

Commentary on Winhusen et al. (2019): Substance use disorders, chronic diseases, and electronic health records—a paradigm for screening and intervention

The use of the electronic health record to study the relationship between substance use disorders, diabetes and hypertension has identified high-severity, high-cost conditions. Improving data quality and validation will enhance our ability to perform medical record-based screening of substance use disorders and treatment of their complications among patients with multiple chronic illnesses.

One might argue that the ever-growing interest in neural substrates of substance use disorders (SUDs) has contributed to deflect our attention from the medical aspects, but this is probably an oversimplification [1]. Nonetheless, many clinicians may continue to overlook the interplay between SUDs and other medical diseases because of the limited information on the subject. This information is accessible through electronic health records (EHR). Winhusen and colleagues [2] offer an overview of the connection between a group of SUDs and complications from diabetes and hypertension in EHR. A prior study of EHR data found that as many as one in two high-severity patients with diabetes had a medical record diagnosis of SUDs and represented a very difficult and costly health-care challenge [3]. This is not the first study to suggest using EHR for the evaluation of SUDs [4], yet the method of selection and utilization of EHR control groups is a reliable and reproducible model for future investigations of SUDs' effects and how they are treated among medical patients.

Some caveats are in order. Large medical network projects have demonstrated the feasibility of conducting comparative effectiveness studies using EHR [5,6]. However, there are significant challenges to the use of EHR data for clinical research. EHR often does not tell the complete patient history, data collection is geared toward patient needs and not research protocol requirements, and errors in EHR records have been demonstrated at any point from data gathering to entry [7].

Inaccuracies and under-reporting of SUDs within EHR may be increased by concerns about confidentiality rules for the treatment of such data and a general low screening and assessment rate for SUDs in medical settings [8]. Misclassification and under-treatment of SUDs and comorbid behavioral conditions can significantly affect the validity of EHR data used in research. Moreover, potential confounding factors such as activities of daily

living, diet and physical exercise may be excluded from the EHR. Lastly, an association between diseases does not necessarily translate into the existence of a causal relationship or reach a level of clinical significance. There is a high need for rigorous research on the accuracy and validity of SUDs data in the EHR.

Nonetheless, the possibility to identify substance-specific effects helps to generate hypotheses on their biological mechanisms. More importantly, clinical signatures of drugs as, for example, the increased severity of the diabetic neuropathy in patients with cocaine use disorder reported in the Winhusen study, can help to create EHR algorithms of SUDs risk prediction in patients with chronic medical conditions. There is a great need for such algorithms, given the many challenges of implementing screening and brief intervention programs for SUDs in general medicine [9].

The use of EHR for the purpose of research and data analysis restricts the observation to subgroups of populations with SUDs that are receiving medical care, and these subgroups may have a better prognosis than those not in treatment for SUDs or for medical conditions. For example, the study failed to identify a significant difference in death risk among diabetic patients with hypertension for those with or without opioid use disorder. In contrast, prior research has found that the lack of treatment for SUDs and other psychiatric disorders is associated with greater mortality even in the absence of other diseases [10]. The growing numbers of drug overdose deaths are a constant reminder that initiatives should continue to target access to care for individuals with SUDs [11].

One interesting result of the present investigation warrants further comment, as elevated death rates associated with cannabis use disorder were recorded in the study population. The authors point out that there are data in the literature associating the presence of cannabis use disorder with negative cardiovascular effects in diabetic patients, although other studies have found a protective effect of cannabis for diabetes [12,13]. Given the widespread use of this substance and the somewhat common findings of cardiovascular complications among diabetic and pre-diabetic patients [14], the potential risk of cannabis use compared with cannabis use disorder remains to be elucidated in patients with diabetes and hypertension.

In summary, the hope for a resolution of the mind–body dualism in the evaluation and treatment of SUDs also relies

on the investigation of the interaction between SUDs and chronic medical conditions. Indeed, the identification of predictive profiles of SUDs in patients with other diseases will facilitate their diagnosis and treatment in general medical and primary-care settings, where patients with SUDs present in large numbers and often with undetected substance misuse problems.

Declaration of interests

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