Experimental approaches to social disconnection in the general community: can we learn from schizophrenia research?

We live in a socially disconnected age. In a survey of 26 European countries (European Union Survey on Income and Living Conditions), 7% of respondents stated that they *never* meet friends or relatives, not even once a year. The same percentage (7%) stated that they are unable to ask any relative, friend or neighbor for help (ec.europa.eu/eurostat).

These statements reflect extreme forms of social disconnection, which can be defined as an objective lack of social and family relationships, and minimal participation in community activities. The disconnection trend extends globally, such as to Japan, where large numbers of young adults, typically males, isolate themselves for years in their homes, a socio-cultural phenomenon known as hikikomori. The trend also includes the US. The former Surgeon General, V. Murthy, declared that the greatest pathology in that country was not cancer or heart disease; he said it was social isolation.

Does it matter if people are socially isolated? Perhaps anyone who wants to be alone should have that right. However, problems start once we consider the public health implications. It is abundantly clear that social disconnection is not good for your health – it leads to early mortality. Across studies, the hazard ratio for early mortality from social disconnection is around 1.5, roughly the same rate as smoking and poverty, and higher than the rate for obesity[1,2]. Phrased in stark terms, if you are in your mid 60s, your odds of being alive in 7 years are 50% greater if you have social connections than if you do not.

It is important to note the differences between objective social isolation (i.e., social disconnection) and subjective feelings of isolation (i.e., loneliness). We know that both social disconnection and loneliness lead to about the same rates of early mortality, but their effects are rarely examined together in the same study. Also, the correlations between the two are surprisingly low, around r=.25[3]. This means that being disconnected and feeling lonely are two rather different things, neither of which are good for your health.

Why should the readers of this journal care about social disconnection in the general population? Psychiatric diagnostic systems have rather little to say about this phenomenon. Social dysfunction generally, including social disconnection, clearly exists in psychiatric conditions – for example, it is a feature of schizophrenia and it is a central component of avoidant and schizoid personality disorders. There were also unsuccessful attempts to include hikikomori as a diagnosable culture-bound syndrome in revisions to DSM and ICD. However, social disconnection by itself is not a clinical disorder.

Perhaps a more relevant question for clinical researchers is whether an experimental approach can provide insights on why people become disconnected in the first place. Our knowledge of the determinants of social disconnection in schizophrenia provides a road map of what to consider in the general population. This work has been guided by developments in social and affective neuroscience and, in contrast to data from large surveys and health records, requires a deep phenotyping approach with in-person interviews and assessments.

The first challenge for an experimental approach to social disconnection in the community is to recruit a suitable sample. In an ongoing study, we found that placing ads on the Internet asking for people who have few friends and little contact with family yields a sample that is heavily skewed toward social disconnection[4]. In general, we get individuals who are in their 40s, with a higher percent of males, and most are working full or part time. Based on extensive interviews, very few of the respondents have a history of a psychotic illness or are in the autism spectrum.

The study of social disconnection in schizophrenia can guide us regarding which types of determinants to evaluate. Social processing deficits in schizophrenia can be roughly divided into *ability* versus *motivation*. Most frequently, the problems in schizophrenia refer to social processing ability (i.e., social cognition). These include one's ability to perceive social cues from faces or gestures, infer what others are thinking, accurately read momentary changes in the mood of others, and regulate emotions, among others. People with schizophrenia have impairment in most, but not all, of these ability areas[5]. In contrast to social ability is social motivation, or the degree to which someone wants to interact with others, which is associated with different neural structures and networks from those of social processing ability[6]. Social motivation has historically been evaluated in schizophrenia as part of social anhedonia or asociality (e.g., in negative symptom scales). We know from extensive work that both social processing ability and social motivation are linked to social functioning in schizophrenia[7].

Hence, the first major branching in the experimental study of social disconnection in the general community should be between social processing ability and social motivation. Further, each of these large branches can be meaningfully divided into smaller branches. Social processing ability can be divided into low-level processes (e.g., social cue perception), higher-level processes (e.g., mentalizing), and integrative processes (e.g., empathy). Similarly, social motivation can be divided into two processes: social approach motivation (desire to be with other people) and social avoidance motivation (desire to be away from other people). Once we know which of these processes account for social disconnection, we will have a much clearer sense regarding the relevant constructs, neural processes, and associated interventions for the responsible processes[8,9].

Based on preliminary analyses of ability and motivation in our community sample enriched for social disconnection (N=140), we find no association between level of disconnection and any of the ability measures. Individuals seem to be highly comparable in their ability to process social cues and make social infer-

ences, regardless of their level of disconnection. Similarly, social avoidance motivation is not related to disconnection. In contrast, social approach motivation is strongly related to the level of connection, even after controlling for degree of loneliness. In other words, social disconnection in the community seems to be related to a social indifference (i.e., low approach motivation), but not to social processing ability, or to social discomfort (i.e., high avoidance motivation).

In many ways, the experimental study of social disconnection in the general community falls through the cracks. Most of social and affective neuroscience has been devoted to a few broad categories: preclinical animal models, normal social processing in healthy individuals, or the study of particular clinical disorders, such as schizophrenia and autism. Social disconnection fits none of these. It is a common, maladaptive and unhealthy condition seen worldwide that is not tied to any specific diagnosable mental disorder. Research on schizophrenia provides a principled way to approach experimental studies of social disconnection in the broader community.

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