# Depressive Symptoms among Community Residents During the COVID-19 Pandemic: Effects of Perceived Meaning

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**Abstract**

**Background:** The COVID-19 pandemic prompted heightened concerns about adverse mental health consequences, as communities struggled with disconcerting changes and uncertainties. This study evaluated whether elevated levels of depressive symptoms among community residents were associated with theoretically distinct dimensions of perceived meaning.

**Methods:** This cross-sectional investigation examined responses to COVID-19 among residents of a medically underserved, rural southern region of the US. Respondents were assessed during an early phase of the pandemic, a period of considerable disruption and uncertainty. We evaluated risk for depression using a commonly used screening measure (PHQ-9). Validated instruments were used to assess attained and seeking global meaning (i.e., generalized perceptions of meaning in life), and attained and seeking situational meaning (i.e., appraisals of the comprehensibility or coherence of the pandemic experience).

**Results:** As anticipated, respondents who screened positive for depression scored significantly lower in attained global meaning (p <.0001), higher in seeking global meaning (p <.0001), and higher in seeking situational meaning (p <.0001) than those who did not, in bivariate analyses. Attained situational meaning was not significant. In multivariable analyses that adjusted for a range of demographic and pandemic-related factors, lower attained global meaning (OR =.89, 95% CI: .86-.93, p <.0001) and greater efforts to seek situational meaning (OR =1.05, 95% CI: 1.03-1.07, p <.0001) remained associated with a greater likelihood of depression.

**Conclusions:** Discrete aspects of perceived meaning had differential associations with depression among residents assessed during a period of major upheaval. Findings point to the potential importance of global and situational meaning as individuals strive to adapt to the challenges and ambiguities of a public health crisis.

## Introduction

The onset of the COVID-19 pandemic ushered in a protracted period of disruption and uncertainty. Communities grappled with sweeping changes in multiple spheres of life, including restricted social contact, widespread economic hardships, and constricted access to healthcare. In the context of these disruptions, numerous studies conducted early in the pandemic documented heightened levels of depressive and anxiety symptoms among community residents around the world [1,2,3]. Addressing the mental health sequelae of the pandemic became an important public health concern [4,5].

Psychosocial morbidity in response to community disasters varies widely across individuals. Perceived meaning is a resource that has generated significant research interest in recent years [6-9], and is among the personal characteristics thought to influence vulnerability to mental health difficulties. Generalized or "global meaning" has been construed as a personal orienting system that incorporates a set of central beliefs about life, hierarchically-ordered goals, and subjective perceptions that one's place in the universe is purposeful, coherent, and significant [7,10]. A community disaster might challenge one's sense of global meaning, dislodging personal goals, or eroding tacit assumptions regarding control, predictability, or safety. On the other hand, a strong or well-preserved sense of global meaning might be anticipated to bolster psychosocial adjustment. An expansive database indicates that firmer perceptions of meaning or purpose in the course of daily life are associated with better well-being [11,12,13]. Conversely, ongoing efforts to construct a sense of global meaning (i.e., a protracted search for meaning) have been tied to ruminative ideation and poorer mental health in some studies [11,13]. When we turn from ordinary daily circumstances to communal disasters, however, the evidence is less clear-cut. Stronger indices of meaning or purpose were related to greater well-being or reduced distress in some investigations that examined community crises, but not others [14-17]. The effects of searching for meaning in life have been similarly inconsistent in the few studies that have examined these efforts during community disasters [14,15,18]. Clearly there is a need for additional research regarding the mental health implications of attained global meaning and searching for meaning in the aftermath of collective crises, such as a global pandemic.

Theorists have drawn important distinctions between a generalized sense of meaning in life (global meaning) and specific appraisals of stressful or disorganizing circumstances (situational meaning) [10,19]. In a crisis situation, the ability to understand or assimilate one's experience and its personal ramifications ("sense making") may feel elusive. For many individuals, the early phases of the COVID-19 pandemic were a jarring period shrouded in considerable ambiguity-- confusion was exacerbated by conflicting public health messages and by the reopening of businesses and institutions despite rising infection rates. In the face of upheaval and uncertainty, individuals might seek to restore a sense of coherence through a range of strategies, including for example seeking detailed information about the pandemic, searching for causal explanations regarding its etiology, turning toward a religious or spiritual framework, comparing their own circumstances to those who were less fortunate, evaluating existential concerns, or seeking a sense of mission or purpose in the pandemic. Little is known about the extent to which differences in attained situational meaning, or the search for situational meaning, might be tied to mental health difficulties during communal crises.

Several scholars have pointed to perceived meaning as an important factor that might influence psychosocial responses to the COVID-19 pandemic [20-24]. As yet, however, there have been relatively few quantitative investigations that have examined these relationships among members of the general public. In a series of early studies, greater attained global meaning was associated with lower distress among community residents in Germany, Austria [25] and Poland [26], and greater attained situational meaning (i.e., comprehensibility of the pandemic experience) was related to lower coronavirus anxiety among participants in North American [27]. These initial findings offer valuable information. However, measures of global meaning sometimes have been confounded with well-being, which may make outcomes difficult to interpret; moreover, situational meaning or "sense-making," and its potential effects on mental health symptoms, has received scant empirical attention. Research that examines both global and situational meaning among members of the general public, using measures that are not conflated with emotional wellbeing, would help advance the literature.

The present investigation sought to examine associations of elevated depressive symptoms with indices of global and situational meaning in a rural region of the US, during the early phases of the pandemic. We focused on a clinically pragmatic outcome, high scores on a commonly-used screening measure for depression. We evaluated community respondents in a medically-underserved, rural southern area, who have been notably under-studied with respect to adjustment to COVID-19, and who traditionally have experienced a high burden of illness [28]. Examining an early period of the pandemic, when businesses and facilities were beginning to reopen (May-June 2020), offered an especially useful test of the hypothesized relationships, in view of the high level of uncertainty and disruption that residents experienced during this interval. The study evaluated conceptually discrete dimensions of perceived meaning [29,7,19]. We hypothesized that (1) greater attained global meaning (i.e., perceptions that life is generally purposeful and meaningful) would be related to reduced likelihood of screening positive for depression, whereas greater search for global meaning was expected to be related to increased likelihood of elevated depression scores, after controlling for demographic and pandemic-related variables. Furthermore, we hypothesized that (2) greater attained situational meaning (i.e., appraisals that the pandemic experience was comprehensible or coherent) would be tied to lower likelihood of depression, whereas greater search for situational meaning would be associated with increased likelihood of elevated depressive symptoms, after controlling for demographic and pandemic-related variables. It was hoped that findings would help shed light on relationships between perceived meaning and risks for depression among community residents confronted by a period of major upheaval.

## Methods

### Study Design

This study was a cross-sectional investigation in which an online survey concerning responses to the COVID-19 pandemic was completed by community residents in Arkansas. The survey was administered during a one-month interval (May to June 2020), during which there was a phased reopening of businesses in the state (phase 1 and early phase 2) but also an increasing prevalence of COVID-19 infections [30,31]. Current results stem from a larger parent project, and previous reports have focused on other components of the survey (e.g., pandemic bur-

dens, associations of religious or meaning variables with other outcomes [51,52], so the description of some of the methods is similar; the current paper addresses elevated depressive symptoms. Study recruitment involved sending an emailed invitation with a link to the online survey to participants in the Translational Research Center's AR research registry at University of Arkansas for Medical Sciences (UAMS). The registry lists community residents who have expressed interest in research participation; there is broad variability among the members regarding socioeconomic background and geographical distribution within the state. Eligibility requirements included age 18 years or older, residence within the state, and designation within the registry as a healthy community resident (as distinct from categorization under a specific chronic illness). The survey was administered using REDCap, a secure web application for online research [32].

This protocol was approved by the Institutional Review Board of the University of Arkansas for Medical Sciences, and the procedures used adhere to the tenets of the Declaration of Helsinki.

### Measures

### Depressive symptoms

Depressive symptoms were measured using the Patient Health Questionnaire [33], a widely-used 9-item screening instrument. Evidence supporting the internal consistency and construct validity of the instrument has been reported in multiple investigations [33,34]. Coefficient alpha was .91 in the present sample. Participants who scored 10 or greater were classified as possible cases of depression, consistent with findings from a meta-analysis in which this cutoff score demonstrated a sensitivity of 88% and a specificity of 85% for major depression [34].

### Meaning measures

*Global meaning* was assessed with the Meaning in Life scale [35]. This 10-item measure includes a subscale that evaluates presence of meaning (e.g., "I have a good sense of what makes my life meaningful") and a subscale that assesses searching for meaning in life (e.g., "I am seeking a purpose or mission for my life"). Data supporting the internal consistency, construct validity, and convergent validity of the instrument have been reported [35]. In the current sample, Cronbach's alpha was .91 for found meaning and .92 for searching for meaning

*Pandemic-specific meaning* was evaluated with the Meaning-in-Illness Scale [36], which includes a scale that assesses seeking situational meaning and a scale examining found situational meaning in response to stressful health conditions. In the current study, instructions focused on respondents' reactions to the pandemic. The instrument was designed to evaluate the perceived coherence or comprehensibility of a difficult health situation (i.e., sense-making and sense-seeking), and to minimize confounding by emotional well-being. Each scale is comprised of six subscales that evaluate (seeking or found) situationally-relevant information (e.g., "trying to learn as much as I can about the pandemic"), causal attributions (e.g., "trying to understand why the pandemic happened"), positive religious framework (e.g., "thinking about whether this might be part of God's plan"), downward social comparisons (e.g., "comparing myself to others who are worse off"), existential understanding (e.g., "wondering more about my mortality"), and purpose

("trying to find a sense of purpose as a result of this pandemic"). A total found situational meaning score and a total seeking situational meaning score is generated by summing the relevant items. The measure has shown favorable internal consistency and convergent and discriminant validity [36]. In the present sample, Cronbach's alpha was .89 for the found situational meaning scale and .92 for the seeking situational scale.

### Demographic and pandemic characteristics

Participants responded to items about their demographic background (e.g., age, marital status, education, etc.) and about an array of pandemic-related stressors **(see Table 1)**. The survey assessed their experience with COVID-19 testing using an item drawn from the [37] Understanding America Study (UAS) Coronavirus Tracking Survey, and their perceptions of viral exposure using an item adapted from the Australian Treatment Outcome Study (ATOS) 18-20 Year Follow-up study [38]. It evaluated financial insecurity using two items (e.g., missed/delayed payment of rent or mortgage), food insecurity using three items (e.g., "worried that you would run out of food"), and nonadherence to social distancing recommendations using nine items (e.g., "attended a gathering with more than 10 people"); each of which was adapted from the UAS, and was coded as 0= no or not sure, 1= yes.

Other items created by the authors assessed effects of the pandemic on employment (coded for the analysis as 0= no change, 1= loss of income, job, or business), the impact on access to healthcare (coded 0 =no or not sure, 1 =yes), the illness or death of loved ones due to COVID-19 (coded as 0= no, 1= illness or death), and the degree of sheltering at home (coded 0= leave home at least several times per week, 1 =shelter at home, supplies are delivered and almost never leave the residence). Disruptions in daily life due to the pandemic were assessed using seven items (e.g., "trouble arranging for childcare"), which were rated on a 4-point Likert scale and summed to create a total score (coefficient alpha =.73).

### Statistical analysis

Preliminary bivariate analyses examined associations of elevated depression screening scores (i.e., above vs. below the PHQ-9 cut-off value) with demographic and pandemic-related variables, using t-tests or chi-square analyses. Variables that were significantly related to depressive symptoms were included as covariates in the main multivariable analyses. Due to its non-normal distribution, a log transformation was used for the disruption in daily life variable (skewness for the transformed variable =.37).

Logistic regression was used in the main analysis to evaluate the first set of hypotheses, regarding the relationships of found and seeking *global meaning* with depression caseness, after controlling for significant demographic and pandemic-related covariates. To test the second set of hypotheses, logistic regression was used to model the relationships of found and seeking *situational meaning* with elevated depression screening scores, adjusting for significant demographic and pandemic-related factors. Next, this analysis was repeated after additionally adjusting for the effects of found and seeking global meaning, to examine whether the situational meaning variables demonstrated incremental validity in predicting depression, above and beyond the effects of global meaning. *P*-values < .05 were considered significant.

**Table 1:** Demographic and pandemic characteristics.

| Variable | N (%) | Mean (SD) |
|---|---|---|
| gender | | |
| male | 126 (23.16) | |
| female | 418 (76.84) | |
| race/ethnicity | | |
| majority | 455 (83.64) | |
| non-majority | 89 (16.36) | |
| income (n = 540) | | |
| $0-59,999 | 178 (32.96) | |
| ≥$60,000 | 362 (67.04) | |
| loss of work or income | 118 (21.69) | |
| food insecurity | 76 (13.97) | |
| financial insecurity | 60 (11.03) | |
| reduced access to healthcare | 216 (39.71) | |
| stringent sheltering at home | 95 (17.53) | |
| death or illness of loved one | 33(6.07) | |
| perceived viral exposur$^e$a | 44(8.10) | |
| coronavirus testing | | |
| negative | 36(6.62) | |
| positive | 3( .55) | |
| results pending | 7 (1.29) | |
| not tested | 498 (91.54) | |
| screened positive for depression | 111 (20.40) | |
| age | | 51.47 (14.90) |
| education (years) | | 15.93 (2.05) |
| disruptions in daily life (log) | | 1.16 ( .10) |
| lack of social distancing (possible range 0-9) | | 3.95 (1.68) |
| found global meaning (possible range 5-35) | | 26.13 (6.65) |
| seeking global meaning (possible range 5-25) | | 19.60 (8.18) |
| found situational meaning (possible range 24-96) | | 52.81 (12.30) |
| seeking situational meaning (possible range 24-96) | | 46.62 (12.96) |

Finally, because some previous studies have reported significant interactions between found and seeking global meaning in predicting psychological outcomes [10,13], we examined interaction effects in exploratory analyses. After centering the meaning terms, we tested interactions between found and seeking global meaning in a logistic regression analysis predicting depression caseness. Then we tested the interaction between found and seeking situational meaning.

## Results

### Sample characteristics

Participants included 544 (32.5%) individuals who enrolled in the investigation and completed the meaning measures, out of 1672 who were sent emailed invitations for the survey. Participants were more likely to be older ($p$ =.001), female ($p$ =.046), and white ($p$ =.001) relative to those who did not complete the survey. Excluded from the analyses were an additional 47 individuals who completed the depression questionnaire but were missing the meaning measures (administered later in the survey). These participants did not differ significantly from those included in the analyses on any demographic or pandemic-related characteristics (all 's >.09).

Please see Table 1 for sample characteristics. The mean age of respondents was 51.47 (14.90) years (range =18-92); participants were apt to be white (83.64%) and female (76.84%). Survey responses poignantly depicted some of the jolting ramifications of the pandemic. Most participants reported at least some degree of disruption in their usual routines and responsibilities due to the pandemic, and a sizable proportion (17.53%) were still stringently sheltering at home, depending on delivery of supplies to their residence. Pandemic-related job loss or reduced income was reported by 21.69%, food insecurity was a problem for 13.97%, and restricted access to routine healthcare was a concern for 39.71%. Elevated depressive symptoms (exceeding PHQ-9 cut-off values) were reported by 20.40%.

In initial analyses, screening positive for depression was significantly related to younger age ($p$ =.0003), lower education ($p$ =.01), female gender ($p$ =.003), minority racial or ethnic background ($p$ =.01), lower income ($p$ <.0001), being unmarried or unpartnered ($p$ =.0002), and prior mental health difficulties ($p$ <.0001). With respect to pandemic-related stressors, elevated depression scores were significantly associated with greater disruption in daily activities ($p$ <.0001), loss of income or employment ($p$ =.0009), food insecurity ($p$ <.0001), financial insecurity ($p$ =.0001), diminished access to healthcare ($p$ =.001), and more stringent sheltering at home ($p$ <.01). These variables were included as covariates in the main analyses. Screening positive for depression was not significantly tied to perceived exposure to COVID-19, nonadherence to social distancing recommendations, or loss or illness of loved ones (all $p$'s ≥.051). Correlations among the various meaning measures were small to moderate ($r$'s = |.25 to .33|), supporting the divergent validity of these constructs, consistent with theoretical postulates.

### Global meaning and depression

As expected, bivariate analyses indicated that respondents with elevated depressive symptoms reported significantly lower found global meaning than those who were not depressed ($p$ <.0001). Moreover, participants who screened positive for depression reported significantly greater search for global meaning than those who were not depressed ($p$ <.0001; **see Table 2**). Effect sizes were moderate-to-large.

In the main multivariable analyses, lower found global meaning remained significantly associated with increased likelihood of screening positive for depression, after adjusting for relevant demographic and pandemic-related factors (OR =.89, 95% CI: .86-.93, $p$ <.00001; see Table 3). Seeking global meaning was no longer significant (OR = 1.00, 95% CI: .97-.1.04, $p$ =.98).

### Situational meaning and depression

As anticipated, bivariate analyses indicated that individuals who screened positive for depression reportedly significantly greater efforts to seek situational meaning than those who screened negative for depression ($p$ <.00001), with a moderate effect size **(see Table 2)**. Contrary to expectations, found situational meaning did not differ among respondents who experienced elevated depressive symptoms compared to those who did not ($p$ =.54).

In the main multivariable analyses, seeking situational meaning remained significantly related to greater likelihood of

screening positive for depression (OR =1.05, 95% CI: 1.03-1.07, $p$ =.00001; **see Table 3)**, after adjusting for demographic and pandemic-related variables. Found situational meaning was not predictive (OR =.98, 95% CI: .96-1.00, $p$ =.060). To examine the incremental validity of situational meaning beyond the effects of global meaning, the multivariable analysis was repeated after additionally controlling for found and seeking global meaning. Seeking situational meaning remained related to greater like-

lihood of elevated depression (OR =1.06, 95% CI: 1.03-1.09, $p$ =.00002).

### Exploratory analyses

In exploratory analyses, there were no significant interactions between found and seeking global meaning ($p$ =.43), or between found and seeking situational meaning ($p$ =.16), in multivariable models predicting likelihood of depression.

**Table 2:** Bivariate associations between meaning variables and depression caseness.

|  | non-depressed | depressed |  |  |
| --- | --- | --- | --- | --- |
| predictor | Mean (SD) | Mean (SD) | $p$-value[a] | effect size (d) |
| Found global meaning | 27.28 (5.70) | 21.65 (8.09) | .00001*** | 0.82 |
| Seeking global meaning | 18.86 (8.08) | 22.50 (7.98) | .00001*** | 0.45 |
| Found situational meaning | 52.97 (12.17) | 52.18 (12.83) | 0.54 | 0.16 |
| Seeking situational meaning | 44.79 (11.77) | 53.75 (14.85) | .00001*** | 0.67 |

Note: $p$-value derived from t-test; *$p$ < .05, **$p$ < .01, ***$p$ < .001

**Table 3:** Logistic regression predicting depression caseness from meaning variables.

| predictor | OR | 95% CI | $p$-value |
| --- | --- | --- | --- |
| Model 1: global meaning | | | |
| age | 0.989 | .971- 1.008 | 0.25 |
| education | 0.969 | .844- 1.113 | 0.66 |
| sex | 1.911 | .913- 3.999 | 0.086 |
| marital status | 0.742 | .405- 1.359 | 0.33 |
| ethnic/racial background | 0.696 | .346- 1.398 | 0.31 |
| income | 0.524 | .279- .982 | .044* |
| prior mental health problems | 4.259 | 2.372- 7.648 | .00001*** |
| loss of work/income | 1.17 | .637- 2.147 | 0.61 |
| food insecurity | 1.237 | .609- 2.523 | 0.56 |
| financial insecurity | 0.905 | .399- 2.049 | 0.81 |
| limited access healthcare | 0.98 | .562- 1.709 | 0.94 |
| stringent sheltering at home | 0.681 | .365- 1.273 | 0.23 |
| disruptions in daily life (log) | 2625.634 | 134.842-1000+ | .00001*** |
| found global meaning | 0.891 | .855- .928 | .00001*** |
| seeking global meaning | 1 | .965- 1.036 | 0.98 |
| Model 2: situational meaning | | | |
| age | 0.98 | .963- .998 | .031* |
| education | 0.94 | .822- 1.073 | 0.36 |
| sex | 1.667 | .813- 3.421 | 0.16 |
| marital status | 0.514 | .288- .917 | .024* |
| ethnic/racial background | 1.008 | .502- 2.024 | 0.98 |
| income | 0.486 | .262- .901 | .022* |
| prior mental health problems | 4.364 | 2.469- 7.715 | .00001*** |
| loss of work/income | 1.182 | .654- 2.136 | 0.58 |
| food insecurity | 1.057 | .525- 2.127 | 0.88 |
| financial insecurity | 0.833 | .374- 1.972 | 0.66 |
| limited access healthcare | 1.144 | .663- 1.709 | 0.63 |
| stringent sheltering at home | 0.618 | .337- 1.133 | 0.12 |
| disruptions in daily life (log) | 354.46 | 19.635-6398.774 | .00007*** |
| found situational meaning | 0.979 | .957- 1.001 | 0.06 |
| seeking situational meaning | 1.05 | 1.027- 1.073 | .00001*** |

Note: *$p$ < .05, **$p$ < .01, ***$p$ < .001

### Discussion

The pervasive disruptions of the COVID-19 pandemic have generated heightened concerns about mental health sequelae, and about factors that might contribute to risk or resilience. The mental health needs of underserved rural communities have been deemed a priority area for further research [4]. The current study examined whether high levels of depressive symptoms (i.e., above the threshold value on the PHQ-9) were related to differences in theoretically important dimensions of perceived meaning, among residents in a rural southern area of the US. We focused on an early phase of the pandemic, characterized by an array of unsettling changes in daily life, when questions of coherence, control, and security may have been especially salient. Findings indicated that depressive symptoms were associated with some dimensions of perceived meaning, but not others.

### Global meaning

Attained global meaning was related to reduced likelihood of screening positive for depression. It is not possible to draw causal inferences from these findings, but the effects were in accord with theoretical expectations [29,7,8] and remained significant after controlling for a range of demographic characteristics and pandemic-related burdens. In prior investigations, attained global meaning has been reliably associated with more favorable adjustment during normative circumstances [11,12,13] but effects have been uneven in the context of community disasters [14,15]. In early studies of the COVID-19 pandemic, stronger attained global meaning was related to reduced distress among community residents in central Europe [25,26]. The current investigation extends these findings by assessing respondents in a different region of the world, using measures of meaning that are not conflated with adjustment, and focusing on clinically-meaningful levels of depression, which might have more immediate relevance from a public health perspective. Attained global meaning appears to be linked with better mental health outcomes among individuals grappling with the demands of a public health emergency.

In the present study, searching for global meaning was related to increased depressive symptoms in bivariate analysis, as anticipated, but was no longer significant in multivariable analyses that adjusted for the effects of found meaning, de-

mographic characteristics, and pandemic-related factors. In the small group of previous investigations that have examined searching for global meaning in the context of community disasters, the findings have been inconsistent [14,18]. Perhaps stronger results might emerge over longer periods of time, among individuals who remain stymied and frustrated in their pursuit. Longitudinal studies would help shed light on this question. The effects of searching for global meaning also have been thought to be moderated by differences in relevant personal characteristics (e.g., curiosity [39]) or social environmental factors (e.g., collectivism [14]), and these variables merit further study.

### Situational meaning

Contrary to expectations, attained situational meaning during the pandemic was not related to depression caseness on our screening measure. Whether or not individuals perceived their experience with COVID-19 as comprehensible or coherent ("sense-making") had little bearing on whether they reported problems with depression. There has been very little research regarding situational meaning in the context of COVID-19 or other collective crises. A few investigations have examined specific causal attributions or primary appraisals (e.g., perceptions of blame, threat, or risk) [40,41,42]; however, sense-making is generally conceptualized in broader terms. In our own prior research with the current sample [52], sense-making was related to other, situationally-specific aspects of adjustment to COVID-19 (e.g., greater acceptance of the pandemic, reduced pandemic-related helplessness), but mental health symptoms were not examined. In a cross-sectional study by Millman et al. [27], greater perceptions that the pandemic experience was comprehensible, and that it did not perturb core beliefs about life, were associated with lower levels of coronavirus-related anxiety. Following a very different community disaster, the 9/11 terrorist assault, posttraumatic stress symptoms were less pronounced among individuals who reported finding some way to make sense of the devastating event [43]. Each of these studies measured sense-making in different ways. Additional research is needed to further illuminate the role of attained situational meaning or coherence during community disasters, and to clarify the assessment approaches that are most useful, the types of psychosocial outcomes that might be most strongly related, and the time-frames within which such effects might unfold.

Consistent with hypotheses, in the current study an ongoing search for situational meaning was associated with a greater likelihood of depression. Importantly, these results persisted in multivariable analyses that controlled for the effects of seeking global meaning, as well as demographic and pandemic-related factors, which provides support for the incremental validity of this construct. In our previous analyses with the current sample, protracted attempts to find situational meaning were similarly related to poorer outcomes in other, situationally-specific areas of adjustment (e.g., lower acceptance of COVID-19, greater pandemic-related helplessness; [52]). We are not aware of other studies that have examined seeking situational meaning in the context of a public health crisis. Notably, however, a well-established literature suggests that enduring, unsuccessful attempts to find meaning or comprehensibility in personal crises, such as bereavement or illness, are associated with greater distress [44,45]. A priority for future research is the use of longitudinal studies to further explore these responses during communal disasters, to better differentiate the experience of individuals who continue their disquieting search over time from those who ultimately find some of the understanding they seek, or who eventually distill other types of meaning from the situation (e.g., benefit-finding), or who simply become less absorbed or preoccupied by these questions [46].

In sum, the likelihood of screening positive for depression during an especially challenging phase of the pandemic was differentially related to different aspects of personal meaning. Individuals with stronger attained global meaning were less likely to struggle with depressive symptoms, whereas those who engaged in an enduring search to find understanding or coherence in the pandemic situation were more likely to experience depression. Discrete dimensions of perceived meaning appear to play a significant role in how individuals respond to the demands of a collective health crisis. These findings may have clinical implications. A broad range of treatment approaches are available that seek to address questions of personal meaning--efforts to adapt some of these strategies might be helpful for individuals struggling to process the dramatic changes or losses they experienced during the pandemic [21, 22,47,48].

### Study limitations

This investigation sought to explore distinct facets of meaning among community residents in an understudied rural part of the country, during an especially taxing period of the pandemic. It evaluated associations with a clinically relevant end-point, and carefully adjusted for the effects of an array of demographic and pandemic-related variables. A significant limitation involves the cross-sectional analyses, which preclude causal interpretations. Longitudinal research is needed to chart these relationships over more protracted intervals of the pandemic. The current findings stem from secondary analyses of a larger parent project, and thus results should be interpreted with caution. We used a self-report screening measure of depression, which should not be confused with clinical diagnoses (which require structured interviews). This project employed validated measures of meaning. However, in future studies, it may be useful to supplement the use of meaning questionnaires with other assessment modalities (e.g., daily experience sampling, qualitative interviews), to employ other statistical approaches (e.g., contrasting different typologies of seeking and found meaning based on cluster analysis), and to evaluate other aspects of global meaning (e.g., core goals or beliefs) or situational meaning (e.g., perceived benefits). The sample encompassed respondents with diverse backgrounds but it was not representative of the state population. It would be helpful to further explore the responses of individuals from minority group backgrounds, and those who are younger or less educated. Extending the inquiry to different socio-cultural or religious contexts may be especially informative, since these may have an important impact on how individuals seek and find meaning during periods of collective upheaval [49,50,11].

### Conclusions

In the current study, different dimensions of meaning were significantly related to risks for depression among community residents dealing with the myriad burdens and uncertainties of the COVID-19 pandemic. Global and situational meaning may play a notable part in how individuals respond to public health crises, and merit further research attention.

### Conflicts of interest

The authors have no conflicts of interest to declare relevant to the content of this article.

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