Abortion and mental health: A response to Romans and Steinberg

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Introduction

In their recent commentaries on our paper (Fergusson, Horwood et al., 2013), Drs Romans (2013) and Steinberg (2013) produce a series of arguments which they claim impugn the validity of our conclusions that: "at the present time there is no credible evidence to support the research hypothesis that abortion reduces any mental health risks associated with unwanted or unplanned pregnancies that come to term" (p7).

Their critiques centre around two general issues:

1. The choice of research design used to test the research hypothesis.
2. The selection and analysis of data.

We address these issues below.

Choice of research design

Steinberg

Steinberg argues that the studies included in our re-appraisal of the evidence are uninformative about the mental health consequences of abortion. The grounds on which she reaches this conclusion are that "women having unwanted or unintended pregnancies… are likely very different from women seeking abortions for mental health reasons." Steinberg's dismissal of the "abortion/unintended pregnancy" design is generally not consistent with the views expressed in recent major reviews of

abortion and mental health (American Psychological Association, 2008; Charles, Polis et al., 2008; National Collaborating Centre for Mental Health, 2011) that have argued that the best research design for assessing the mental health consequences of abortion involves comparison of those having abortions with those delivering unintended or unwanted pregnancies. In her own research Steinberg has used this design to examine the linkages between abortion and risks of anxiety (Steinberg and Russo, 2008). Given the general acceptance of the abortion/unintended pregnancy design as a means for assessing the mental health consequences of abortion, we used this design to examine possible beneficial consequences of abortion.

Steinberg goes on to propose two designs which she claims are superior to the abortion/unintended pregnancy design. The first involves the use of those refused abortion as a comparison group. Steinberg argues that there will be greater similarities in the backgrounds of those refused abortion with the backgrounds of those having abortions than are present for any other comparison group. While the abortion/refused abortion design provides an alternative to the abortion/unintended pregnancy design, there are two problems with this suggestion. The first is that refusal of abortion is an uncommon event in many jurisdictions, with the results that very large samples will be required to identify the small number refused abortion. The second reason is that the atypical nature of the refused abortion group and their

experience of refusal complicates the interpretation of the abortion/refused abortion design. It is our view that the abortion/refused abortion design is not a replacement for the abortion/unintended pregnancy design but is an alternative approach which merits consideration.

The second design Steinberg proposes is a pre/post design in which the mental health of women is compared before and after abortion. This design is not informative about the research hypothesis under examination and arises from a misspecification of the research problem. The design Steinberg proposes would apply if abortion was provided to a group of mentally ill women as a treatment of their illness. These are not the circumstances that apply to the hypothesis (H1) that abortion mitigates the mental health risks of unwanted or unplanned pregnancy. What is needed to test H1 is an estimate of the counterfactual rate of mental health problems women having abortions would have had if their pregnancy was not terminated. The pre/post design described by Steinberg does not provide an estimate of this counterfactual rate.

Romans

Romans advances similar arguments to those of Steinberg about the choice of comparisons and takes these arguments to the logical extreme of claiming that it is impossible to identify “sensible controls” to examine the mental health effects of

abortion. While Roman's position is logically unassailable it also leads to the negative destination that nothing can be learned about the mental health consequences of abortion irrespective of what research is conducted.

The conduct of the review

Both Romans and Steinberg raise issues about the conduct of our review, which they claim calls the adequacy of the review process into question. These issues involve:

Meta-analysis

Steinberg criticises our study on the basis of recent articles, suggesting that the meta-analysis of abortion and mental health data is inappropriate. This claim misrepresents the methodology we used. This methodology was:

1. We included all studies using the abortion/unintended pregnancy design identified in two recent major reviews (Coleman, 2011; National Collaborating Centre for Mental Health, 2011). This search identified a total of 8 papers based on 4 studies that reported a total of 14 estimated Adjusted Odds Ratios (AORs).
2. We then classified the 14 results into 5 diagnostic groups (anxiety, depression, alcohol misuse, illicit drug use/misuse, and suicidal behaviour).

3. Within each diagnostic group, we pooled estimates from independent studies to obtain an estimate of the pooled AOR. The homogeneity of pooled AOR estimates was tested by Q tests and in all cases the data were consistent with a fixed effects model. However, we fitted a random effects model as this gave a more conservative estimate of the standard error of the pooled estimate.
4. Following this data preparation, we then examined the hypothesis H1 using a range of methodologies which included:
    - Inspection of the results of individual studies. This analysis showed that in 13 of the 14 studies, reported AORs were greater than 1 and no study showed significant benefits on the basis of a one tailed test.
    - Using the pooled estimates, the hypothesis H1 was strongly rejected ($p>0.70$) for all diagnostic groups.
    - These conclusions held when subsets of studies selected on measures of study quality were analysed.

It is quite clear that irrespective of the methods used (visual inspection; pooled estimates; selection by study quality) our review leads to the common conclusion that there was no evidence to support the hypothesis H1 and there was some limited evidence to support the view that abortion may be associated with modest increases in mental health problems.

Review design

Romans present a table which she claims identifies deficiencies in our re-appraisal of the evidence. This table is based on the faulty premise that we are conducting a review of the evidence of abortion and mental health. This is not so; what we are reporting is a "review of reviews" and this is made quite clear in title of our paper, which describes the paper as being a "re-appraisal" of the evidence. Under these circumstances, issues of study quality largely amount to ratings of the quality of the reviews that supplied the data. Romans compares these and shows that on the basis of AMSTAR ratings, the Coleman review (Coleman, 2011) fares poorly and the AMRC review (National Collaborating Centre for Mental Health, 2011) fares well. The practical implications of this finding are that those studies identified by the AMRC review should be given greater credibility than the studies identified by Coleman. Inspection of Tables 1, 2 in our paper shows that, of the 14 AORs examined, 7 were reported by both the AMRC and Coleman reviews and 7 were presented in the Coleman review but not the AMRC review. It is notable that the conclusions of our review do not depend on the source (AMRC; Coleman) from which the evidence was drawn, suggesting that the source of evidence did not pose a threat to general study validity.

General conclusions

The preceding analysis shows that the critiques made by Romans and Steinberg do not impugn the validity of our general conclusion that at the present time there is no evidence to support the hypothesis (H1) that the provision of abortion mitigates the mental health risks of unwanted or unplanned pregnancy. The reasons for this conclusion are as follows:

1. Research design: The arguments presented by Romans and Steinberg about research design lead to the same general conclusions as our analysis but by a different route. In effect, they argue there is an absence of evidence for testing the hypothesis H1, whereas we tested the hypothesis using the available data and found no evidence of beneficial effects of abortion. Both approaches arrive at the common destination that at the present time there is no credible evidence to support H1. While absence of evidence is not the same as evidence of absence, these outcomes have similar implications when applied to a widely-used clinical practice that is claimed to have beneficial effects. Both outcomes lead to the common conclusion that there is no evidence to support claims that the practice is beneficial and further research is needed to establish this claim.
2. Review process: The claims that Steinberg and Romans make about the limitations of our review process are not correct. We did not present a meta-

analysis; rather we presented a re-analysis of existing data from a number of standpoints, including: the presentation of results for all studies; the examination of pooled AORs and analysis of subsets of studies using ratings of study quality. Further, the main findings of this analysis did not vary with the source from which the data were obtained. These features resulted in a robust analysis which demonstrated that the major conclusions of the study did not vary with: choice of evidence source; classification of disorder; methods of analysis (single studies/pooled results/subsets of studies).

More generally the commentaries provided by Romans and Steinberg highlight the limitations of current research into abortion and mental health. These limitations are such that at the present time no strong conclusions can be drawn about the presence of beneficial or harmful effects of abortion on mental health. This conclusion is entirely consistent with our claim that "at the present time there is no credible evidence to support the research hypothesis that abortion reduces any mental health risks associated with unwanted or unplanned pregnancies that come to term" (p7). The lack of evidence about the positive mental health consequences of abortion raises serious doubts about the validity of current clinical practice in Australia and New Zealand, where large numbers of abortions are currently being authorised on mental health grounds.

References

American Psychological Association. (2008). *Report of the Task Force on Mental Health and Abortion*. Washington DC: American Psychological Association.

Charles VE, Polis CB, Sridhara SK and Blum RW. (2008). Abortion and long-term mental health outcomes: A systematic review of the evidence. *Contraception,* 78(6), 436-450.

Coleman PK. (2011). Abortion and mental health: Quanitative synthesis and analysis of research published, 1995-2009. *British Journal of Psychiatry,* 199, 180-186.

Fergusson DM, Horwood LJ and Boden JM. (2013). Does abortion reduce the mental health risks of unwanted or unintended pregnancy? A re-appraisal of the evidence. *Australian and New Zealand Journal of Psychiatry*. Retrieved from doi:10.1177/0004867413484597

National Collaborating Centre for Mental Health. (2011). *Induced abortion and mental health: A systematic review of outcomes of induced abortion, including their prevalence and associated factors*. London: Academy of Medical Royal Colleges.

Romans S. (2013). Asking the unanswerable: Stymied again by the impossibility of sensible controls. *Australian and New Zealand Journal of Psychiatry*. Retrieved from doi:10.1177/0004867413495319

Steinberg JR. (2013). Does existing research inform policies authorizing abortion for mental health reasons? *Australian and New Zealand Journal of Psychiatry*. Retrieved from doi:10.1177/0004867413496874

Steinberg JR and Russo NF. (2008). Abortion and anxiety: What's the relationship? *Social Science and Medicine,* 67(2), 238-252.