to Hebrew, Italian, Spanish, and German. The reliability for the following measures will be presented according to this order: Israel, Italy, Spain, Germany, Austria, Switzerland, and the U.S.

Mental Health Continuum (MHC-SF) (Lamers et al., 2011).

This scale includes 14-items measuring the three components of well-being: emotional, social, and psychological. The emotional well-being is assessed via three items relating to positive emotions and life satisfaction, e.g., you felt “satisfied with life.” The psychological well-being is assessed via six items dealing with goals related to self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life as well as personal growth, e.g., you felt that "you liked most parts of your personality" the social well-being is assessed via five items relating to social coherence, social acceptance, social actualization, social contribution, and social integration, e.g., you felt that “our society is a good place, or is becoming a better place, for all people.” Since the MHC-SF is better represented by a bifactor model than a three-factor model (e.g., Jovanovic, 2015), and we calculated the mean of all the items.

The questionnaire was adapted to the current context and based on the experiences the participants had over the last month (never, once in two weeks, about once a week, almost every day, or every day). Internal consistency of the questionnaire was estimated at 0.89 (Lamers et al., 2011) and in the current study the α ranged between 0.89 and 0.94. Sense of Coherence (SOC-13, Antonovsky, 1987).

Table 1
Demographic variables.

| Variable          | Categories | Israel n = 669 | Italy n = 899 | Spain n = 476 | Germany n = 1026 | Austria n = 1013 | Switzerland n = 147 | U.S.A. n = 506 |
|-------------------|------------|---------------|--------------|---------------|-----------------|-------------------|-------------------|--------------|
| Gender            | Male       | 338 (50.7)    | 334 (37.2)   | 113 (23.7)    | 189 (26.8)      | 308 (30.1)        | 43 (29.3)         | 115 (24.3)   |
|                   | Female     | 329 (49.3)    | 565 (62.8)   | 363 (76.3)    | 517 (73.2)      | 716 (69.9)        | 104 (70.7)       | 358 (75.7)   |
|                   | missing    | 2             | 0            | 2             | 2               | 2                 | 0                 | 33           |
| Marital Status    | Single     | 229 (34.2)    | 413 (45.9)   | 119 (25.1)    | 272 (38.4)      | 332 (32.4)        | 77 (52.4)         |             |
|                   | Married    | 397 (59.3)    | 414 (46.1)   | 301 (63.4)    | 358 (50.6)      | 605 (59.0)        | 56 (38.1)         |             |
|                   | Widower    | 41 (6.1)      | 51 (5.7)     | 46 (9.7)      | 63 (8.9)        | 76 (7.4)          | 12 (8.2)          |             |
|                   | Widower    | 2 (0.4)       | 21 (2.3)     | 9 (1.8)       | 15 (2.1)        | 13 (1.2)          | 2 (1.3)           |             |
| Positive for COV19| Yes        | 7 (1.0)       | 4 (0.4)      | 24 (5.1)      | 3 (0.4)         | 12 (1.2)          | 1 (0.7)           | 9 (1.8)      |
|                   | No         | 662 (99.0)    | 895 (99.6)   | 450 (94.9)    | 705 (99.6)      | 1014 (98.8)       | 146 (99.3)        | 494 (98.2)   |
| Missing           | 0          | 0             | 0            | 0             | 0               | 0                 | 0                 | 0            |
| Family member positive | COV19 | Yes        | 15 (2.2)     | 17 (1.9)      | 89 (18.8)       | 21 (3.0)          | 40 (3.9)          | 5 (3.4)      |
|                   | No         | 654 (97.8)    | 882 (98.1)   | 385 (81.2)    | 687 (97.0)      | 986 (96.1)        | 142 (96.6)        | 380 (75.7)   |
| Missing           | 0          | 0             | 2            | 0             | 0               | 0                 | 0                 | 4            |
| Age               | Mean (S.D) | 39.1 (4.6)    | 41.6 (5.0)   | 48.0 (5.6)    | 46.6 (5.6)      | 47.7 (4.4)        | 42.4 (5.4)        | 51.6 (4.4)   |
|                   | Mean (S.D) | 13.2 (2.1)    | 13.0 (2.1)   | 32.9 (4.2)    | 31.8 (4.2)      | 32.0 (4.2)        | 32.0 (4.2)        | 32.0 (4.2)   |
| Finance risk due to COV19 | Mean (S.D) | 3.00 (1.3)    | 3.53 (1.2)   | 2.59 (1.0)    | 2.01 (0.9)      | 1.95 (0.9)        | 1.96 (1.0)        | 2.48 (1.0)   |

*Missing: *p < 0.05 **p < 0.01 ***p < 0.001.

The variables: M.health = mental health; F. Support = perceived family support; SOC = sense of coherence.

Table 2
Descriptive statistics and correlations for mental health, SOC, perceived family support, and trust.

| County          | Variable          | n   | M    | SD   | SOC       | F. Support  | Trust   |
|-----------------|-------------------|-----|------|------|-----------|------------|---------|
| Israel          | M. health         | 669 | 3.77 | 1.02 | .54***    | .47***     | .31***  |
|                 | SOC               | 669 | 4.56 | 0.89 | .32***    | .20***     | .23***  |
|                 | F. Support        | 666 | 4.28 | 0.95 |           |            |         |
|                 | Trust             | 669 | 3.01 | 0.78 |           |            |         |
| Italy           | M. health         | 899 | 4.02 | 0.98 | .59***    | .35***     | .25***  |
|                 | SOC               | 899 | 4.43 | 0.96 | .33***    | .11**      |         |
|                 | F. Support        | 899 | 4.09 | 0.99 |           |            | .04     |
|                 | Trust             | 899 | 3.15 | 0.76 |           |            |         |
| Spain           | M. health         | 476 | 4.18 | 1.09 | .47***    | .39***     | .27***  |
|                 | SOC               | 476 | 4.82 | 0.90 | .33***    | .17***     | .11*    |
|                 | F. Support        | 472 | 4.65 | 0.66 |           |            | .1*     |
|                 | Trust             | 476 | 2.54 | 0.77 |           |            |         |
| Germany         | M. health         | 708 | 4.27 | 0.88 | .57***    | .19***     | .29***  |
|                 | SOC               | 708 | 5.17 | 0.73 | .16***    | .15***     | .12**   |
|                 | F. Support        | 699 | 4.25 | 0.87 |           |            |         |
|                 | Trust             | 708 | 3.49 | 0.80 |           |            |         |
| Austria         | M. health         | 1026| 4.50 | 0.90 | .57***    | .29***     | .37***  |
|                 | SOC               | 1026| 5.37 | 0.78 | .25***    | .23***     | .12***  |
|                 | F. Support        | 1019| 4.44 | 0.80 |           |            |         |
|                 | Trust             | 1026| 3.62 | 0.75 |           |            |         |
| Switzerland     | M. health         | 147 | 4.40 | 0.79 | .63***    | .26***     | .18*    |
|                 | SOC               | 147 | 5.26 | 0.66 | .28***    | .12        | .11     |
|                 | F. Support        | 146 | 4.35 | 0.80 |           |            |         |
|                 | Trust             | 147 | 3.85 | 0.59 |           |            |         |
| U.S.A.          | M. health         | 506 | 4.19 | 0.95 | .67***    | .38***     | .34***  |
|                 | SOC               | 506 | 4.78 | 1.00 | .38***    | .38***     | .20***  |
|                 | F. Support        | 501 | 4.33 | 0.89 |           |            |         |
|                 | Trust             | 506 | 2.79 | 0.49 |           |            |         |

The study instrument comprised structured self-report questionnaires that were back translated from English to Hebrew, Italian, Spanish, and German. The reliability for the following measures will be presented according to this order: Israel, Italy, Spain, Germany, Austria, Switzerland, and the U.S.
The SOC measure includes 13 items, on a 7-point Likert scale, which explore the participant's perceptions of the world as comprehensible, meaningful, and manageable. For example, “Has it happened that people whom you counted on disappointed you?” “How often do you have the feeling that there is little meaning in the things you do in your daily life?” Since the SOC-13 is better represented by a bifactor model than a three-factor model (e.g., Eriksson & Lindstrom, 2005), we calculated mean of all the items.

We used the existing SOC versions in English (Antonovsky, 1987), Italian (Sardu et al., 2012), Spanish (Virus-Ortega, Martí), German (Abel, Kohlmann, & Noack, 1995), and Hebrew (Antonovsky, 1987) in the relevant samples. The α values of the SOC-13 versions range from 0.70 to 0.92 (see Eriksson & Mittelmark, 2017) and in this study the α ranged between 0.78 and 0.86.

2.3. Trust in leaders and governmental institutions

This is an 8-item questionnaire regarding level of trust in relevant institutions (media, legal courts, prime minister, police, the government, ministry of finance, ministry of health, health-care workers, and hospitals) on a 5-point Likert scale (1 = very much, 5 = not at all). The instruction was “In coping with the Corona virus crisis, to what extent do you trust the following people or institutions?” Internal consistency ranged between α = 0.80 and α = 0.91 (the only exception was for USA: α = 0.65). We calculated the mean of all the items.

2.4. Perceived family support

One item asking “over the last month, to what extent have you felt support by your family members” on a 5-point Likert scale (1 = very much, 5 = not at all).

2.5. Level of exposure to COVID-19

We explored both health and financial exposure to the COVID-19 crisis by asking if the participant: 1. had been diagnosed with COVID-19 (Yes/No); 2. had a close family member who had been diagnosed with COVID-19 (Yes/No); and 3. to what extent do you think you will suffer financially from the Corona virus crisis? (1 = not at all, 5 = extremely). Due to the small numbers of participants who were exposed to the virus, we controlled only the exposure to financial risk.

2.6. Socio-demographic variables

Demographic information (gender, age, marital status) was collected. Gender was calculated as a DUMMY variable and was used as a covariate. Age, as representing a health risk factor, was also used as a covariate. Marital status was examined by asking the participant if he/she was single; married/common law marriage; divorced; widow/widower; other. However, it was not entered as a covariate since it was not included in the U.S. sample.

3. Results

3.1. Descriptive analysis - hypothesis 1

We conducted an ANOVA test for the differences in the levels of the research variables (mental health, SOC, trust, and perceived family support) between the seven research groups (see Table 2). The comparisons were conducted separately for the various countries.

Since the assumption of homogeneity of variance was not met, we used the Welch’s adjusted F ratio, which was significant at the 0.001 alpha levels for all the variables. Based on the significant differences between the countries in mental health, F(6,4424) = 46.59, p < .001; SOC, F(6,4424) = 129.70, p < .001; perceived family support, F(6,4363) = 25.38, p < .001 and trust, F(6,4424) = 188.37, p < .001, Games-Howell post hoc tests were conducted, and revealed that the levels of mental health were significantly lower (p < .001) among the Israeli participants, as compared to the other participants. The levels of SOC among the Israeli and Italian participants were significantly lower (p < .001) as compared to the participants from the other countries. The SOC levels among the participants from Switzerland, Germany, and Austria were significantly higher as compared to the other countries (p < .001). As for levels of perceived family support, the participants from Italy reported significantly lower family support (p < .001) as compared to the participants from the other countries. The perceived family support among the participants from Spain and Austria was significantly higher as compared to the other countries (p < .001).

To test whether the effect of SOC (independent variable) on the levels of mental health (dependent variable) could be explained through perceived family support (mediator one) and trust in governmental institutions (mediator two), using age, gender, and financial risk as covariates, a mediation analysis using R software was conducted, using a percentile bootstrap estimation approach with 10,000 samples (Hayes, 2013). The direct effect of SOC on mental health is strong and significant. Perceived family support and trust have also significant direct effects on levels of mental health, but their effects are lower than SOC (see Table 3).

Similar patterns were found among participants from different countries: SOC was mainly associated with mental health as compared to family support and trust. Thus, we preferred to analyze the same model for each country separately, without restrictions.

3.2. Overall mediation model - hypothesis 2

Correlation analyses, however, revealed positive strong and significant associations between mental health and SOC, perceived family support, and trust in governmental institutions in all countries. The only exceptions were Switzerland and Italy: among Swiss participants the correlations between SOC and trust and between perceived family support and trust were positive but were not significant. And among Italian participants the correlation between perceived family support and trust was positive but was not significant. The results support our first hypothesis.

3.3. Comparing mediation models across countries

We conducted separate mediation analysis using R software. We used a percentile bootstrap estimation approach with 10,000 samples (Hayes, 2013) in each country sample (see Table 3). In order to compare the effects of the different factors among each group a multi-group analysis was conducted. The analysis emphasizes the differences between the models across the countries. Specifically, the only relations that were similar across the countries were the relations between SOC and mental health, Trust and mental health, and gender and mental health. Thus, we preferred to analyze the same model for each country separately, without restrictions.

Similar patterns were found among participants from different countries: SOC was mainly associated with mental health as compared to family support and trust (but not in Spain), while trust was stronger
### Table 3

The regression analysis of mediating effects, controlling age, gender (male = 1), and economic risk; \(X = \text{SOC}\), independent variable; \(Y = \text{mental health}\), dependent variable; \(M_1 = \text{family support, mediator1}\); \(M_2 = \text{trust, mediator2}\).

| Country | Effect | b    | SE   | Percentile 95% CI | Lower  | Upper  |
|---------|--------|------|------|-------------------|--------|--------|
| All     | Effect of SOC on F. Support (a1) | 0.267*** | 0.014 | 0.240 – 0.295     |        |        |
|         | Effect of SOC on Trust (a2) | 0.236*** | 0.013 | 0.211 – 0.261     |        |        |
|         | Effect of F. Support on M. health (b1) | 0.187*** | 0.013 | 0.161 – 0.213     |        |        |
|         | Effect of Trust on M. health (b2) | 0.210*** | 0.015 | 0.181 – 0.238     |        |        |
|         | Effect of SOC on M. health (c) | 0.504*** | 0.014 | 0.477 – 0.531     |        |        |
|         | Effect of age on M. health | 0.004*** | 0.001 | 0.002 – 0.005     |        |        |
|         | Effect of male on M. health | −0.036 | 0.025 | −0.084 – 0.013    |        |        |
|         | Effect of economic risk on M. health | 0.000 | 0.001 | −0.002 – 0.002    |        |        |
|         | Indirect effect of SOC on M. health through F. Support (a1b1) | 0.050*** | 0.004 | 0.041 – 0.059     |        |        |
|         | Indirect effect of SOC on M. health through Trust (a2b2) | 0.049*** | 0.004 | 0.041 – 0.058     |        |        |
|         | Total indirect effect | 0.099*** | 0.006 | 0.087 – 0.112     |        |        |
|         | Total effect of SOC on M. health (c) | 0.603*** | 0.013 | 0.577 – 0.630     |        |        |
|         | CFI = 0.987, TLI = 0.971, RMSEA = 0.036, SRMR = 0.017, \(\chi^2(7) = 46.60***\) | | | | | |
| Israel  | Effect of SOC on F. Support (a1) | 0.325*** | 0.040 | 0.247 – 0.402     |        |        |
|         | Effect of SOC on Trust (a2) | 0.172*** | 0.033 | 0.107 – 0.238     |        |        |
|         | Effect of F. Support on M. health (b1) | 0.304*** | 0.034 | 0.237 – 0.371     |        |        |
|         | Effect of Trust on M. health (b2) | 0.202*** | 0.041 | 0.122 – 0.282     |        |        |
|         | Effect of SOC on M. health (c) | 0.485*** | 0.038 | 0.410 – 0.559     |        |        |
|         | Effect of age on M. health | −0.004 | 0.002 | −0.009 – 0.000    |        |        |
|         | Effect of male on M. health | −0.073 | 0.061 | −0.192 – 0.047    |        |        |
|         | Effect of economic risk on M. health | −0.051 | 0.022 | −0.094 – −0.007   |        |        |
|         | Indirect effect of SOC on M. health through F. Support (a1b1) | 0.099*** | 0.016 | 0.067 – 0.131     |        |        |
|         | Indirect effect of SOC on M. health through Trust (a2b2) | 0.035*** | 0.010 | 0.016 – 0.054     |        |        |
|         | Total indirect effect | 0.133*** | 0.018 | 0.098 – 0.169     |        |        |
|         | Total effect of SOC on M. health (c) | 0.618*** | 0.038 | 0.543 – 0.683     |        |        |
|         | CFI = 0.924, TLI = 0.837, RMSEA = 0.088, SRMR = 0.042, \(\chi^2(7) = 43.07***\) | | | | | |
| Germany | Effect of SOC on F. Support (a1) | 0.199*** | 0.044 | 0.112 – 0.285     |        |        |
|         | Effect of SOC on Trust (a2) | 0.155*** | 0.041 | 0.075 – 0.234     |        |        |
|         | Effect of F. Support on M. health (b1) | 0.073* | 0.030 | 0.014 – 0.133     |        |        |
|         | Effect of Trust on M. health (b2) | 0.245*** | 0.033 | 0.179 – 0.310     |        |        |
|         | Effect of SOC on M. health (c) | 0.570*** | 0.038 | 0.497 – 0.644     |        |        |
|         | Effect of age on M. health | 0.010*** | 0.002 | 0.006 – 0.013     |        |        |
|         | Effect of male on M. health | 0.083 | 0.059 | −0.033 – 0.199    |        |        |
|         | Effect of economic risk on M. health | 0.001 | 0.002 | −0.002 – 0.004    |        |        |
|         | Indirect effect of SOC on M. health through F. Support (a1b1) | 0.015* | 0.007 | 0.001 – 0.028     |        |        |
|         | Indirect effect of SOC on M. health through Trust (a2b2) | 0.038*** | 0.011 | 0.016 – 0.060     |        |        |
|         | Total indirect effect | 0.052*** | 0.013 | 0.027 – 0.078     |        |        |
|         | Total effect of SOC on M. health (c) | 0.623*** | 0.038 | 0.548 – 0.697     |        |        |
|         | CFI = 0.962, TLI = 0.918, RMSEA = 0.062, SRMR = 0.031, \(\chi^2(7) = 30.37***\) | | | | | |

(continued on next page)
The COVID-19 crisis that disrupted reality and caused chaos all over the world has raised many pathogenic questions among researchers. Our study, however, employed a salutogenic approach and asked: how do people create order out of the chaotic reality during the pandemic and stay mentally healthy? We examined this question in 7 countries during the first months of the COVID-19 crisis. Investigating and comparing coping patterns with the pandemic across 7 countries, differing widely in respect to political, welfare-system, culture, and burden of the pandemic, can yield valuable insights related to salutogenic processes and to the question of how populations can deal with stressors while protecting their mental health.

We, however, were mainly interested in understanding the association of SOC with mental health during this time of the pandemic, and especially how it works beyond specific contexts or cultures. More specifically, we asked about the potential universality of the positive effect of SOC in times of a global crisis and examined a mediating model in which main GRRs at the micro level (perceived family support) and at the macro level (trust in the leaders and governmental institutions who are in charge of managing the COVID-19 crisis) mediate the relationships between SOC and mental health. Investigating and comparing coping patterns with the pandemic across 7 countries, differing widely in respect to political, welfare-system, culture, and burden of the pandemic, can yield valuable insights related to salutogenic processes and to the question of how populations can deal with stressors while protecting their mental health.

### Table 3 (continued)

| Country | Effect | b    | SE   | Percentile 95% CI          |
|---------|--------|------|------|-----------------------------|
|         |        | Lower | Upper|
|         |        |       |      |                             |
| USA     | Effect of economic risk on M. health | 0.104*** | 0.032 | −0.166 | −0.042 |
|         | Indirect effect of SOC on M. health through F. Support (a1b1) | 0.037* | 0.015 | 0.008 | 0.066 |
|         | Indirect effect of SOC on M. health through Trust (a2b2) | 0.034* | 0.014 | 0.007 | 0.060 |
|         | Total indirect effect | 0.071*** | 0.019 | 0.033 | 0.109 |
|         | Total effect of SOC on M. health (c) | 0.609*** | 0.035 | 0.540 | 0.678 |

The variables: M.health = mental health; F. Support = perceived family support; SOC = sense of coherence.

Table 3 (continued)

The indirect effect of perceived family support and trust on the relationships between SOC and mental health was significant in most of the countries (except Switzerland).

In conclusion, our first hypothesis was supported and SOC, perceived family support, and trust in governmental institutions were all strongly related to higher levels of mental health in all 7 samples. As predicted in the second hypothesis, perceived family support and trust mediated the relationships between SOC and mental health. It is also noteworthy that the indirect effect of SOC on mental health was significant in most of the samples (except Switzerland).

### 4. Discussion

The COVID-19 crisis that disrupted reality and caused chaos all over the world has raised many pathogenic questions among researchers. Our study, however, employed a salutogenic approach and asked: how do people create order out of the chaotic reality during the pandemic and stay mentally healthy? We examined this question in 7 countries during the first months of the COVID-19 crisis. Investigating and comparing coping patterns with the pandemic across 7 countries, differing widely in respect to political, welfare-system, culture, and burden of the pandemic, can yield valuable insights related to salutogenic processes and to the question of how populations can deal with stressors while protecting their mental health.

We, however, were mainly interested in understanding the association of SOC with mental health during this time of the pandemic, and especially how it works beyond specific contexts or cultures. More specifically, we asked about the potential universality of the positive effect of SOC in times of a global crisis and examined a mediating model in which main GRRs at the micro level (perceived family support) and at the macro level (trust in the leaders and governmental institutions who are in charge of managing the COVID-19 crisis) mediate the relationships between SOC and mental health. Based on Antonovsky’s assumption about the universal nature of SOC, we expected to find similar patterns among people from different countries.

The preliminary analysis indeed revealed some significant differences between the participants from the 7 samples in levels of SOC, perceived family support, trust, and mental health. A gap was found between Swiss, German, and Austrian samples and the other 4 samples, as these 3 samples reported stronger SOC levels as well as coping resources (GRRs) and mental health measures as compared to the other samples. These results

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might reflect the different cultural contexts, as well as the various political, economic resources, and social stability (Sagy & Antonovsky, 1996) as well as the pandemic crisis at the time of data collection. Discussing these differences in-depth, however, is beyond the scope of this paper. Moreover, since the sampling is not representative, our ability to discuss those differences is quite limited.

However, and despite these differences, a similar pattern was revealed in the correlation analyses and in the mediation model. As we expected (our first hypothesis), we consistently found strong connections between SOC, perceived family support, trust, and mental health in all the 7 samples and they consistently contribute directly to mental health, when controlling for levels of age, gender, and perceived financial risk. Moreover, the relationships between SOC and mental health were stronger compared to the relationships of the two GRRs (perceived family support and trust) with mental health. These findings confirm the central role Antonovsky (1979) assigned to the SOC as a core and main coping resource. Moreover, SOC appears to have a universal meaning, not limited by cultural characteristics.

These similar patterns enabled us to examine the mediating role (hypothesis 2) of perceived family support and trust in the relationships between SOC and mental health for the entire sample of the 7 countries, as well as in each sample separately. Overall, we found SOC to be the main predictor of mental health in all 7 countries included in our study. We also found a strong support for the mediating model in which each GRR contributed to the relationship between SOC and mental health. However, there were some differences among the samples. In three of the countries – Israel, Italy, and Spain – perceived family support had a stronger effect on the relationships between SOC and mental health compared to trust. This direction is consistent with previous Israeli studies related to the strong association between SOC and family support (Sagy & Antonovsky, 1992). Among two other countries – Germany, and Austria – trust had a stronger effect on the relationship between SOC and mental health as compared to family support. While Switzerland’s was different from the other countries since the indirect effect of perceived family support and trust on the relationships between SOC and mental health was not significant. It appears that there are differences and similarities between the various countries. While the SOC is a universal coping resource, the chosen GR is verifying due to individual and collective preferences and availability. The question related the collective preference of specific GR during national crisis is an interesting question and should be further investigated.

But, as we mentioned before, this discussion is beyond the scope of this manuscript. Before concluding, some main limitations must be considered. We used an internet-based snowball sampling, and the samples were not representative, since there is a selection bias. Using internet questionnaires may neglect groups that have less accessibility to computers and social media, for example due to ideology, religious beliefs, and or financial reasons (Alvarez & VanBeselaere, 2005, pp. 955–962). However, the use of internet questionnaires has benefits for large sampling during the COVID-19, due to the social distancing regulations which made it difficult to collect data face to face, and the growing usage of internet among the global population. Moreover, the rapid changes in the social reality also required a rapid process of data collection. Another limitation is exploring perceived social support with only one item. Although the usage of one item for family support is common (Krahn, 1993), the current finding related to the importance of this variable in mediating the relationship between SOC and mental health reinforces the need to explore it more deeply while using standardized questionnaires. To summarize, the COVID-19 provided us a unique opportunity to understand how people from different countries and cultural contexts struggle with the same stressor: a challenging pandemic. Overall, we can conclude that asking salutogenic questions lead us to develop a better understanding of coping with such hard times. Our results confirm Antonovsky’s hypothesis that the personal construct of SOC is the decisive factor in advancing movement towards health, even in times of a widespread health crisis. Strong SOC allows one to be flexible and reach out to the appropriate resources in one’s surroundings. These results seem to have a special significance in the current period of struggling with a pandemic that appears to have a strong impact on our social-economic and political life. In the aim of advancing coping with pandemic, our findings lead us to understand that it is not enough to provide material resources, rather, and perhaps even more important, is the need to also enhance the ability of members of society to comprehend, manage, and give some meaning to the chaotic reality.

How might these conclusions be implemented? We can suggest some examples: spokespeople during a health crisis should be professionals and trustworthy experts rather than political figures, the professional leading team should have the authority to make difficult decisions without interruptions by politics and interest groups, and they should give the population reliable, consistent, and reasonable information about the situation and the ways which are chosen to handle it. The application of these suggestions could be different, of course, according to the various social-political-cultural contexts but the central question should be the same: How can we promote the advancement of the three components of the universal construct of SOC: comprehensibility, manageability, and meaningfulness?

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**Declaration of interests**

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

**References**

Abel, T., Kohlmann, T., & Noack, H. (1995). Eine deutsche Übersetzung des SOC. Universität Bern. Institut für Sozial- und Präventivmedizin.

Alvarez, R. M., VanBeselaere, C., & Kempf-Leonard, K. (2005). Web-based survey. In Encyclopedia of social measurement. Elsevier. https://doi.org/10.1016/B0-12-369598-5/00509-X

Antonovsky, A. (1979). Health, stress and coping. Jossey-Bass.

Antonovsky, A. (1987). Unraveling the mystery of health. Jossey-Bass.

Antonovsky, A. (1996). The salutogenic model as a theory to guide health promotion. Health Promotion International, 11(1), 11–18. https://doi.org/10.1093/heapro/11.1.1

Barni, D., Danioni, F., Canzi, E., Ferrari, L., Ranieri, S., Lanz, M., et al. (2020). Facing the COVID-19 pandemic: The role of sense of coherence. Frontiers in Psychology, 11, 3027. https://www.frontiersin.org/article/10.3389/fpsyg.2020.3027840

Braun-Lewensohn, O., Abu-Kaf, S., & Kalagy, T. (2021). Hope and resilience during a pandemic among three cultural groups in Israel: The second wave of Covid-19. Frontiers in Psychology, 12. https://www.frontiersin.org/article/10.3389/fpsyg.2021.637349

Edelman, (2021). Edelman trust barometer, 2021, January 2021. https://www.edelman.com/trust/2020-trust-barometer.

Einav, M., & Margalit, M. (2020). Hope, loneliness, and sense of coherence among bereaved parents. International Journal of Environmental Research and Public Health, 17(80), 2797. https://doi.org/10.3390/ijerph17082797

Eriksson, M., & Lindstrom, B. (2005). Validity of Antonovsky’s sense of coherence scale—a systematic review. Journal of Epidemiology & Community Health, 59(6), 460–466.

Eriksson, M., & Mittelmark, M. (2017). Sense of coherence and its measurement. In M. B. Mittelmark, S. Saga, M. Eriksson, G. F. Bauer, J. M. Pelikan, B. Lindstrom, et al. (Eds.), The handbook of salutogenesis (pp. 97–106). Springer International. http://link.springer.com/chapter/10.1007/978-3-319-04600-6_12.

Fancellu, D., Steptoe, A., & Wright, L. (2020). The compuncions effect: Politics, trust and behaviours during the COVID-19 pandemic. Lancet, 396(10249), 464–465. https://doi.org/10.1016/S0140-6736(20)31690-1

Gérenteux, M., & Roy, M. (2020). Work in progress. Preliminary results retrieved 03/07/2020 from newswire.ca. https://www.newswire.ca/news-releases/quebeckers-less-at-risk-of-3001817664564.html

Gérenteux, M., Roy, M. (2020). Work in progress. Preliminary results retrieved 03/07/2020 from newswire.ca. https://www.newswire.ca/news-releases/quebeckers-less-at-risk-of-3001817664564.html

Hardy, L., Mana, A., Mundell, L., Benheim, S., Torres Mozales, K., & Sagy, S. (2021). Living in opposition: How women in the United States cope in spite of mistrust of
federal leadership during the pandemic of COVID-19. *Journal of Community Psychology*. https://doi.org/10.1002/jcop.22544. Advance online publication.

Hayes, A. F. (2013). Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approach. New York, NY: The Guilford Press.

Howick, J., Kelly, P., & Kelly, M. (2019). Establishing a causal link between social relationships and health using the Bradford Hill Guidelines. *SMM - Population Health, 8*, 100402. https://doi.org/10.1016/j.smmph.2019.100402

Jetten, J., Reicher, S. D., Haslam, S. A., & Cruwys, T. (2020). In Together apart: The psychology of COVID-19 (1st ed.). Sage.

Jovanović, V. (2015). Structural validity of the mental health continuum-short form: The bifactor model of emotional, social and psychological well-being. *Personality and Individual Differences, 75*, 154–159. https://doi.org/10.1016/j.paid.2014.11.026

Krahn, G. L. (1993). Conceptualizing social support in families of children with special health needs. *Family Process, 32*(2), 235–248. https://doi.org/10.1111/j.1545-5300.1993.00235.x

Lamers, S. M. A., Westerhof, G. J., Bohlmeijer, E. T., ten Klooster, P. M., & Keyes, C. L. M. (2011). Evaluating the psychometric properties of the mental health continuum-short form (MHC-SF). *Journal of Clinical Psychology, 67*(1), 99–110. https://doi.org/10.1002/jclp.20741

Mana, A., & Sagy, S. (2020). Brief report: Can political orientation explain mental health in the time of a global pandemic? Voting patterns, personal and national coping resources, and mental health during the coronavirus crisis. *Journal of Social and Clinical Psychology, 39*(3), 187–193.

Mana, A., Saper, S., Sardo, C., Juvinya Canal, D., Neuman, M., & Sagy, S. (2021). Individual and national coping resources and their relationships with mental health and anxiety: A comparative study in Israel, Italy, Spain, and The Netherlands during the Coronavirus pandemic, 1757975921992957. *Global Health Promotion, 18*. https://doi.org/10.1177/1757975921992957. Epub ahead of print. PMID: 33601955; PMCID: PMC7899541.

Marinthe, G., Brown, G., Delouv, S., & Jolley, D. (2020). Looking out for myself: Exploring the relationship between conspiracy mentality, perceived personal risk and COVID19 prevention measures. *British Journal of Health Psychology, 25*(4), 957–980. https://doi.org/10.1111/bjhp.12449

Mittelmark, M. B., Bull, T., Daniel, M., & Urke, H. (2017). Specific resistance resources in the salutogenic model of health. In M. Mittelmark, S. Sagy, M. Eriksson, G. F. Bauer, J. M. Pelikan, B. Lindstrom, et al. (Eds.), *Handbook of salutogenesis* (pp. 71–76). Springer International. https://link.springer.com/chapter/10.1007/978-3-319-04600-6_8.

OECD. (2021). *Trust in government* (indicator). https://doi.org/10.1787/1de9675e-en Accessed on 29 April 2021.

Olnicky, A., Chen, S., & Harlow, L. (2003). The comparative efficacy of imputation methods for missing data in structural equation modeling. *European Journal of Operational Research, 151*, 53–79.

Rajkumar, R. P. (2020). COVID-19 and mental health: A review of the existing literature. *Asian Journal of Psychiatry, 52*, 102066. https://doi.org/10.1016/j.ajp.2020.102066

Ren, S. Y., Gao, R. D., & Chen, Y. L. (2020). Fear can be more harmful than the severe acute respiratory syndrome coronavirus 2 in controlling the corona virus disease 2019 epidemic. *World Journal of Clinical Cases, 8*(4), 652–657. https://doi.org/10.12998/wjcc.v8.i4.652

Roser, M., Ritchie, H., Ortiz-Ospina, E., & Hasell, J. (2020). Coronavirus pandemic (COVID-19). Published online at OurWorldInData.org. Retrieved from https://ourworldindata.org/coronavirus ([Online Resource]).

Sagy, S. (1994). Sense of coherence and its relevance to health: The legacy of Aaron Antonovsky. *In invited paper presented at the symposium on "social networks and health", Copenhagen, Denmark.*

Sagy, S. (2014). Rak al atzmi l’saper yadati: Myomana shel hokeret sichusim b’heeder hamugan. (Only about myself did I know to tell: From the diary of a conflict researcher). Mifraj: *Journal of Social-Educational Work, 40*, 9–26 (Hebrew) http://www.jsew.org/stable/24524253.

Sagy, S., & Antonovsky, A. (1992). The family sense of coherence and the retirement transition. *Journal of Marriage and the Family, 54*(4), 983–993. https://doi.org/10.2307/3531777.

Sagy, S., & Antonovsky, H. (1996). Structural sources of the sense of coherence: Two life stories of Holocaust survivors in Israel. *Israel Journal of Health Sciences, 32*, 200–205.

Sagy, S., & Antonovsky, H. (2000). The development of the sense of coherence: A retrospective study of early life experiences in the family. *International Journal of Aging & Human Development, 51*, 155–166.

Sagy, S., & Dotan, N. (2001). Coping resources of maltreated children in the family: A salutogenic approach. *Child Abuse & Neglect: International Journal, 25*(11), 1463–1480.

Saltzman, L. Y., Hansen, T. C., & Bordnick, P. S. (2020). Loneliness, isolation, and social support factors in post-COVID-19 mental health. *Psychological Trauma, 2*(5), S55-S57. https://doi.org/10.1037/tra0000703.

Sardu, C., Mereu, A., Sotgia, A., Andrisi, L., Jacobson, M. K., & Contu, P. (2012). Antonovsky’s Sense of Coherence Scale: Cultural validation of SOC questionnaire and socio-demographic patterns in an Italian population. *Clinical Practice and Epidemiology in Mental Health, 8*, 1–6. https://doi.org/10.2174/1745017901208010001

Schafer, S. K., Sopp, M. R., Schana, C. G., Stagginus, M., Geritz, A. S., & Michael, T. (2020). Impact of Covid-19 on public mental health and the buffering effect of sense of coherence. *Psychotherapy and Psychosomatics, 89*, 386–392. https://doi.org/10.1159/000510752.

Sibley, C. G., Greaves, L. M., Satherley, N., Wilson, M. S., Overall, N. C., Lee, C. H. J., et al. (2020). Effects of the COVID-19 pandemic and nationwide lockdown on trust, attitudes toward government, and well-being. *American Psychological, 75*(5), 618–630. https://doi.org/10.1037/amp0000662.

Srensen, T., Klungsrey, O., Kleiner, R., & Klepp, O. M. (2011). Social support and sense of coherence: Independent, shared, and interaction relationships with life stress and mental health. *International Journal of Mental Health Promotion, 13*(1), 27–44. https://doi.org/10.1080/14623730.2011.9715648

Sanz, V., Ramírez, A. J., Martínez-Martín, P., Del Barrio, J. L., Lozano, L. M., & Grupo Español de Estudios Epidemiologicos sobre Envejecimiento. (2007). Validación transcultural de la Escala de Sentido de Coherencia de Antonovsky (OLQ-13) en ancianos mayores de 70 años [Cross-cultural validation of Antonovsky’s Sense of Coherence Scale (OLQ-13) in Spanish elders aged 70 years or more]. *Medicina Clinica, 128*(11), 486–492. https://doi.org/10.1157/0013100935.

Volk, A. A., Brazil, K. J., Franklin-Luther, P., Dan, A. V., & Vaillancourt, T. (2021). The influence of demographics and personality on COVID-19 coping in young adults. *Personality and Individual Differences, 166*, 110398. https://doi.org/10.1016/j.paid.2020.110398

World Health Organisation. (1998). Wellbeing measures in primary health care: The DeCARE project. Report on a WHO meeting stockholm, Sweden 12-13 february 1998. WHO Regional Office for Europe. https://www.euro.who.int/__data/assets/pdf_file/0016/130750/650246.pdf.

Xiong, J., Lipsitz, O., Nastri, F., Luo, G., Phan, L., et al. (2020). Impact of COVID-19 pandemic on mental health in the general population: A systematic review. *Journal of Affective Disorders, 277*, 55–64. https://doi.org/10.1016/j.jad.2020.08.001.