Toward Rigorous Methodologies for Strengthening Causal Inference in the Association Between Gender-Affirming Care and Transgender Individuals’ Mental Health: Response to Letters

TO THE EDITOR: Increasing attention has been paid to identifying the best way to support transgender individuals seeking gender-affirming care. This attention springs from the increasing number of individuals seeking such care in many countries worldwide, coupled with a lack of sufficient knowledge to provide evidence-based treatment recommendations. This attention is also reflected in the letters to the editor (1–7) submitted in response to our article in this issue in which we describe mental health treatment utilization among transgender individuals seeking gender-affirming care in Sweden compared with the general population, and as a function of time since last gender-affirming surgery (8).

The letter writers question our conclusion that our study “lends support to the decision to provide gender-affirming surgeries to transgender individuals who seek them.” Their concerns about this conclusion can be summarized into three types:
Concern 1: The analysis focused on mental health treatment utilization during one specific year (i.e., 2015) rather than during a longer follow-up period, such as before and after provision of gender-affirming treatment.

Concern 2: The study did not employ an adequate comparison group.

Concern 3: The study did not sufficiently highlight the elevated mental health care needs of transgender individuals seeking gender-affirming care during the perioperative period.

Our study was motivated by two aims informed by the literature and the need for more knowledge in this field: first, to examine if transgender individuals seeking gender-affirming care have an increased risk of mental health treatment utilization compared with the general population; and second, to examine if mental health treatment utilization among transgender individuals who received gender-affirming care decreases as a function of number of years since receiving gender-affirming care.

In our article, we describe the background to our analytic decisions and discuss the limitations that our particular study design and analytic approach introduce. Many of the concerns raised by the letter writers are discussed at the conclusion of the article. In the article, we specifically call for further longitudinal studies that assess within-person changes in mental health treatment utilization before and after treatment. In the article, we also note that our approach was capable of ascertaining mental health only among those alive in 2015 and did not capture outcomes among the deceased. Several of the letter writers’ concerns are drawn from assumptions about what our study methodology theoretically should have been or could have been but ultimately was not.

The letter writers suggest more ideal methodologies for identifying any causal impact of gender-affirming care on mental health treatment utilization, similar to what we wrote in our article. As outlined below, we join them in aspiring toward such methodologies capable of more rigorously establishing this impact. We also perform additional analyses permitted by our current data to start to move toward that goal.

Our Analytic Strategy

There is a great need for higher-quality studies using more representative samples of transgender individuals seeking gender-affirming care to better understand this population’s mental and physical health care needs and the effects of gender-affirming care. Much current evidence derives primarily from small studies with cross-sectional designs, nonprobability samples, and self-reported treatment exposures and mental health outcomes. Our study does not. Although it is not capable of overcoming all threats to validity, our study design represents an improvement over much previous research.

Ours is an observational study based on registry data regarding mental health treatment utilization among individuals with a gender incongruence diagnosis. We focus on mental health treatment utilization during one specific year (the latest for which we had data), and we used the total Swedish population as a comparison group. First, to answer whether transgender individuals seeking gender-affirming care have an increased risk of mental health treatment utilization compared with the general population, we compared the prevalence of treatment for mood and anxiety disorders among those with and without a gender incongruence diagnosis among all individuals living in Sweden. Second, to answer whether odds of mental health treatment utilization among transgender individuals who received gender-affirming care are lower as a function of number of years since receiving gender-affirming care, we evaluated mental health treatment utilization in 2015 among those with a gender incongruence diagnosis as a function of time since the initiation of gender-affirming hormone treatment and the last gender-affirming surgical treatment.

As outlined below, although this design is capable of ruling out certain threats to validity (e.g., confounding by secular trends), it is incapable of ruling out others (e.g., loss to mortality).

Responses to the Letters

Response to concern 1. The first concern is that our analysis focused on mental health treatment utilization during one specific year (i.e., 2015) rather than during a longer follow-up period, such as before and after provision of gender-affirming treatment. This decision was made to control for several important factors. First, the situation for transgender individuals has changed rapidly in the past 10–15 years. In Sweden, legislation affecting transgender individuals (e.g., removal of sterilization as a requirement for change of legal gender; increased protection of transgender individuals in hate-speech legislation) has improved at the same time that population attitudes have become more accepting (9, 10). Second, the proportion of individuals in the population treated for mental health problems has increased over time. Third, access to gender-affirming care has also increased over time. By restricting our outcome assessment period to one year, 2015, the most recent year for which we had data, we were able to remove the influence of these secular trends in transgender acceptance, visibility, and treatment utilization (both gender-affirming treatment and mental health treatment).

Although our chosen strategy addressed many of the problems of these secular effects, it has several drawbacks. Because we looked at mental health treatment utilization in one specific year, we could not follow individuals over time. Our analysis of time since last gender-affirming surgical treatment compared groups of individuals with varying lengths of time since their last treatment. It is possible that other factors, such as age and a changing proportion of individuals of different legal genders who have sought gender-affirming care over time, could influence these comparisons. Therefore, we controlled for those sociodemographic...
Response to concern 2. The second concern is that our study design lacked an adequate comparison group. To answer whether transgender individuals seeking gender-affirming care have an increased risk of mental health treatment utilization compared with the general population, we used the total population without a gender incongruence diagnosis as a comparison group. Because the total population differs in significant ways from the group diagnosed with gender incongruence, we adjusted our analysis for all available sociodemographic variables (i.e., age, legal gender, education, income, urbanicity, and country of birth). An alternative way of testing this aim would be to create a comparison group matched on important demographic variables, which we have now done. Specifically, we now compare individuals diagnosed with gender incongruence with an equally sized group without such a diagnosis matched by age, legal gender, education, and country of birth. The results are presented in Tables S1 and S2 in the online supplement, and they indicate a similar pattern of results as reported in our article, with only a slightly reduced disparity in the odds of mental health treatment utilization when individuals diagnosed with gender incongruence are compared with matched control subjects (instead of with the full population without gender incongruence, as was done in the original analysis).

To determine if mental health treatment utilization among transgender individuals receiving gender-affirming care decreases as a function of number of years since receiving gender-affirming care, we did not use a comparison group but tested the association between both year since initiation of gender-affirming hormone treatment and year since last gender-affirming surgical treatment with mental health treatment utilization in 2015. As a reference, we included the proportion of the general population treated for mental health conditions in 2015 in Figure 1 of our article. We have added the proportion of the matched control subjects treated for mental health problems in 2015 to Figure S1 in the online supplement.

Like some of the letter writers suggest, we also considered using a stronger comparison group but found the options unsatisfactory, if not impossible. Perhaps the most obvious comparison would have been individuals with a gender incongruence diagnosis who had not received surgical treatment. This would be a strong comparison group if all individuals diagnosed with gender incongruence are, in fact, seeking gender-affirming surgical treatment. However, this is not the case. Some individuals diagnosed with gender incongruence seek only gender-affirming hormonal treatment and not gender-affirming surgical treatment; others seek no treatment at all. The group diagnosed with gender incongruence not receiving surgery is a heterogeneous group, including those with no intention to seek surgery, that would be inappropriate as a comparison group for those receiving surgery. However, to be responsive to some of the letter writers’ interest in comparing individuals with a gender incongruence diagnosis who received and did not receive gender-affirming surgery, we have created a matched group of individuals with a gender incongruence diagnosis who have not received surgery. These individuals were each matched to an individual with a gender incongruence diagnosis who had received gender-affirming surgery by age, legal gender, education, and country of birth. When comparing the mental health treatment outcomes between the two groups (Table 1), we found no significant difference in the prevalence of treatment for mood disorders and no significant difference in the prevalence of hospitalization after suicide attempt. However, individuals diagnosed with gender incongruence who had received gender-affirming surgery were more likely to be treated for anxiety disorders compared with individuals diagnosed with gender incongruence who had not received gender-affirming surgery. As reported in the article, the statistical test for hospitalization after suicide attempt must be interpreted with caution. As noted above, limited information can be drawn from this particular comparison.

Another comparison group could have involved individuals without a gender incongruence diagnosis undergoing a surgical treatment for which a thorough mental health assessment is required, as it is for gender-affirming surgery. However, we are unaware of any such surgical treatment. Such a comparison group would have, theoretically, enabled us to partially overcome two threats to the validity of our finding that odds of mental health treatment are lower as a function of time since final gender-affirming surgery. The first threat is that people are required to be screened for mental health problems before gender-affirming surgery and might therefore have particularly high odds of mental health treatment in the perioperative year because of their perhaps involuntary receipt of mental health services. These individuals might be less likely to voluntarily seek treatment for mental health problems with greater time since surgery. The second threat is that because we assessed only the mental health of individuals who were alive in 2015, individuals who died by suicide or migrated would not be included; greater time since last surgical treatment comes with greater time for suicide or migration to happen.

Response to concern 3. The third concern is that the study did not sufficiently highlight the elevated mental health care needs of transgender individuals seeking gender-affirming care during the perioperative period. The letter writers highlight this important finding of our study that we did not sufficiently emphasize originally. Specifically, regardless of the effect of gender-affirming care on mental health treatment factors in our analyses. Another drawback to using only one year of mental health treatment utilization data is that our analysis contains a very small number of suicide attempts and no information about previous attempts and completed suicides. Studies employing prospective cohort designs are needed to better understand suicidality within this group and its associations with gender-affirming care. Any conclusion regarding suicidality in our present study should be interpreted with this limitation in mind. This limitation is reported in our article.

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utilization, our results show that the mental health care needs of this population are substantial in the year surrounding the last gender-affirming surgery. These results highlight the need for further research and clinical attention to be paid to the stressors and needed supports of this period (11). In sum, the letter writers point out that although our study design addressed some threats to validity (e.g., confounding by secular trends), it introduced others (e.g., loss to mortality). While the design clearly establishes that individuals diagnosed with gender incongruence utilized more mental health care than the general population in 2015, especially during the perioperative period, like most extant research on the topic, the design is incapable of establishing a causal effect of gender-affirming care on mental health treatment utilization.

Should the Concluding Message of Our Study Have Been More Moderate?
Our conclusion based on the findings at hand in the article, which used neither a prospective cohort design nor a randomized controlled trial design, was too strong. However, given the urgent need for more knowledge about the mental health of transgender individuals and the potential consequences of gender-affirming care, this large-scale observational study serves an important purpose and fills an important knowledge gap. Specifically, this study highlights the substantially increased risk of mental health problems among individuals diagnosed with gender incongruence, and in particular, among those in the process of receiving gender-affirming surgery. The study also lends support for expecting a reduction in mental health treatment as a function of time since completing such treatment, at least among those who are still living in Sweden.

We thank the letter writers for their attention to this important topic and, recognizing the importance of approaching this topic with triangulated, rigorous methodologies, look forward to further collaborative research using even higher-quality methodologies to move closer to establishing the causal impact of gender-affirming care on the well-being of the transgender population.

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The authors’ disclosures accompany the original article.

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* Control group matched by age, gender, education, and country of birth.

REFERENCES
3. Curtis D: Study of transgender patients: conclusions are not supported by findings (letter). Am J Psychiatry 2020; 177:766