Beyond Statistical Significance: An Underrated Suicide Prevention Intervention

To the Editor: In their recently published report of a randomized trial, Vaiva et al[1] found that suicide attempters allocated to a decision-making algorithm for suicide (ALGOS) were 26% less likely to reattempt suicide within 6 months after discharge than controls who received treatment as usual (TAU) (12.8% vs 17.2% relapses, respectively; difference between groups: 4.4%, 95% confidence interval [CI]: −0.7%, 9.0%; relative risk: 0.74; 95% CI, 0.54–1.01). Because the early postdischarge period entails exceptionally high relapse risk,[2] the study's main outcome was the difference in the percentage of reattempts during the first 6 months of follow-up. The observed difference was described as "not significant" at the provided *P* value of .059 for the complete-case analysis.

We would like to warn against concluding that the intervention was not effective, given that the conflation of "statistical significance" with decision-making is error-prone.[3] In addition, notwithstanding concerns about arbitrary *P* value cutpoints, 2 key aspects of the study design and analysis should be considered when interpreting the results. First, their control intervention, a priority appointment after discharge combined with a referral to an outpatient clinician for follow-up, has proven effective at lowering relapse risk after suicide attempt in comparable contexts with universal health coverage.[4] In fact, enhancing follow-up contacts with health providers is considered the single most effective clinical intervention to reduce suicide behaviors.[5] Comparing any intervention to a highly effective TAU can be challenging, and yet there was a difference of over 4 percentage points in suicide reattempts among those randomized to ALGOS. Second, the 2 study groups differed substantially in their loss to follow-up (13.6% in ALGOS vs 18.4% in TAU at 13 months, $P = .038$). Given that treatment engagement is a key component of suicide prevention efforts,[6] we cannot rule out the possibility that lost individuals may have higher relapse rates than the observed individuals. If that was the case, observed data would likely underestimate ALGOS effectiveness. Despite this, all reported analyses in the study were conducted in an intention-to-treat (ITT) basis. Notably, ITT analysis tends to yield conservative effect differences between compared interventions, and, in the presence of loss to follow-up or lack of adherence (especially if it affects differentially the studied interventions, as is the case here), there is no guarantee that an ITT approach adequately estimates the clinical effectiveness of the study.[7]

Two strategies could have enhanced Vaiva and colleagues' study report and should be considered in the future. From an analytic perspective, long-lasting trials with substantial loss to follow-up can benefit from being analyzed using several different approaches, including not only intention-to-treat, but also "as-treated" and "per-protocol" analyses, where effect estimates can be controlled by differential adherence and other potential post-randomization, time-varying confounders.[7,8] Regarding the interpretation of results, an observed difference between study groups should be judged considering several aspects, including effect size, precision of the estimate, and features of the study design, rather than relying solely on statistical testing.[3,9]

Suicide is a major global health concern. Suicide attempt, its more reliable risk marker, is an increasingly frequent clinical entity that drives substantial burden for health systems and generates an enormous societal impact.[10] Consequently, effective interventions aimed at lowering suicidal behaviors are a priority clinical need. Pragmatic clinical trials conducted in real clinical settings, like the study by Vaiva et al,[1] usually entail methodological challenges that can lead to dilution of the effect.[11] Nevertheless, results from the real world are sought after by policy makers because of their high external validity.[11] We believe that, by estimating the effectiveness of a decision-making algorithm that improves clinicians' ability to support people at high risk of suicide attempt, Vaiva et al are contributing valuably to suicide prevention.

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Dr Berrouiguet and Colleagues Reply

To the Editor: We thank Martínez-Alés et al for their comments on our study[1] in which we assessed the efficiency of the ALGOS brief contact intervention (BCI). Martínez-Alés and colleagues warn against statistical misinterpretations and concluding that the intervention is not efficient. It has long been asserted that the harms of statistical testing in more uncontrollable and complex research settings (such as "real world" suicide prevention) have far outweighed its benefits. As suggested by Martínez-Alés et al, we also performed an "as treated" analysis on the same sample.[2] We also believe that the integration of web and smartphone technology may reinforce the efficiency of actual BCIs. Overall, these strategies could lead to dynamic monitoring of the risk assessment, leading to real-time, personalized interventions.[3]

Beyond the efforts to reach "statistical significance," it is important to note that ALGOS results brought about an important change in French suicide prevention policy. After the ALGOS study was published, Duhem et al[4] proposed assessing the efficiency of the algorithm as standard care for suicide attempters in 5 regions of France with different sociodemographic characteristics; this program is called VigilanS. The French Health Authority is currently supporting the establishment of VigilanS as a standard of care for all suicide attempters attended in emergency departments. VigilanS includes a multimodal suicide prevention program with long-term BCIs and crisis management. Furthermore, the program establishes a network of professionals working with different populations and in differing infrastructural conditions, which provides strong support for suicide prevention literacy in both care workers and at-risk populations. As affirmed by Martínez-Alés et al, we believe that these efforts based on an "inconclusive" randomized controlled trial will have important benefits for suicide outcomes in France and provide an easily reproducible, efficient suicide prevention strategy.

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