VIEWPOINT

Personal Life Events—A Promising Dimension for Psychiatry in Electronic Health Records

Myrna M. Weissman, PhD
Department of Psychiatry, Vagelos College of Physicians and Surgeons, Columbia University, New York, New York; and Division of Translational Epidemiology, New York State Psychiatric Institute, New York.

Jyotishman Pathak, PhD
Department of Psychiatry, Weill Medical College, Cornell University, New York, New York; and Department of Healthcare Policy and Research, Weill Medical College, Cornell University, New York, New York.

Ardesheer Talati, PhD
Department of Psychiatry, Vagelos College of Physicians and Surgeons, Columbia University, New York, New York; and Division of Translational Epidemiology, New York State Psychiatric Institute, New York.

Corresponding Author: Myrna M. Weissman, PhD, Department of Psychiatry, Vagelos College of Physicians and Surgeons, Columbia University, 1051 Riverside Dr, Unit 24, New York, NY 10032 (myrna.weissman@nyspi.columbia.edu).

The adoption of electronic health records (EHRs) has empowered large-scale research in general medicine through providing clinically relevant data sources at relatively low cost. More recently, EHRs have begun to make substantial inroads in psychiatry, with some notable successes for genomics and for understanding polygenic risk[1,2] and prediction of suicidal behavior.[3,4] Their use is also critical to accelerate central nervous system innovation and new therapeutic strategies.[5]

Beyond clinical variables related to diagnosis and treatment, there have been recent efforts to model the contributions of social determinants of health (SDOH) with EHRs, given their important roles in shaping health and well-being. Social determinants of health capture adverse social environments, such as poverty, crime, crowding, malnutrition, discrimination, and access to health care. These make engagement in psychiatric treatment or living with mental illness more difficult.[6] However, there is another level of personal determinants of health, which predict risk and can occur even in individuals living in the most protected social environments. These events may be situations that threaten emotional and personal attachments or produce shame and humiliation. They can be proximal triggers to the onset of psychiatric symptoms, predict the likelihood of relapse from a disorder in remission, or be the result of a psychiatric disorder. We argue that such personal life events remain an underrecognized dimension in EHRs and that the addition of such information during routine care may further enhance the utility of EHRs for psychiatry.

The following are groups of personal life events that may not be captured by SDOH as currently defined:

1. Grief or a recent death of someone close. While the rituals of grief vary widely by religion and culture, the experience of grief does not.
2. Interpersonal disputes or personal disruptions of a relationship with people important to the person. These disputes may be at an impasse with quiet anger, be at the stage of renegotiation with arguments, or are leading to the threat of or are in the process of dissolution of a relationship. They can include family, friends, work, and others.
3. Transitions or life changes that produce emotional disruptions. These can include both positive transitions, such as moving or improvement in work or living arrangements, or negative disruptions, such as changes in health, children leaving home, divorce, or retirement.
4. Loneliness, including persons with few or absent attachments that have been absent for a long time or are related to stage of life.

The susceptibility to recent life events may be increased by early adversity, such as childhood parental loss, physical or sexual abuse, or family history of psychiatric illness. They may also be buffered by the availability of social support, family, friends, and church, among others.

The collection of stressful life event data in psychiatry has a long and well-developed tradition, beginning with the 1967 work of Thomas Holmes, MD, and Richard Rahe, MD, who published a checklist of 43 events, such as death of spouse, firing, and divorce.[7] They were developed to inventory fundamental environmental incidents that frequently had been noted to precede psychiatric onset of symptoms. Since this original work, evidence of the importance of these events for understanding psychiatric disorders and methods for collecting them have flourished.[7] Recent studies have confirmed their relevance as part of the diathesis-stress model of psychiatric symptoms. Oquendo et al[8] conceptualized suicidal behavior as a response to overwhelming stress defined by life events and showed that health-related and work-related life events were key precipitants to suicidal behavior, especially among individuals with recurrent major depressive disorder.

Such personal life events are infrequently queried in the clinic, given the brevity of patient-clinician encounter time, competing medical priorities, and lack of insurance reimbursement. Indeed, as Simon et al[4] note in their important study showing that patient self-reports coupled with diagnostic codes provide the best prediction of suicide-related outcomes, "health system records do not reflect important social risks for suicidal behavior such as job loss, bereavement, relationship disruption.... Social risk factors would certainly improve accuracy of prediction."

For existing EHR data, where such information may not have been collected, some personal determinants of health and SDOH may be reconstructed by extracting relevant information (eg, using natural language processing of EHR data) from physician, nurse, psychologist, or case worker notes. Others may be indirectly obtained by linking EHRs with occupational, educational, housing, criminal justice, or financial databases that contain proxies for psychosocial factors. And in the future, data from smartphones may lend clues into a person's recent social environment and life events (eg, abrupt change in frequency or tone of posts, change in relationship status on social media).

However, these are indirect, largely after-the-fact approaches to capturing personal life events. We therefore propose that a simple questionnaire, one that can be quickly filled out by the patient at each visit but does not require extensive professional interviewing, would help address some of the current information gaps. Such a questionnaire might query psychiatric family history,

childhood adverse experience, recent personal events (eg, deaths, life threats, victimization, disputes, other major life disruptions), and the availability of people and resources to count on in times of need. To be effective, they must be brief, simple to understand and complete, and available in multiple languages. They should also ideally guide the patient to a discrete period, such as the last 6 months or since the last visit. (Some information, such as childhood or family history, need only be collected once.)

Although this is a new area, several efforts to standardize collection of SDOH information within EHRs (see LaForge et al[9] for review) are underway and may provide a model for incorporating recent personal life events. For instance, the National Academy of Medicine, US Centers for Medicare & Medicaid Services, and National Association of Community Health Centers each have made recommendations for brief, self-reported questionnaires based on validated items related to SDOH and functional determinants of health. These initiatives can be extended to include recent personal life events. The life events may also be more straightforward to implement than SDOH; whereas the latter may be dependent on local context (eg, exposure to drugs or violence, availability of transportation), the experience of a personal life event (eg, death, separation) is more universal. These simple additions may go a long way in predicting patients' vulnerabilities to psychiatric episodes and their treatment needs.

The rise of the collaborative care model in psychiatry[10] (where a patient's physical and mental health care are either coordinated or integrated) makes the inclusion of recent personal life events timely. Primary care physicians may have limited time or training to address all of a patient's psychiatric concerns, but with such a checklist, they would have the added information to flag potentially high-risk patients (eg, a patient with a family and personal history of depression who reports just having been laid off from work) and liaise with the collaborating mental health professional for referral. While new *International Statistical Classification of Diseases and Related Health Problems, Tenth Revision* codes for physicians to code problems related to social diagnoses (eg, inadequate social interaction, inability to count on family and friends) have been proposed, their incorporation into mainstream health care remains to be seen. Meanwhile, having information on recent critical personal life events, particularly when it can be obtained with little additional health care professional or patient burden, may help further expand the predictive utility of EHRs for psychiatric illnesses.

ARTICLE INFORMATION

Published Online: October 23, 2019. doi:10.1001/jamapsychiatry.2019.3217

Conflict of Interest Disclosures: The authors are funded by grants R01MH036197 (Weissman and Jonathan Posner, MD [Columbia University], principal investigators); R01 MH105384, R01 MH119177, and P50 MH113838 (Pathak, principal investigator); and R01MH114967 and R01MH119510 (Talati, principal investigator) from the National Institute of Mental Health. Dr Weissman has received royalties from the Oxford University Press, Perseus Press, the American Psychiatric Association Press, and MultiHealth Systems. Dr Pathak is the founder and CEO of Iris OB Health and has a provisional patent filed for an electronic health record prediction algorithm for postpartum depression.

REFERENCES

1. Martin AR, Daly MJ, Robinson EB, Hyman SE, Neale BM. Predicting polygenic risk of psychiatric disorders. *Biol Psychiatry*. 2019;86(2):97-109. doi:10.1016/j.biopsych.2018.12.015

2. Smoller JW. The use of electronic health records for psychiatric phenotyping and genomics. *Am J Med Genet B Neuropsychiatr Genet*. 2018;177(7):601-612. doi:10.1002/ajmg.b.32548

3. Kessler RC. Clinical epidemiological research on suicide-related behaviors—where we are and where we need to go. *JAMA Psychiatry*. 2019;76(8):777-778. doi:10.1001/jamapsychiatry.2019.1238

4. Simon GE, Johnson E, Lawrence JM, et al. Predicting suicide attempts and suicide deaths following outpatient visits using electronic health records. *Am J Psychiatry*. 2018;175(10):951-960. doi:10.1176/appi.ajp.2018.17101167

5. Perlis RH, Fava M, McCoy TH Jr. Can electronic health records revive central nervous system clinical trials? *Mol Psychiatry*. 2019;24(8):1096-1098. doi:10.1038/s41380-018-0278-z

6. Shields-Zeeman L, Lewis C, Gottlieb L. Social and mental health care integration: the leading edge. *JAMA Psychiatry*. 2019;76(9):881-882. doi:10.1001/jamapsychiatry.2019.1148

7. Dohrenwend BP. Inventorying stressful life events as risk factors for psychopathology: toward resolution of the problem of intracategory variability. *Psychol Bull*. 2006;132(3):477-495. doi:10.1037/0033-2909.132.3.477

8. Oquendo MA, Perez-Rodriguez MM, Poh E, et al. Life events: a complex role in the timing of suicidal behavior among depressed patients. *Mol Psychiatry*. 2014;19(8):902-909. doi:10.1038/mp.2013.128

9. LaForge K, Gold R, Cottrell E, et al. How 6 organizations developed tools and processes for social determinants of health screening in primary care: an overview. *J Ambul Care Manage*. 2018;41(1):2-14. doi:10.1097/JAC.0000000000000221

10. Ivbijaro GO, Enum Y, Khan AA, Lam SS, Gabzdyl A. Collaborative care: models for treatment of patients with complex medical-psychiatric conditions. *Curr Psychiatry Rep*. 2014;16(11):506. doi:10.1007/s11920-014-0506-4