Psychological Distress in the Time of COVID-19: The Relationship Between Anxiety, Hopelessness, and Depression and the Mediating Role of Sense of Coherence

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Although the COVID-19 pandemic can precipitate a wide range of mental health problems, not everyone experiences significant psychological distress. Instead, many people are able to adapt effectively to difficult life circumstances, which suggests the influence of specific protective factors. The current study investigated sense of coherence (SOC) as a potential protective factor and examined both its direct association with depression and its mediating role in the hopelessness–depression and anxiety–depression relationships. Participants were 337 young adults who completed 4 self-report questionnaires, namely, the Sense of Coherence Scale–Short Form (SOC-13) scale, Centre for Epidemiological Depression Scale, the State–Trait Anxiety Inventory, and the Beck Hopelessness Scale. In addition to descriptive statistics and intercorrelations, structural equation modeling was used to determine the mediating role of SOC. The results suggest that levels of anxiety, hopelessness, and depression exceed those documented in the existing literature in other contexts. Higher SOC was associated with less psychological distress. SOC also mediated the relationship between anxiety and depression and between hopelessness and depression, supporting the notion that it serves a health-sustaining role in psychological outcome. These findings suggest that SOC is health sustaining and strategies aimed at promoting cognitive flexibility and enhancing awareness of coping resources may prove beneficial in preventing adverse psychological outcomes.

Keywords: anxiety, COVID-19, depression, hopelessness, sense of coherence, South Africa

Since the World Health Organization (WHO) first designated the coronavirus disease (COVID-19) a public health emergency of international concern, the pandemic has had a profound impact on the daily life of individuals globally. The highly transmittable nature of the virus, shortage of viral testing resources, and limited access to personal protective equipment and medical care have contributed to a global public health crisis (WHO, 2020). To curb the spread of the virus, governments around the world enforced national lockdowns and a range of associated restrictive measures. The current study was conducted in South Africa where a hard lockdown enforced by the military and national police was instated following the identification of the first case of infection in the country in March 2020 (South African Government Gazette, 2020). The changes to everyday life were rapid and unprecedented, and researchers (Rajkumar, 2020; Vindegaard & Benros, 2020) have documented significant increases in mental health problems among the general public due to the pandemic and related prevention measures. This includes elevated rates of anxiety, loneliness, depression, and hopelessness as well as an increase in the use of problematic coping strategies (China: Wang et al., 2020; Spain: Gómez-Salgado et al., 2020). It has also been suggested (Schäfer et al., 2020) that the mental health consequences of the pandemic may be more pronounced in developing countries where there are fewer resources to buffer its adverse effects.

Although pandemics can precipitate a wide range of mental health problems, not everyone experiences significant psychological distress (Ye et al., 2020). Instead, many people are able to adapt effectively to difficult life circumstances, and this phenomenon suggests the influence of specific protective factors. Examples of these potential protective factors include locus of control (Goldzweig et al., 2016), self-esteem (Kong & You, 2013), use of adaptive coping strategies (Prentice et al., 2020), and willingness to access supportive networks (Ye et al., 2020). The current study focuses on sense of coherence (SOC) as a potential protective factor. SOC is a relatively stable global orientation toward life and involves the ability to appraise stressful life events as comprehensible, meaningful, and manageable (Antonovsky, 1993). These three characteristics represent the core domains of the construct. Although comprehensibility refers to the ability to understand a stressful situation, manageability relates to the appraisal that the individual has sufficient internal and external resources to meet the demands of the stressor. Meaningfulness relates to the appraisal that coping with the stressful situation is worthwhile, and

this can serve to motivate the individual to activate coping resources (Antonovsky, 1993).

People with a high SOC tend to view the world and their environment as comprehensible, manageable, and meaningful and are able to engage in adaptive coping when confronted with stressors (Antonovsky, 1993; Martela & Steger, 2016). In contrast, those with a low SOC tend to view stressors as overwhelming and experience hopelessness. SOC has been found to be a significant predictor of quality of life and psychological well-being among various vulnerable population groups including adolescents (Krok, 2015), elderly caregivers (Stensletten et al., 2016), individuals with chronic illnesses (Müller et al., 2014), and health-care workers (Veronese & Pepe, 2017). In addition, SOC plays a mediating role in the relationship between different variables such as exposure to trauma and psychological well-being (Veronese et al., 2013), chronic stress and life satisfaction (Rohani et al., 2015), and anxiety and depression and health-related quality of life (Pillay et al., 2015). Studies investigating SOC as a potential protective factor in the context of the current COVID-19 pandemic have also confirmed that higher SOC may buffer the impact of the pandemic on mental health (Dymecka et al., 2022; Schäfer et al., 2020).

The interactionist cognitive approach of Lazarus and Folkman (1984) has been drawn on to understand the influence of SOC on psychological outcomes (Braun-Lewensohn et al., 2017). It has been proposed that SOC is intricately linked to secondary cognitive appraisals of stressful situations (Braun-Lewensohn et al., 2017). Although primary appraisals entail the individual's immediate assessment of the degree to which a situation is likely to threaten their well-being, secondary appraisals refer to the cognitive process of evaluating one's ability to negotiate a stressor, one's internal coping capacities, and ability to access and use material and psychological resources to cope with adversity (Lazarus & Folkman, 1984; Padmanabhanunni & Wiid, 2021). Both sets of appraisals are purported to work reciprocally in influencing the experience of psychological distress, but secondary appraisal processes enable the individual to exert control of their own level of distress by reappraising the situation in a way that promotes coping (Lazarus & Folkman, 1984). Hence, those with higher SOC are more likely to appraise themselves as having the intrinsic (e.g., attitudes and problem-solving skills), social (i.e., family and friends), and material resources (e.g., financial) to effectively manage a stressor (Braun-Lewensohn et al., 2017).

The majority of studies on the influence of protective factors (e.g., self-efficacy, social support, locus of control, fortitude, etc.) on psychological outcomes have described these factors as having a moderating or mediating function—that is, they mediate or moderate the harmful effects of adverse events on psychological functioning (see Pretorius, 2020 for an overview). In addition to these pathways (i.e., moderation and mediation), the direct association between the protective factors and adverse conditions should also be considered important (Pretorius, 2020). The direct effects hypothesis, also referred to as the health-sustaining model (Shumaker & Brownell, 1984), postulates that the effect of a third variable (e.g., self-efficacy or social support) on well-being is independent of the level of the adverse event or environmental stressor (Pretorius, 2020). Theoretically, this means that an increase in the levels of the third variable (e.g., SOC) will result in an increase in psychological well-being, regardless of the level of the adverse environmental condition. The indirect effects hypothesis proposes that a third variable may not be directly related to mental health functioning but may have an indirect effect on well-being by influencing perceptions of the stressor (Pretorius, 2020). The current study aims to expand the knowledge base regarding the role of protective factors in psychological outcomes by investigating the direct and indirect effect of SOC in the relationship between anxiety, depression, and hopelessness among a sample of young adults from South Africa.

Method

Study Site

The study was conducted (March–July 2020) at a South African university situated in the Western Cape Province of the country, during the first wave of infections in the country. At the time, the incidence risk was 138.1 cases per 100,000 persons (Communicable Diseases Communique, 2021). There was a peak in the death rate between the first and second wave of the pandemic. The death rate increased from 8.7 deaths per 1000 people in 2020 to 11.6 deaths per 1000 people in 2021. This represented a 34% increase in deaths from COVID-19 (Statistics South Africa, 2021).

Participant Population and Procedure

A cross-sectional research design was used for the current study and participants ($N = 337$) were a random sample of undergraduate students enrolled at a university in the Western Cape Province of South Africa. The majority of participants were female (77.2%), and the mean age of participants was 22 years ($SD = 4.7$). With reference to the COVID-19 status, 82.5% of the sample indicated that they had not contracted the virus, whereas a smaller proportion of students either suspected that they had COVID-19 (3.9%) but had not tested for the disease or suspected that they had the virus and confirmed this through testing (1.2%).

Measures

Participants completed four self-report measures, namely, the short form Sense of Coherence scale (Antonovsky, 1987), Centre for Epidemiological Depression Scale (CESD; Radloff, 1977), the State–Trait Anxiety Inventory (STAI; Spielberger et al., 1970), and the Beck Hopelessness Scale (BHS; Beck et al., 1974). In addition, a demographic questionnaire that contained items pertaining to age, gender, and area of residence was also completed.

The SOC is a 13-item measure and assesses the ability to identify and use internal and external resources to facilitate successful coping with stressors and maintain and develop health. The scale consists of three subscales: Meaningfulness (four items), Comprehensibility (five items), and Manageability (four items). Examples of items in the scale include "Do you have the feeling that you are in an unfamiliar situation and do not know what to do?" and "How often do you have the feeling that there's little meaning in the things you do in your daily life?" Respondents indicate agreement or disagreement with each item. Reliability estimates for this scale range from $\alpha = .70$ to .92 (Paika et al., 2017).

The STAI-T is a 20-item measure of trait anxiety and items include "I worry too much over something that really doesn't

matter," "I am content," and "I am a steady person." All items are rated on a 4-point scale (e.g., from *almost never* to *almost always*). Internal consistency coefficients for the scale have ranged from .84 to .94 (Hashim et al., 2018).

The BHS contains 20 statements for which individuals must select "true" or "false." It assesses the degree to which individuals' cognitive schemata are associated with pessimistic expectations (e.g., "I do not expect to get what I really want" or "My future seems dark to me"). Scores can range from 0 to 20, with higher scores indicating a greater degree of hopelessness. Internal consistency of .93 has been reported, along with concurrent validity of .74 with clinical ratings of hopelessness and .60 with other scales of hopelessness (Beck et al., 1974). The BHS has been used in South Africa with a sample of young adults (Heppner et al., 2002), and an α coefficient of .82 was reported. The scale has also been validated in the South African context (Steele & Edwards, 2008).

The CESD scale consists of 20 symptoms, 16 of which have descriptions that are worded negatively and four of which have descriptions that are worded positively. Respondents are asked to indicate how often they experienced each of the symptoms during the past week on a 4-point scale ranging from 0 (*rarely or none of the time*) to 4 (*most or all of the time*). The items on the scale are assumed to represent all the major components of depressive symptomatology, which include (a) depressed mood, (b) feelings of guilt and worthlessness, (c) feelings of helplessness and hopelessness, (d) loss of appetite, (e) sleep disturbance, and (f) psychomotor retardation (Radloff, 1977). The scale was found to have very high internal consistency (.85 to .90) and test–retest reliability (.51 to .67). Validity was established through patterns of correlations with clinical ratings of depression. Research has consistently identified a four-factor structure for the CESD scale: positive affect, depressed affect, somatic activity, and interpersonal relations (Ferro & Speechley, 2009). The psychometric properties of the CESD scale as used with South African students had been reported previously (Pretorius, 1991).

Data Analysis

Preliminary data analysis, descriptive statistics, and intercorrelations between variables as well as reliabilities were determined using IBM SPSS Statistics for Windows Version 26 (IBM Corp., Armonk, NY). The preliminary data analysis included testing for multivariate normality (Mahalanobis distance, D^2) and testing for common method bias (Harman's one-factor test). To determine the direct and indirect effects of the predictor variables as well as bootstrapping of 95% confidence levels (CI) and *p* values, IBM SPSS Amos (Version 26; IBM Corp.) was used. Indirect effects are regarded as a measure of mediation, and their value indicates the amount of mediation (Kenny, 2018).

Results

Preliminary data analysis examined multivariate normality and common method bias. Mahalanobis distance indicated that the assumption of multivariate normality was violated ($D^2 = 14.27$, $p > .05$) and five outliers were removed. In terms of common method bias, Harman's one-factor test indicated that the data set was not contaminated by common method bias as the average variance extracted was below the suggested cutoff of 50% (Kock,

2021) for all tests (CES-D = 40.44%, SOC = 31.33%, STAI-T = 35.96%, BHS = 30.15). The intercorrelations, descriptive statistics, and reliabilities (coefficient α) are reported in Table 1.

As can be seen in Table 1 all the measuring instruments demonstrated satisfactory reliabilities with αs ranging between .81 and .92. The mean scores for the three indices of psychological distress were significantly higher than previously reported mean scores using the same scales. In the case of hopelessness, the mean score ($M = 4.6$, $SD = 4.2$) was significantly higher than those typically reported in the literature, for example Durham (1982), $M = 2.3$, $SD = 2.3$, $t_{331} = 9.80$, $p < .001$, and Lotfi-Kashani et al. (2018), $M = 2.4$, $SD = .4$, $t_{336} = 9.64$, $p < .001$. The mean anxiety score ($M = 48.0$, $SD = 10.5$) was significantly higher than prepandemic for a similar population (Heppner et al., 2002: $M = 44.4$, $SD = 10.6$, $t_{331} = 6.36$, $p < .001$) as well as higher than those reported in other contexts (Lee et al., 2017: $M = 38.9$, $SD = 11.7$, $t_{331} = 15.98$, $p < .001$). Similarly, the mean depression score ($M = 27.3$, $SD = 13.2$) was significantly higher than pre-COVID-19 for a similar population (Pretorius & Diedricks, 1994: $M = 16.5$, $SD = 10.2$, $t_{331} = 14.93$, $p < .001$) and significantly higher than those reported in other contexts (Crawford et al., 2011: $M = 14.1$, $SD = 10.9$, $t_{331} = 18.25$, $p < .001$). It was also significantly higher than the mean score reported in a COVID-19 study (Giuntella et al., 2021: $M = 14.6$, $SD = 9.6$, $t_{331} = 17.56$, $p < .001$).

There were also significant gender differences in terms of anxiety and depression, whereas there were no gender differences in terms of hopelessness and sense of coherence. Women reported more depression ($M = 28.2$, $SD = 12.9$) and anxiety ($M = 48.8$, $SD = 10.1$) than men (depression: $M = 23.3$, $SD = 12.9$, $t_{327} = -2.88$, $p = .003$; anxiety: $M = 44.5$, $SD = 10.3$, $t_{332} = -3.24$, $p = .001$).

In terms of the intercorrelations, Table 1 reflects that the indices of psychological distress were all positively related to each other and negatively related to sense of coherence. Depression was positively related to anxiety ($r_{330} = .79$, $p < .001$) and hopelessness ($r_{330} = .56$, $p < .001$), whereas negatively related to sense of coherence ($r_{335} = -.71$, $p < .001$). Hopelessness was positively related to anxiety ($r_{330} = .63$, $p < .001$) and negatively related to sense of coherence ($r_{335} = -.57$, $p < .001$). The relationship between anxiety and sense of coherence was also negative ($r_{335} = -.77$, $p < .001$).
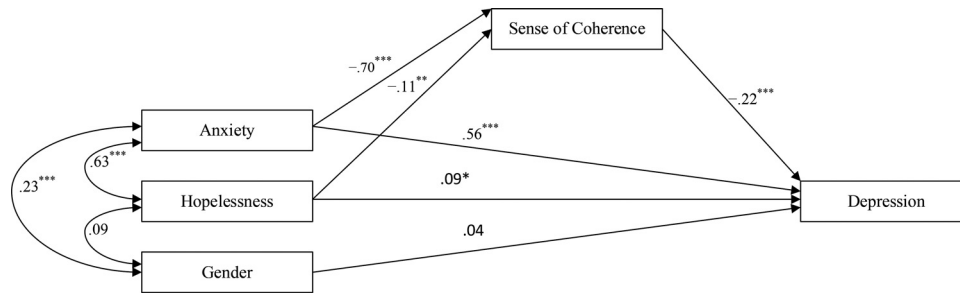
The structural equation model examined is shown in Figure 1. It includes anxiety and hopelessness as predictor, sense of coherence as mediator, and depression as outcome. Given the gender

Table 1

Intercorrelations, Descriptive Statistics, and Reliabilities of Variables

Variable	1	2	3	4
1. Hopelessness	—			
2. Anxiety	.62***	—		
3. Depression	.56***	.79***	—	
4. Sense of coherence	−.57***	−.77***	−.71***	—
M	4.7	48.1	27.5	50.1
SD	4.4	10.5	13.4	12.7
α	.88	.90	.92	.81

*** *p* < .001.

Figure 1

Structural Equation Model for Testing the Mediating Role of Sense of Coherence

Note. Regression weights are standardized.
* $p < .05$. *** $p < .001$.

differences in anxiety and depression, the model also included gender as a covariate.

The direct, indirect, and total effects on depression are shown in Table 2. Table 2 indicates that anxiety and hopelessness had significant direct associations (anxiety: $\beta = .558$, 95% CI [.447, .654], $p = .001$; hopelessness: $\beta = .089$, 95% CI [.025, .154], $p = .022$) as well as indirect associations via sense of coherence on depression (anxiety: $\beta = .154$, 95% CI [.089, .223], $p = .001$; hopelessness: $\beta = .025$, 95% CI [.009, .051], $p = .005$). The significant indirect effects are indicative of partial mediation. Apart from the mediating role, SOC also had a significant direct association with depression ($\beta = -.221$, 95% CI [-.317, .660], $p = .001$).

Discussion

The current study investigated levels of anxiety, hopelessness, and depression among young adults in South Africa and the role of SOC in influencing psychological distress. There were several important findings. First, heightened levels of anxiety, hopelessness, and depression were evident in the current sample. This can be ascribed to various factors including uncertainty about the course of the pandemic, limited access to personal protective equipment, and the economic impact of the pandemic on job security. In South Africa, the COVID-19 pandemic is also occurring in

the context of significant rates of unemployment, poverty, and high rates of comorbid conditions in the general population (e.g., HIV/AIDS, tuberculosis, and chronic renal disease: Bulled & Singer, 2020). A significant proportion of people in the country live in townships or rural settings characterized by poor living conditions including poorly ventilated and overcrowded living spaces, poor sanitation, and limited access to clean running water (Bulled & Singer, 2020). These conditions can adversely impact mental health and well-being and contribute to feelings of hopelessness and depression (Giuntella et al., 2021; Hacimusalar et al., 2020; Solomou & Constantinidou, 2020). The university predominantly attracts young adults from working-class backgrounds and COVID-19-related restrictions may have impacted job security and access to basic resources thereby also heightening anxiety and despair.

Second, the study found that the psychological impact of the pandemic was gendered with women reporting higher levels of anxiety and depression compared with men. This finding contrast with some studies conducted during the time of the COVID-19 pandemic (Tang et al., 2021) that reported that men were more likely to experience heightened anxiety. Existing research has demonstrated that social support is more closely linked to psychological well-being of women (Conley et al., 2020). It is probable that pandemic-related restrictions may have impacted women's

Table 2

Direct, Indirect, and Total Effects of Hopelessness, Anxiety, and Sense of Coherence on Depression

Variable	β	SE	β	[95% CI]	p
Direct effects					
1. Gender → Depression	1.182	.920	.040	[−.017, .106]	.169
2. Anxiety → Depression	.688	.077	.542	[.421, .660]	.004
3. Hopelessness → Depression	.275	.123	.091	[.013, .173]	.022
4. SOC → Depression	−.246	.061	−.233	[−.345, −.109]	.002
5. Anxiety → SOC	−.823	.054	−.684	[−.766, −.601]	.003
6. Hopelessness → SOC	−.410	.129	−.143	[−.234, −.054]	.006
Indirect effects					
1. Anxiety → Depression	.202	.048	.159	[.075, .235]	.002
2. Hopelessness→ Depression	.101	.043	.033	[.011, .071]	.003
Total effects					
1. Anxiety → Depression	.890	.051	.702	[.622, .770]	.003
2. Hopelessness→ Depression	.375	.125	.124	[.043, .205]	.005

Note. SOC = sense of coherence; CI = confidence interval.

ability to mobilize social support resources and this may account for their elevated levels of psychological distress. In young adulthood, social support from friends is also more effective at reducing psychological distress compared with support from family (Conley et al., 2020). Limited access to friends and peers due to stay-at-home directives may have also contributed to heightened anxiety and depression for women. The levels of gender-based violence in South Africa increased during the period of national lockdown and living with an abusive partner or family member may contribute to a heightened sense of threat and feelings of despair and hopelessness for women (Nduna & Tshona, 2021).

Women also spend a disproportionate amount of time in informal caregiving roles and, in the context of the pandemic, it is likely that these caregiving roles (e.g., home schooling of children) would increase (Connor et al., 2020). Longer term informal caregiving has been associated with decreased well-being including higher rates of anxiety and depression among women (Bhan et al., 2020). Furthermore, social distancing due to the lockdown policy can impact women's access to social support networks and this can further heighten anxiety and depression (Connor et al., 2020).

A third finding of the study was that higher SOC was associated with less psychological distress, that is, lower anxiety, depression, and hopelessness. This finding is supported by several studies (Gómez-Salgado et al., 2020; Hirano et al., 2020; Schäfer et al., 2020) conducted during the COVID-19 pandemic that suggest that individuals high in SOC experience fewer adverse psychological symptoms and cope more effectively with distress compared with those with low SOC. High SOC has been associated with improved health status, greater work engaged, and fewer family and work-related conflicts (Gómez-Salgado et al., 2020). According to Antonovsky (1993), SOC affects how individuals perceive life stressors and influences their appraisals of the extent to which they can cope with adverse circumstances. Individuals with high SOC tend to use task-oriented problem-solving approaches and positive reframing to cope with stress (Hirano et al., 2020). It is probable that young adults in the sample with high SOC are able to appraise pandemic-related restrictions as time-limited, aimed at promoting their safety, and an opportunity to spend more time with loved ones and deepen these relationships. These types of appraisals may contribute to their experiencing a greater sense of meaning and hopefulness during the pandemic.

Fourth, SOC was found to mediate the relationship between anxiety and depression and between hopelessness and depression. It was also found to have a direct association with depression supporting the notion that SOC serves a health-sustaining or moderating role in psychological outcome (Shankland et al., 2019). The underlying mechanism of the relations between SOC and psychological distress can be explained by the self-concordance model, which has been widely used in research on health and well-being (Kelly et al., 2015; Krok, 2020). Self-concordance has been conceptualized as a state when an individual's goals fulfill fundamental, intrinsic needs and are self-determined rather than required by external influences (Krok, 2020). People who pursue meaningful goals and apply meaning-making processes (i.e., that that are characterized by a high SOC) tend to experience positive emotions and this in turn increases their psychological well-being. In the context of the current pandemic, it is probable that people who value their health as well as the welfare of their family and community may appraise compliance with prevention measures as a means of doing what is necessary to achieve their goal (i.e., remaining healthy and promoting the safety of others). Achieving this goal through behavioral modifications such as using personal protective equipment, staying at home, or practicing social distancing may lead to a greater positive feeling, which in turn impacts their sense of well-being.

The study confirms that SOC is an important asset when dealing with crises and that it could act as a protective factor in promoting mental health during the pandemic. Existing research (Braun-Lewensohn et al., 2017) has found a direct association between SOC and the individual's ability to use cognitive, emotional, and instrumental strategies to enhance coping with adversity. Because SOC becomes a stable-dispositional orientation toward the age of 30 (Antonovsky, 1993), planned interventions may prove beneficial in enhancing this characteristic among young adults. Much of the emphasis during the current pandemic has focused on physical health with comparatively less attention on psychological well-being. Interventions that target SOC may be important in promoting coping and reducing distress (Schäfer et al., 2020). Examples of existing strategies include cognitive mapping to identify goals, developing the use of active-problem solving skills, targeting problematic cognitive appraisals of self and others as well as imaginal activities aimed at producing positive emotion and highlighting personal strengths and resources (Davidson et al., 2012). These strategies enhance self-efficacy and increase the likelihood that adverse events will be appraised in a way that facilitates coping.

The study had certain limitations. First, a cross-sectional research design was used and this limits the extent to which causal inferences can be drawn. Although the mediation relationships were conceptualized as causal, longitudinal studies could provide more substantive evidence of causality. Second, the study used a self-report survey and it is possible that common methods bias influenced the results. Future studies would benefit from using complementary procedural controls to enhance the validity of the findings.

Conclusion

The current study revealed heightened levels of anxiety, hopelessness, and depression among young South African adults in the time of the COVID-19 pandemic. SOC was found to be an important protective factor that may buffer the impact of pandemic-related stressors on mental health.

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