Reviewer's report

Title: Does deterioration in mental health after cessation predict relapse?

Version: 3
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Reviewer: Sharon Lawn

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This is an important paper that provides rigorous methods to investigate a contentious issue within this area of research and practice. Testing this hypothesis is very timely, given the need to address smoking for people with mental illness, and for the momentum in the sector to keep building support for this population to quit smoking. I have a few comments that I hope will enhance the paper. They are minor comments, given that the paper is already well written and well reasoned in its steps, arguments and discussion of findings.

Minor Compulsory Revisions:

p.2 Abstract
line 20 – I wonder if alternative wording to ‘quitters’ is needed here? (A mental health consumer advocate recently raised concern about the use of this term as ‘derogatory’). This would be an optional change though, given its common use in the literature on drug use and cessation.
Line 22 – I think ‘relapse’ needs to be made clear upfront, just so that reader know exactly what you are talking about, ie. relapse to smoking, rather than relapse of their mental health condition.

p.36 – I think the word ‘Smokers’ could be replaced with ‘People’ so that the sentence reads ‘People whose mental health worsens after smoking cessation….’

p.4 Background
Lines 66-72 – I wonder if this section’s wording of steps through the description of the misattribution hypothesis could be improved, but reorganizing the ideas. The second have of the first sentence in this section, is a bit awkward (ie. but stopping smoking improves mental health).
Also, line 70 should be as follows – ‘…anxiety (11,22). These withdrawal….’
And line 72 – ‘quitter’ should be ‘person’
Line 73 – because it is a new paragraph, ‘this’ needs clarifying. It could be replaced with ‘the above process’
Line 79 – ‘…to return to smoking as their psychological quality of life….’ Also, was worsening QOL self-reported? If so then this should be included also.
Line 83 – ‘Other smokers might remain trapped….’
that, for many, the acute….”

Given that these trials are quite old (more than 10 years ago) and involved a broad sample, not specifically targeting participants with mental health problems, I think this should be made clear to the reader. It could also be discussed as a limitation, given that people with serious mental illness (eg. People with schizophrenia) may not have come forward to participate, and may even have been excluded. Also, when these trials were occurring, there was likely much less focus on smoking cessation for people with mental illness within mental health services, primary care, etc which also means that they are likely to have been under-represented in these studies. This under-representation has implications for the conclusions drawn, given that we know that rates of smoking be these smokers has not improved much during the past 10 years. The above is a fundamental issue that these authors need to acknowledge upfront, regarding the 5 trials that comprise the sample for this secondary analysis. It would then indicate the need for further research to ensure that future studies directly test these hypotheses with people with serious mental illness.

‘…follow-up. Of these, 80….’

Just so that it is not such a long sentence.

‘…0 to 100. An increase….’

‘…monoxide level did not….’

‘…cessation; but, given the quit date varied for smokers who stopped, the analysis…’

‘…four months. Of these, 80 reported….’

‘…reported smoking relapse…’ just so the reader is clear that it is smoking being discussed, not mental illness relapse.

‘relapsers’ and ‘quitters’ - consider the language being used?

‘…relapse to smoking by 12 months.’

This is a very long sentence.

This is a very long sentence.

‘However, the study…’ Should ‘the’ be ‘their’ or ‘that’ to clarify which study is being referred to.

re the statement ‘These findings have implications for cessation treatment.’ Some sense of what these implications are would be useful.

Level of interest: An article of outstanding merit and interest in its field

Quality of written English: Needs some language corrections before being published
**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests.