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The role of personal resources in managing anxiety: A study of nursing home professionals during the COVID-19 pandemic

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ABSTRACT

Objectives: This study examines coping mechanisms that mitigate anxiety in nursing home workers during the COVID-19 pandemic, focusing on resilience, life satisfaction, and sense of coherence.
Methods: A cross-sectional design included 449 nursing home professionals in Puerto Rico. Participants completed validated questionnaires assessing life satisfaction, resilience, the three dimensions of sense of coherence, and anxiety symptoms. Data were collected online using snowball sampling. Multiple linear regression identified significant predictors of anxiety.
Results: Significant negative associations were found between anxiety and all three psychological variables. Life satisfaction and meaningfulness showed the strongest inverse relationships with anxiety. Resilience also played a significant protective role. The models explained a substantial portion of variance in anxiety.
Conclusions: Promoting resilience, life satisfaction, and sense of coherence is important to reduce anxiety in high-stress healthcare contexts. Targeted interventions to enhance these factors could improve mental health outcomes and the quality of care for older adults.

Introduction

The COVID-19 pandemic had a major impact on the mental health of care home workers. In addition to a difficult work situation characterised by long hours, low pay and low staffing levels, the workload was compounded by stress and fear of contagion, leading to increased levels of depression and anxiety.[1]

Puerto Rico represents a unique context due to the coexistence of Latin American and U.S. institutional influences, resulting in a hybrid long-term care system. It also faces significant structural limitations and a high proportion of older adults. These conditions may shape how professionals respond to high-demand situations such as the pandemic. Despite this, there is limited literature on how these workers coped psychologically with the pandemic, which constrains our understanding of their adaptation in complex and culturally specific settings.

During the months of quarantine, the prevalence of anxiety and depression among care home workers was estimated to increase to around 28 % and 10 % respectively, as the fear of COVID-19 and the risk of contagion were associated with increased depersonalisation, emotional exhaustion and lower feelings of self-actualisation.[2] However, not all workers experienced these symptoms; some developed skills that allowed them to adapt successfully to the situation created by the pandemic.[3]

The way in which some people are able to adapt successfully to adverse situations thanks to their psychological resources has been studied from Positive Psychology. This discipline explains how people can evade pathology and show positive and adaptive functioning even in adverse circumstances, such as the COVID-19 pandemic.[4,5] In fact, painful events can often lead to personal growth and serve as promoters of meaning in life. Mental stability and well-being are more influenced by how we attribute meaning to internal experiences rather than solely by their negative impact.[6] Adaptive coping entails positive orientations, which encompass life satisfaction, resilience, and a sense of coherence, facilitating positive thinking and optimal functioning.[7]

Sense of Coherence (SOC) is another personal resource that can help to effectively cope with stressful situations and contributes to

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the development and maintenance of health.[8] It is defined as one's ability to understand a particular situation and effectively utilize available resources through adaptive coping strategies.[9] According to Antonovsky's conceptualization, SOC consists of three components: comprehensibility (cognitive), manageability (instrumental), and meaningfulness (motivational). SOC represents a global orientation that expresses the extent to which a person is confident that the stimuli in his or her internal and external environment are structured, predictable, and explainable (comprehensibility); that he or she has the resources to meet the demands posed by these stimuli (manageability); and that these demands are challenges worthy of investment and commitment (meaningfulness). These components translate into three key elements in stress management: acceptance orientation, problem-solving skills, and the ability to use available resources. SOC has been described as a determinant of well-being and a protective factor against psychological distress and overload.[10] It is also considered an element that reinforces personal resilience.[11]

It appears to have a protective role against work-related stressors and difficulties in balancing work.[9,12] SOC is related to workplace adaptability, job satisfaction, and sickness absence, serving as a protective factor against work-related stressors.[13,14] For example, individuals with high SOC demonstrate a greater ability to avoid dangerous situations, engage in health-promoting behaviors, and reject harmful ones more readily. Moreover, SOC has been associated with a lower risk of health problems, such as burnout or depression.[13]

In the context of the COVID-19 pandemic, the unique stressors and uncertainties have placed an unprecedented burden on healthcare professionals, particularly those in nursing homes. The three dimensions of SOC play a critical role in buffering these pressures: comprehensibility helps workers make sense of the rapidly changing environment and evolving protocols; manageability provides confidence in their ability to access and use available resources, including personal and institutional support; and meaningfulness fosters motivation to engage in their work despite the challenges, reinforcing psychological endurance during the crisis.

Recent longitudinal research has highlighted the dynamic and multidimensional nature of Sense of Coherence (SOC) during the COVID-19 pandemic.[15] SOC comprises cognitive and behavioral components (comprehensibility and manageability) and a motivational component (meaningfulness), each contributing differently to mental health outcomes. The study identified several SOC trajectories, showing that while many individuals maintained low levels of SOC throughout the pandemic, others exhibited increases or decreases in these components over time. Importantly, higher or stable SOC levels were associated with better psychological well-being. These findings underscore the need for preventive and targeted interventions to enhance SOC as a personal resource to buffer the psychological impact of health crises.

Although SOC has shown a protective role in adverse circumstances by reducing levels of emotional overload and anxiety,[16,17] its specific relationship with anxiety symptoms among nursing home workers during the coronavirus outbreak remains unexplored. Previous studies conducted prior to COVID-19, involving samples of pharmacists, healthcare professionals, and family caregivers, indicate that professionals with a strong SOC demonstrate better mobilization of resources, appraisal of stressful situations as challenging, and effective problem-solving approaches to manage anxiety.[17,18] This is because individuals with a stronger SOC tend to identify the nature of the stressor they are facing. SOC was also a relevant strategy during the pandemic, as it was positively related to job satisfaction and negatively related to psychological distress. [5,19,20] Previous studies reported that professionals with high levels of SOC did not suffer from burnout and depressive symptoms during COVID-19,[20] whereas others highlight the existence of a positive relationship between low SOC and anxious symptoms.[5]

Furthermore, SOC is part of a broader category of "personal resources" that includes resilience and a sense of meaning in life. These resources collectively enable individuals to better cope with anxiety by enhancing emotional regulation, fostering positive reinterpretation of stressors, and promoting adaptive behaviors. Recent studies have emphasized the interplay of these personal resources in mitigating the psychological impact of the pandemic across different cultural contexts, underscoring the importance of integrative approaches to mental health support.

The salutogenic model underpinning SOC emphasizes generalized resistance resources, including resilience, which facilitate coping and promote health. A recent study demonstrated that the manageability and meaningfulness dimensions of SOC, along with resilience, are significant predictors of quality of life in older adults receiving long-term care.[21] This model integrates both internal and external factors, such as social and environmental supports, that enable effective stress management and enhance well-being. Improving manageability and meaningfulness may thus represent key targets for interventions aiming to bolster mental health and quality of life in both care recipients and healthcare workers.

Life satisfaction is the cognitive dimension of personal well-being, where people evaluate their quality of life based on their personal criteria of well-being. Previous research confirmed the protective role of life satisfaction in mitigating perceived stress, suggesting that it plays a crucial role in the acceptance and constructive management of uncomfortable feelings caused by the ongoing health crisis.[22] Nursing home workers with higher life satisfaction showed fewer depressive symptoms during the COVID-19 pandemic.[23] This resource acts as a protective factor against the development of depressive and anxious symptoms, stress, and burnout that professionals may experience.[24,25] When life satisfaction enables individuals to experience positive emotions, it enhances their ability to mobilize personal resources and thoughts, facilitates adaptive coping strategies and fosters active engagement with life, resulting in higher levels of personal and professional well-being.[26]

Therefore, personal resources play a crucial role in facilitating adaptation to the challenging work environment for caregivers and service providers working with the older adults. Hence, this study aims to investigate whether life satisfaction, resilience and dimensions of sense of coherence (comprehensibility, manageability and meaningfulness) predict feelings and thoughts of anxiety in professional workers from nursing homes during the COVID-19 pandemic.

Materials and methods

Design

This cross-sectional study involved an anonymous online survey. To ensure methodological transparency and reporting quality, the study followed the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines. These principles were applied to the specification of eligibility criteria, recruitment and data collection procedures, detailed descriptions of measurement instruments (including psychometric properties), handling of exclusions, and justification of statistical methods and assumptions.

Participants

This study included professional workers from nursing homes in Puerto Rico that worked during the COVID-19 pandemic. Initially, 461 workers were included, however, 12 were eliminated from the study for not responding adequately to the control questions designed to ensure that participants did not respond to the questionnaires at random. Finally, the sample consisted of 449 professionals. Participants were aged between 23 and 66 (M = 44.9; SD = 8.7), of

whom 274 (61 %) were female. Regarding the work position, 14 % were executive staff, 17.6 % were technical staff, 34.5 % were direct care staff, and 33.9 % worked in other services (like cleaning or reception services). Considering the time, they have been working on the nursing homes, 26.3 % of these workers had worked for less than 5 years, 47.7 % between 5 and 10 years, and the 26.1 % more than 10 years.

Measure

All instruments used in this study were validated Spanish versions, as the target population consisted of Spanish-speaking professionals working in nursing homes in Puerto Rico. These versions were selected based on prior evidence of linguistic adaptation and psychometric adequacy in Spanish-speaking populations, and all scales showed good to excellent internal consistency in the present sample.

The Believability of Anxious Feelings and Thoughts Questionnaire (BAFT) aims to measure the cognitive fusion of anxious thoughts and feelings,[27] the Spanish version was used.[28] It consists of 16 items rated on a 7-point Likert-type scale (1= not at all believable through 7= completely believable). The BAFT factor structure is hierarchical, with one high-order general factor (Cognitive Fusion) and three lower-order factors (Somatic Concerns, Emotion Regulation and Negative Evaluation). This questionnaire has shown good internal consistency and validity, obtaining an alpha of .953 in this study.

The Satisfaction with Life Scale (SWLS) is a wildly used measure to evaluate the cognitive dimension of subjective well-being with life.[29] For this study the Spanish version was used.[30] The scale has 5 questions of Likert-type response rating from 1 (Strongly Disagree) to 7 (Strongly Agree). The Cronbach's alpha we obtained in this study was of .809, indicating a good internal consistency.

The Brief Resilient Coping Scale (BRCS) is a scale use for evaluating if coping tendencies are resilient and highly adaptative.[31] For this study we used the Spanish version.[32] The scale has 4 items rated on a 5-point Likert-type scale. The 4 questions evaluate positive and creative thinking, positive growth, and perseverance in the face of stressful situations. In this study, we obtained an alpha of .758.

The Sense of Coherence Scale (SOC) is a scale that aims to evaluate the capacity of correctly interpreting, analyzing and acting according to the importance of an unfavorable situation.[8] For this study we used the 13 items' Spanish version.[33] The items have Likert-type answers from 1 to 7 and the scale is divided in three factors, comprehensibility, manageability, and meaningfulness and we obtained alphas of .971, .954, and .948 respectively.

Data collection

The study was conducted from October 2020 and February 2021, when the third wave of COVID-19 on the island was at its peak. The protocol was implemented using the online platform LimeSurvey and took approximately 15 to 20 min to complete. It was disseminated through non-probabilistic snowball sampling to contacts within the nursing home network across the island, and participants were invited to forward the survey to institutional colleagues. No formal sample size calculation was performed due to the exploratory nature of the study and the urgency of data collection during the pandemic. The aim was to reach the maximum number of eligible participants within the available timeframe.

The first screen explained the purpose of the study and required confirmation of informed consent, the approximate time to complete the survey and the data storage system. Once consent was confirmed, the questions related to the socio-demographic variables appeared. Each of the assessment instruments was then presented on separate pages. Participants had to answer all items of the questionnaires; if they did not complete them, they could not continue and their answers were not saved. In addition, four attention control questions were included to find out if they answered items randomly; an example is "If you are reading this, please tick option 1 = strongly disagree". Respondents who made two or more errors on these four items were eliminated because of the possibility that they were responding randomly; 12 participants were eliminated.

Ethical considerations

Approval for this study was obtained from the ethics committee of the University of Salamanca [institution name blinded for review]. Before participating, all respondents received detailed information about the research objectives. Voluntary participation was ensured, with participants required to indicate their consent by checking a box before proceeding with the online survey. Measures were implemented to maintain the confidentiality and anonymity of participants. All data collected were handled confidentially, and steps were taken to prevent individual responses from being traced back to specific participants. The informed consent form was provided in Spanish, the participants' native language, and was reviewed and approved by the Ethics Committee as part of the study protocol. Participants were informed that completing all items was required for their responses to be recorded and that they could withdraw at any time without penalty. To ensure data quality, the consent form also explained that four attention-check items would be used, and that participants who failed two or more would be excluded from the analysis.

Data analysis

Multiple linear regression models were conducted to predict anxiety levels among nursing home professionals. We used the enter method to simultaneously include key predictors, life satisfaction, resilience, and all dimensions of sense of coherence, in the model.. This approach ensured that each predictor was given equal importance in the analysis. Additionally, the obligatory assumptions of regression, including normality of residuals, linearity, and homoscedasticity, were thoroughly examined and met. Effect size calculations, including beta coefficients and standard errors, were performed to assess the magnitude and significance of the relationships between the predictor variables and anxiety outcomes. All statistical analyses were carried out using the SPSS 25 software package, allowing for robust examination and interpretation of the data.

Results

Pearson's correlations between life satisfaction, resilience and the dimensions of the sense of coherence (comprehensibility, manageability, and significance) were calculated (see Table 1). A significant and positive associations between life satisfaction and resilience and comprehensibility were observed, also resilience and

Table 1
Pearson's Correlations between satisfaction, resilience, and dimensions of sense of coherence.

	1	2	3	4
1. Satisfaction	–			
2. Resilience	0.646**			
3. Comprehensibility	0.390**	0.683**		
4. Manageability	-0.058	-0.040	0.290**	
5. Meaningfulness	-0.063	-0.071	0.312**	0.752**

* $p < .01$; ** $p < .001$.

Table 2
Multiple linear regression coefficients for the criteria for anxious feelings and thoughts.

						95 % CI for B	
Criterion: BAFT	*B*	*SEB*	*β*	*t*	*p*	Lower	Higher
Life Satisfaction	-1.486	0.133	-0.373	-11.14	0.001	-1.748	-1.224
Resilience	-1.248	0.169	-0.320	-7.38	0.001	-1.580	-0.916
Comprehensibility	-0.701	0.126	-0.211	-5.58	0.001	-0.948	-0.454
Manageability	-1.233	0.262	-0.183	-4.71	0.001	-1.748	-0.718
Meaningfulness	-2.524	0.302	0-.326	-8.36	0.001	-3.117	-1.931

comprehensibility obtained a positive association. Finally, the SOC dimensions were significantly and positively associated.

The results of the regression analyses showed that the multivariate relationship with BAFT was significant (R^2adj = 0.712, $F(5, 448) = 222.48$, $p < 0.001$), explained a variance of 71 %. All reported coefficients in Table 2 are standardized beta coefficients (β), allowing comparison of the relative strength of each predictor.

As Table 2 shows, when examining Feelings and Thoughts of Anxiety, the results showed that life satisfaction, resilience and all dimensions of sense of coherence obtained significant and negative relationships. The strongest relationships were with life satisfaction and meaningfulness, which is the motivational component of the sense of coherence; also, resilience obtained a high relationship; finally, the sense of coherence dimensions of comprehensibility, which is the cognitive component, and manageability as a behavioral or instrumental component, obtained lower scores.

Collinearity diagnostics were conducted, showing a condition index slightly above 30 associated mainly with the variable significativity. No problematic multicollinearity among multiple predictors was detected, supporting the stability and adequacy of the regression model. Regression assumptions were checked, including linearity and homoscedasticity of residuals. Although the Shapiro-Wilk test indicated that residuals do not strictly follow a normal distribution (W = 0.928, $p < 0.001$), given the large sample size (N = 449) and the robustness of regression analysis to minor deviations from normality, the results are considered valid and reliable.

Finally, in relation to effect size, in addition to *R-squared* the lower limit of the 95 % CI, the standard error of R-squared (SER^2) was calculated. Lower limit of the 95 % CI calculated for Anxious Feelings and Thoughts was .667; the cut-off points of 0.02, 0.13 and 0.26 were applied to determine whether the effect size was small, medium, or large; the value obtained indicated that the effect size was large.

Discussion

The COVID-19 pandemic placed an enormous burden on the mental health of workers in nursing homes for older adults. However, it's essential to acknowledge that not all workers experienced these adverse psychological symptoms. This research aimed to study whether life satisfaction, resilience and dimensions of sense of coherence (comprehensibility, manageability and meaningfulness) predicted feelings and thoughts of anxiety in professional workers from nursing homes during the COVID-19 pandemic. Our results suggest that life satisfaction, resilience, and dimensions of sense of coherence may be significant factors that promote positive and adaptive functioning even in challenging circumstances such as the COVID-19 pandemic.

Another key psychological variable that emerged as a significant predictor of anxious thoughts and feelings was resilience. Considering that this construct encompasses the ability to adapt and thrive in stressful situations, cushioning the impact of stress,[10,24] previous studies highlight the relevance of resilience as a predictor of stress and anxiety during the COVID-19 pandemic, having been considered one of the key variables in adaptive success during confinement.[34] Consistent with these results, our findings highlighted the critical role of resilience in mitigating anxious feelings and thoughts among nursing home workers during the pandemic. Healthcare professionals, often working in adverse conditions with limited supplies, have shown a propensity to develop greater resilience, which can help mitigate burnout.[35] Previous studies have reported that resilience acted as a psychological protector against depressive, anxious and post-traumatic symptoms among nursing home workers during the COVID-19 pandemic.[36] The fundamental role of resilience in coping with stressful situations, noting that resilience, along with social support and life satisfaction, increases the well-being of healthcare workers, especially students and professionals with little work experience.[24,37] Life satisfaction, as a cognitive dimension of subjective well-being, also played a significant role to predict the occurrence of anxious thoughts and feelings. In fact, emerged as the most potent buffer against anxious thoughts and feelings. This could be because life satisfaction fosters adaptive, positive coping skills and self-care behaviors that enhance personal well-being.[22,23] When life satisfaction enables individuals to experience positive emotions, it enhances their ability to mobilize personal resources, promotes adaptive coping strategies and active engagement with life.[26] Health worker satisfaction influences productivity, quality, efficiency, and commitment to work and, at the same time, costs.[38] Moreover, high life satisfaction has been associated with increased work engagement, serving as a protective factor against burnout and anxiety symptoms in healthcare workers.[39]

Sense of coherence also has an important role in reducing anxious symptoms. SOC serves as a determinant of well-being and acts as a protective factor against psychological distress.[10] The role of SOC extends to workplace adaptability, job satisfaction, and reduced sickness absence.[13,14] A high sense of coherence (SOC) has been found to provide nurses with a greater capacity to confront stressful situations, which enhanced their work engagement, satisfaction, and mental health.[40]

The three dimensions of sense of coherence (comprehensibility, manageability, and meaningfulness) contribute differently to anxiety reduction. Comprehensibility, which reflects the cognitive capacity to understand and make sense of stressful events, is fundamental for adaptive coping, as understanding a situation is the first step toward managing it effectively. Manageability, which relates to the perception of having sufficient resources to meet demands, showed a protective effect against anxiety but of smaller magnitude in the pandemic context, possibly due to real limitations and perceived scarcity of material and institutional resources in nursing homes during this period. Meaningfulness, the motivational dimension that provides a sense of purpose and commitment, exerted the strongest protective effect by fostering resilience and emotional strength in adversity. This dimension of SOC is related to the motivation to cope with the stressful situation, to personal accomplishment and is also negatively related to depressive symptoms and emotional exhaustion.[41]

This pattern aligns with recent evidence suggesting that in extreme crisis contexts, such as the COVID-19 pandemic, personal meaning can be a key driver of psychological adaptation, while manageability may be constrained by external and structural factors beyond individual control. [15] Furthermore, the dynamic trajectories of SOC dimensions observed longitudinally indicate that meaningfulness and comprehensibility tend to be more stable and predictive of well-being over time compared to manageability, which is more sensitive to contextual fluctuations.[21]

In our study, all three dimensions were significant predictors for reducing anxious thoughts and feelings, with meaningfulness and comprehensibility showing the strongest effects, consistent with their theoretical roles and empirical findings. Comprehensibility enables cognitive clarity necessary for coping, while meaningfulness supports motivation and engagement, both essential for psychological resilience.

The development of programs aimed at improving the motivation of health care professionals can improve their empathy in dealing with patients, their well-being at work, and their ability to cope with stress.[42,43] This study underscores the collective importance of these psychological variables in promoting the psychological well-being of healthcare professionals. Also, it highlights the need to develop specific programs for caregivers aimed at acquiring coping strategies and life skills that reinforce the variables used to minimize the biopsychosocial sequelae caused by the pandemic.

While this study provides valuable insights, several limitations should be considered. First, the study's sample was drawn from nursing homes in Puerto Rico, potentially limiting the generalizability of the findings to other geographic regions and cultural contexts. Given the specific cultural, social, and institutional characteristics of Puerto Rico's healthcare system, caution is warranted when generalizing our findings to other regions or countries. Cultural factors may shape how psychological resources such as resilience, life satisfaction, and sense of coherence operate in mitigating anxiety among healthcare workers. Differences in social support networks, healthcare infrastructure, and cultural attitudes towards stress and coping might influence these relationships. Therefore, future studies should investigate these variables in varied cultural contexts to enhance the understanding and applicability of psychological interventions across populations. Additionally, the study adopted a cross-sectional design, offering a snapshot of the variables at a single point in time. Longitudinal research would be beneficial to elucidate how these psychological factors evolve over time. The study's recruitment method, non-probabilistic snowball sampling, may have introduced response bias, as participants were contacted through their network, potentially attracting individuals with distinctive characteristics, which could affect the representativeness of the sample. Finally, the potential influence of cultural factors on the variables studied was not explicitly addressed. Despite these limitations, this research offers valuable insights into promoting the psychological well-being of healthcare professionals

Although this study provides valuable insights into the psychological factors associated with anxiety in nursing home professionals, the generalizability of the findings is limited by the specific context and sample. Future research should explore these variables in other healthcare worker populations and diverse cultural settings to better understand the broader applicability of resilience, life satisfaction, and sense of coherence. Longitudinal studies would also be beneficial to examine causal relationships and the stability of these psychological constructs over time. Additionally, intervention studies targeting these factors could help establish effective strategies to support mental health among nursing home staff.

The practical implications of understanding and prioritizing these psychological variables could extend beyond individual well-being, exerting a direct impact the quality of care and the resilience of healthcare professionals during crises like the COVID-19 pandemic and in routine healthcare practice. Fostering resilience, strengthening sense of coherence, and promoting life satisfaction should form integral components of healthcare policy and practice, ensuring the well-being of professionals and the highest standard of care for our older populations.

In summation, this study illuminates the critical role of resilience, sense of coherence, and life satisfaction in minimizing anxiety during the pandemic. It underscores the importance of continuing to support and promote these psychological variables in healthcare settings, advocating for their incorporation into the routine care of healthcare professionals and the older populations they serve.

Relevance for clinical practice

Uncovering these protective factors emphasizes the importance of interventions designed to cultivate resilience, promote life satisfaction, and strengthen the sense of coherence among nursing home professionals. Such interventions could include resilience training programs incorporating mindfulness and stress management techniques, workshops aimed at enhancing understanding and meaning-making to bolster the sense of coherence, and initiatives fostering work-life balance and self-care practices to improve life satisfaction. This is crucial for managing anxiety, extending beyond the challenges posed by the COVID-19 pandemic to encompass various demanding and stressful situations they may encounter. Implementing targeted programs to enhance these psychological resources may not only improve the well-being of healthcare professionals but also elevate the quality of care provided to older populations. Implementing targeted and evidence-based programs to enhance these psychological resources may not only improve the well-being of healthcare professionals but also elevate the quality of care provided to older populations. By integrating these findings into clinical practice, healthcare institutions can develop tailored strategies to support the mental health of their workforce, ultimately leading to more resilient and effective caregiving.

Declaration of competing interest

The authors declare that they have no competing interests.

CRediT authorship contribution statement

Iraida Delhom: Writing – original draft, Supervision, Methodology, Conceptualization. **Carmen Bueno:** Writing – original draft, Conceptualization. **Ana-Belén Navarro-Prados:** Supervision, Methodology, Conceptualization. **Yanielis Rodríguez-Ramírez:** Methodology, Investigation. **Encarnacion Satorres:** Writing – original draft, Conceptualization. **Juan C. Meléndez:** Supervision, Methodology, Investigation, Data curation.

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