When Social and Environmental Adversity Causes Schizophrenia

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This important report by Kirkbride and colleagues (1), in this issue of the *Journal*, looks at how the incidence of young adults with first-episode psychosis varies across a section of England (East Anglia; population 2.4 million). Early-intervention services for people with psychosis are so well established in this part of England that it is safe to assume that all individuals with first-episode psychosis are seen by one of the six specialized early-intervention programs operating in the area. This means that the incidence of new referrals to these programs reflects the corresponding incidence of individuals with newly emerged psychosis in the underlying population. Essentially, the authors were able to examine information from all individuals with newly emerged psychotic disorders across a broad landscape of urban and more rural settings to ask whether and how the incidence of psychosis varies by individual and neighborhood characteristics and whether any such patterns seen also are similar for affective and nonaffective psychoses. They found pronounced variation in psychosis incidence, with greater-than-expected rates in the most densely populated communities and in communities where a high proportion of households were classified as deprived on at least two of four indicators from the 2011 census (employment, education, health, and living environment). Both dense population and a high proportion of households with multiple deprivations were risk factors for psychosis (incidence rate ratios of 1.37 and 2.11, respectively), but only at the extreme ends of the continuum, leading the authors to conclude that environments beyond a certain threshold of socio-environmental adversity increase the incidence of psychosis, particularly of nonaffective psychoses such as schizophrenia. This is similar to work that has shown that exposure to trauma, deprivation, and social defeat increases the risk of psychosis, apparently providing tipping points to the emergence of psychosis in the presence of a genetic risk (2–5). The sobering conclusion is that extremes of social and environmental adversity greatly increase the risk of nonaffective psychoses such as schizophrenia.

This finding—that environments with multiple deprivations produce more young people with schizophrenia—has pressing policy and research implications. Three policy implications are particularly timely in the United States because, spurred by the National Institute of Mental Health's Recovery After an Initial Schizophrenia Episode (RAISE) initiative (6–8), the United States Congress has made additional funding available to states to implement evidenced-based early-intervention services for people with early psychosis, what the RAISE model calls coordinated specialty care for psychosis (9–11). First, the findings of Kirkbride and colleagues mean that we will need more coordinated specialty care teams for the same population density in the most disadvantaged neighborhoods because the need for teams is a function of neighborhood adversity as well as population. One of the products of the RAISE initiative was an Excel-based modeling tool that allows users to input various estimates (such as population, incidence rates, percentage of individuals with early psychosis identified, number served by a given coordinated specialty care team) (12). The findings of Kirkbride and colleagues suggest that, for the most disadvantaged, densely populated neighborhoods, the estimates of the number of teams needed should be doubled. Projecting the number of coordinated specialty care teams needed based solely on the population of individuals aged 16–35 risks greatly underestimating the number of such teams needed in more deprived, densely populated neighborhoods. Second, more than a quarter of the individuals with newly emerged schizophrenia will be teenagers, underscoring the importance of coordinated specialty care teams providing supported-education as well as supported-employment interventions to help young adults get back on track in school as well as work. Lastly, even in the most disadvantaged communities, the rates of substance-induced psychoses were so low that clinicians meeting with someone with newly emerged psychotic symptoms should be encouraged to assume schizophrenia until ruled out. Given the prevalence of substance use, individuals presenting with psychosis may well have used substances recently, and their families may be attributing their impaired thinking to substance use (13), so the temptation to attribute the psychotic symptoms to substance use may be great. However, the data from Kirkbride and colleagues make clear that most people presenting with psychosis concurrent with substance use do not have substance-induced psychosis. Rather, they are most likely examples of affective or nonaffective psychosis

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occurring in someone who also happens to be using substances. In our RAISE study, we often heard clients and families say, essentially, "I thought it was the weed" (13); the low incidence rates of substance-induced psychoses in the article by Kirkbride and colleagues offer a caution to clinicians not to think the same.

From the research perspective, we need to know the extent to which the increased incidence of newly emerged psychosis in neighborhoods with extreme population density and deprivations is caused by the neighborhoods versus a result of people with greater likelihood of developing psychotic disorders living in such neighborhoods. To the extent that the association is causal, then the findings of Kirkbride and colleagues mean that we need to identify 1) whether/why some people develop schizophrenia in one environment but not another and 2) how to boost the resilience of individuals from the assaults of such environmental risk factors so long as such neighborhoods with multiple deprivations exist. For people in this situation, what could help them avoid the emergence of psychosis?

Kirkbride and colleagues' summary of their findings note that 1) young adults have a substantial incidence of psychotic disorders, 2) the median age at first referral is similar for young men and women, and 3) incidence in more rural populations in England varies by classic individual- and neighborhood-level social and economic determinants of health, particularly for nonaffective disorders. To these I would suggest explicitly stressing the article's fourth take-home point, that neighborhoods/deprivations themselves can be risk factors for psychosis, particularly of schizophrenia-spectrum psychosis. The luck of birth, of neighborhood, influences the odds of developing schizophrenia. In the short-term in the United States, where we are still rolling out such early-intervention services, to achieve equal access we need to make sure that such services disproportionately are located in these most at-risk neighborhoods.

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