Review of: "Barriers to quitting smoking – a survey among 1000 adult cigarette smokers in Germany"

Hyoung Lee[1]

1 University of Washington

Potential competing interests: The author(s) declared that no potential competing interests exist.

Review: Barriers to quitting smoking – A survey among 1000 adult cigarette smokers in Germany

This study investigated the level of motivation to quit smoking and the barriers to try to quit smoking in a sample of German smokers. Specifically, it examined the differences in the motivation and barriers to quit smoking according to the demographic variables such as age, income and education, and the relationships among motivation to quit smoking, barriers to make a quit attempt, exposures to physicians' advice on smoking, and uses of smoking cessation aids. The following are my suggestions and questions.

Introduction

1. In the first paragraph, the sentences of "The ongoing German Survey… only 3%-6%" seem important to characterize German smokers. However, I believe the low number of quit attempts in German smokers should be presented in the context of the high number of quit attempts in other cultures (e.g., Walton et al., 2019) or the high motivation to quit in the smokers of other countries, rather than the average quit attempts in successful quitters. Especially, the reference (Chaiton et al., 2016) that authors presented adopted the different definition of serious quit attempt compared to this study.

Walton, K., Wang, T.W., Schauer, G.L., Hu, S., McGruder, H.F., Jamal, A., & Babb, S. (2019). State-specific prevalence of quit attempts among adult cigarette smokers - United States, 2011–2017. *Morbidity and Mortality Weekly Report (MMWR), 68*, 621–626. doi: 10.15585/mmwr.mm6828a1

2. The second paragraph has some issues. First, the term of "the relative harm of nicotine" is confusing – do authors mean the relatively less harm of nicotine compared to other chemicals in tobacco products or the relatively less harm of nicotine in smoke-free alternatives compared to nicotine in cigarettes? Second, connecting to what was suggested in the results section, authors' suggestion of choosing smoke-free alternatives rather than cigarettes must be based on the concept that nicotine is not the primary cause of smoking-related diseases. However, the direct negative impact of nicotine on cardiovascular diseases and behavioral/cognitive problems has been well developed (Levinthal, 2014). Also, authors suggested that smokers do not choose smoke-free alternatives since smokers may have a misconception about the relative harm of nicotine, which needs references. Third, the same suggestion of choosing smoke-free alternatives is

also based on authors' belief that smoke-free alternatives "could accelerate the discontinuation of cigarettes smoking." However, authors ignored and failed to address the recent meta-analytic studies concluding that the use of e-cigarette was not associated with success in smoking cessation (Chen at al., 2022; Wang et al., 2021; Weaver et al., 2018) and that the use of e-cigarette may be related to the permanent nicotine dependence and regular cigarette use (Hanewinkel et al., 2022; Pierce et al., 2021).

Levinthal, C. F. (2014). *Drugs, Behavior, & Modern Society* (8th Edition). Boston, MA: Pearson.

Chen, R., Pierce, J.P., Leas, E.C., Benmarhnia, T., Strong, D.R., White, M.M., Stone, M., Trinidad, D.R., McMenamin, S.B., & Messer, K. (2022). Effectiveness of e-cigarettes as aids for smoking cessation: Evidence from the PATH Study cohort, 2017–2019. *Tobacco Control*. Advance online publication. doi:10.1136/tobaccocontrol-2021-056901

Hanewinkel, R., Niederberger, K., Pedersen, A., Unger, J.B., & Galimov, A. (2022). E-cigarettes and nicotine abstinence: A meta-analysis of randomised controlled trials. *European Respiratory Review, 31*, 210-215. doi:10.1183/16000617.0215-2021

Pierce, J.P., Chen, R., Leas, E.C., White M.M., Kealey, S., Stone, M.D., Benmarhnia, T., Trinidad, D., Strong, D.R., & Messer, K. (2021). Use of e-cigarettes and other tobacco
products and progression to daily cigarette smoking. *Pediatrics, 147*(2), e2020025122. doi:10.1542/peds.2020-025122

Wang, R.J., Bhadriraju, S., & Glantz, S.A. (2021). E-cigarette use and adult cigarette smoking cessation: A meta-analysis. *American Journal of Public Health, 111*(2), 230-246. doi:10.2105/AJPH.2020.305999

Weaver, S.R., Huang, J., Pechacek, T.F., Health, J.W., Ashley, D.L., & Eriksen, M.P. (2018). Are electronic nicotine delivery systems helping cigarette smokers quit? Evidence from a prospective cohort study of U.S. adult smokers, 2015-2016. *PLoS One, 13*(7), e0198047. doi:10.1371/journal.pone.0198047

3. The aims of the study are not very clear and systematic. The meaning of "matched with socio-economic features" is not very clear – I believe authors meant the differences in the motivation and barriers according to socio-economic characteristics. Also, the relationships among the motivation/barriers, exposures to physicians' advice on smoking, and uses of smoking cessation aids must be an important part of the results, but authors did not mention anything about exposures to physicians' advice on smoking and uses of smoking cessation aids in this paragraph.

3-1. After making clear the aims of the study, reconsider the title of the study.

Methodology

4. Information about recruiting participants should have been described in detail, including the ways to contact the study participants and the number of the participants who were dropped out in the process of recruitment and data analysis.

5. Information about the Computer Aided Web Interviews (CAWI) and questions used in the interview should have been explained in detail. This must include how the participants answer the questions, the composition of the questions (i.e., the number of items for each variable of demographics, smoking behaviors, motivation to quit smoking, barriers to quit smoking, etc), the psychometric properties of the questions including the Motivation to Stop Scale (MTSS).

5-1. I suspect the reliability and validity of some questions. For example, question #5 asked the agreement with the statement, “I don’t want to quit smoking, but I want to smoker fewer cigarettes and reduce my consumption.” This question sounds double barreled since participants should consider whether they want to quit smoking or not and whether they want to reduce smoking or not. Another example is the question of the relative harmfulness of nicotine. The question of “the nicotine in cigarettes, e-cigarettes, and other products for adult consumers is the primary causes of smoking related diseases.” I am not sure it’s appropriate to ask the question including all tobacco products in one question. More importantly, the interpretation and definition of the smoking related diseases can be very different among individuals.

5-2. Authors used one open-ended question for assessing the barriers to quit smoking. It must be explained how authors decided the categories of the barriers and coded the answers according to the categories. Related to the decision of the categories, some categories sound very similar (e.g., the category of “I like to smoke” and one of “enjoyment of tobacco”, the category of “being with other smokers” and one of the “social moments with other smokers”).

6. The rationale that authors changed the age categories during the study is weak. If the number of participants at the categories was not balanced, authors should have recruited the participants considering the age categories.

Results

7. In general, the presentation of the results is not very systematic and consistent. For example, each section or subsection in the results deals with a part or parts of the variable. The results related to the motivation and barriers to quit smoking should have been presented more consistently, including all relationships with other related variables such as exposures to physicians’ advice on smoking, and uses of smoking cessation aids. The intercorrelations among the variables would be very helpful to understand the relationships among the variables comprehensively and systematically. More importantly, I wonder why authors did not examine the difference among groups, using quantitative data analyses (e.g., chi-square tests, t-tests). Simple comparisons between the groups that have the lowest value vs the highest value (e.g., the level of motivation to quit smoking) seem very arbitrary and can exaggerate the true differences in the variables (i.e., motivation) among the groups (i.e., age groups). Also, without the quantitative data analyses, it is hard to suggest any significant differences in the variables among groups.

7-1. If the above suggestions about the intercorrelations among the variables and difference tests are included, the subgroups about smokers over 50 years of age (subsection of “smokers middle-aged and older”) and smokers with low

SES (subsection of “socioeconomically disadvantated smokers”) should be reconsidered. Authors should confirm that the differences in the motivation among age groups or SES groups are truly significant. Also, these subgroups can be understood in a broad context of the relationship between the motivation to quit smoking and age groups and between the motivation and SES.

7-2. In the first paragraph in the section of “nicotine replacement therapies and consumption alternatives to cigarettes”, difference tests among smoking cessations (e.g., chi-square tests) should have been done to confirm that nicotine patches appear more widely accepted than other smoking cessation products. In the second and third paragraph, the interpretation of the numbers must be very subjective. For example, 36% of the participants answered that they tried e-cigarettes and would do so again and another 18% of the participants endorsed that they did not try e-cigarettes but would try them. Thus, 54% of the participants showed their favor to use e-cigarettes in this study, which I am not sure reflects little or low motivation to change the smoking products. The problem in here is that these numbers were not related to the levels of the motivation to quit smoking and that the reference that can be considered to interpret or compare the numbers was not provided.

7-3. In the section of “little knowledge about the relative harmfulness of nicotine”, authors simply provided the frequencies of the answer to question #13 (consider the reliability and validity issues of this question that I mentioned above). However, this study included the variables of the motivation to quit smoking and the uses of smoking cessation aids, and thus authors can directly examine their argument that the misconception of the relative harmfulness of nicotine is related to the low motivation and the less use of smoking cessation aids, using a quantitative data analysis (e.g., regression).

7-4. The section of “smoke-free products as an alternative to continued smoking” described the results about the reduction of the number of cigarettes. Thus, the title of the section does not match the contents of the section. Also, I believe this section should be incorporated in the sections related to the motivation to quit smoking since authors suggested that reducing cigarette consumption is related to the willingness to quit smoking cigarettes and the results in this section is very similar to those related to the motivation to quit smoking.

8. In the subsection of “discouraged smokers”, authors needed to provide the reference of the discouraged smokers. Or the criterion of the discouraged smokers in this study must be very arbitrary and subjective.

9. I believe that the section of “which smokers are motivated to quit smoking?” is the flip side of the description about the unmotivated smokers. For example, authors suggested that the younger smokers seem to be more amenable to quit cigarette smoking, which is consistent to the result of the low motivation to quit smoking in older smokers that was presented in the previous section. Thus, this section of “which smokers are motivated to quit smoking” is redundant.

Discussion

10. It would be better to check the discussion section again when authors address the above issues since the same issues are applied to this section. In the first paragraph, the first sentence emphasizing the motivations and barriers is not really reflected in the title of the study. Also, authors concluded that most German smokers in the study were not motivated to quit smoking cigarettes (second paragraph), but suggested that the results in the study implied the non-homogeneity in German smokers (third paragraph). These two sentences are not consistent by themselves, and the interpretation of the homogeneity must be based on the quantitative data analyses such as difference tests.

11. The use of smoke-free alternatives to help unmotivated smokers was emphasized too much in the entire manuscript. It is an important finding that German smokers in general have the low level of motivation to quit smoking, which may contribute to the high level of smoking prevalence in Germany (even though I am not sure it's the first or only study that found the low level of motivation to quit smoking in Germany). However, the clinical implication or suggestion based on the study findings must focus on the comprehensive ways to enhance the motivation to quit smoking rather than switching to other tobacco products, especially considering the studies suggesting the ineffectiveness of the smoke-free alternatives in quitting smoking.