

## Factors predicting patterns of global variations in electroconvulsive therapy utilization



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Electroconvulsive Therapy (ECT) is considered to be a highly effective therapy in treating many mental illnesses, especially Major Depressive Disorder (MDD).<sup>1</sup> However, despite its proven track record the treatment is underutilized.<sup>2</sup> The current project investigated the extent to which ECT utilization rates (EUR) differ worldwide and the possible underlying reasons for this difference. National EUR were derived from research articles obtained through PubMed. A priori of social and economic variables potentially associated with EUR were retrieved from international databases like those of the World Health Organization, Organization for Economic Co-operation and Development and World Bank. Using correlational analyses and stepwise multiple regression analyses the degree to which selected variables were related to EUR was assessed.

Although higher EUR was independently associated with higher numbers of psychiatrists ( $r=0.5$ ,  $p=0.009$ ), higher mental health budgets ( $r=0.57$ ,  $p=0.005$ ) and greater amounts of a nation's social progress ( $r=0.59$ ,  $p=0.001$ ), measured by the overall Social Progress Index (SPI) score, stepwise multiple regression revealed that government mental health funding accounted for the majority ( $R^2=0.33$ ,  $F=9.68$ ,  $p=0.005$ ) of global variation in EUR. The amount a nation invests in healthcare in general did not contribute significantly towards EUR variability ( $R^2=0.05$ ,  $F=1.82$ ,  $p=0.19$ ).

These results suggest that EUR is dependent on both economic and social factors. Indeed, ECT is a procedure that requires the presence of several healthcare professionals, of which psychiatrists are indispensable. In addition to economic factors, SPI scores may reflect the influence of culture on EUR. That is, industrialized societies that have a tendency to view disease from the biomedical perspective may not only more readily diagnose patients with illnesses like MDD, but may also be more inclined to refer patients to a therapy such as ECT. Also, higher SPI scores may be indicative of the role stigma against mental illness plays in influencing EUR. EUR being more dependent on mental health spending rather than general health spending indicates that the issue is related to public priority and policy more so than general lack of funding for healthcare. Introducing specific provisions that directly finance ECT may improve accessibility. Importantly, ECT can be a cost effective treatment if patients are treated at an early stage in their illness. Some studies suggest that in developing countries the purchase of modern pharmaceutical agents may be less economical than implementing ECT.<sup>3</sup>

In conclusion, addressing the need for increased human resources in the mental health workforce, promoting socioeconomic and political development and most importantly increasing mental health funding may improve access to ECT.

### Global Health Relevancy

- Neuropsychiatric disorders, of which MDD is most common, represent about 14% of the overall global burden of disease as measured in disability adjusted life years.
- Greater access to and utilization of ECT can improve both medical and socioeconomic standings of societies by breaking the vicious cycle of mental illness and poverty.