# PEER REVIEW HISTORY

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### **ARTICLE DETAILS**

TITLE (PROVISIONAL)	Young adult women smokers' response to using plain cigarette
	packaging: A naturalistic approach
AUTHORS	Moodie, Crawford; Mackintosh, Anne Marie

# **VERSION 1 - REVIEW**

REVIEWER	Olivia Maynard
	PhD student
	Tobacco and Alcohol Research Group
	School of Experimental Psychology
	University of Bristol
	UK
REVIEW RETURNED	20-Dec-2012

1. Did the authors look at the responses that were obtained from those who were 'partial completers'? It might be that these participants failed to complete because they had a more negative experience of smoking from plain packs than those who did complete? Were they more likely to drop out during the plain pack weeks or branded pack weeks? If this analysis were possible, it would also be interesting to see.
<ul> <li>2. I have a few comments about the Tables:</li> <li>a. Significance values are given for comparisons between Kerrods and own brand; however, the tables do not show differences between the time points, despite these being discussed in the Results section.</li> <li>b. Standard deviations should be given for the overall pack perceptions, as in the original paper</li> <li>c. Headings should be given in Table 2</li> </ul>
3. The Results section is reasonably complex a. It would benefit from a similar formula being used throughout – i.e. discuss the results in the same order for each sub-section b. Given that in the Analysis section it is stated that a composite score was created for each of the 4 question sub-types (as Cronbach's alpha was acceptable for each) it seems that only the overall score for each of the subtypes needs to be reported in the Results section? c. Some parts are repetitive (i.e. second sentence of 'Feelings about smoking' section)
4. Was a correction used for multiple comparisons on the t-tests?
I am generally very positive about this study, conducted in a naturalistic setting investigating women's responses to using plain cigarette packs. I have a few points which I hope will be of use to the authors.

- 1. Throughout the manuscript, the authors should comment more thoroughly on the pilot study they conducted previously, particularly because the Methods and Results are very similar. It would be useful to comment on the similarities and differences between the two studies. Also:
- a. Can the authors state whether there was any observed difference between genders in the pilot study? Is this why only females were selected in the present study?
- b. The findings largely support those in the original, pilot study. It would be nice to see some description of how the studies compare in the Discussion.
- 2. Some demographic data on the participants' dependence, social grade and age group would be interesting, particularly as these are used in the analyses.
- 3. Can the authors describe the protocol if a participant smoked more than one pack of cigarettes a day? Were they provided with a second pack of Kerrods, or did they then go on to smoke cigarettes from their own packs?
- 4. Were the health warnings on the branded packs controlled by the experimenters, or did participants simply use whichever health warning came with their packs? Was choosing three (low, medium, high) salience warnings for the plain packs done in order to combat this problem? If so, the authors should make it clear that this is how this problem was overcome.

#### Minor comments:

- 1. The meaning of the word 'response' in the first sentence of the abstract is unclear, as changes in smoking behaviour can also be seen as a 'response' to plain packaging.
- 2. The manuscript would benefit from a proof-read, to improve clarity, primarily by reducing sentence length.
- 3. Figure 1 should label the 'high', 'medium' and 'low' salience health warnings and these images should also be presented in the same order as they are described in the text.
- 4. Could the authors clarify how social grade based on occupation was calculated?
- 5. 1st sentence of 3rd paragraph: the authors should change the description of smoking status from (low/medium, high) to (light/moderate, high) to be consistent with the Methods section.
- 6. Perhaps the word 'timepoints', rather than 'measures' should be used for describing the data obtained at the ends of weeks one and two, to avoid confusion with measures across pack types.
- 7. Table 3 should be placed after the penultimate paragraph of the Results section.
- 8. The section within the hyphens in the 6th sentence of the Study Strengths section would be better placed within parentheses. Also in this sentence, it should be made clear that the fact that only 2 countries not using pictorial warnings on the front of packs, is only among countries already with warnings; as some countries don't have pictorial warnings on either front or back of packs.

REVIEWER	Maansi Bansal-Travers, Ph.D., M.S.
	Assistant Member & Assistant Professor of Oncology
	Department of Health Behavior
	Division of Cancer Prevention and Population Sciences

	Roswell Park Cancer Institute USA
REVIEW RETURNED	04-Feb-2013

THE STUDY	Methods need a bit more clarification; no supplemental documents included; the sentence in the Discussion: "That warnings on plain packs were attended to more closely and more deeply processed has not, we believe, been previously reported in the plain packaging literature" is inaccurateI believe there is a study that Dave Hammond was involved with, perhaps for the EU or the UK, that showed that plain packs with warnings were attended to more highly than branded packs with warnings.
GENERAL COMMENTS	Introduction
	Revise line 10: 'a quarter of a century on and plain tobacco'
	Revise line 23: 'appeal of the pack, product and user,'
	Should clarify that previous study conducted included men and women young adult smokers, not just women
	Although explanations given as to why this study only included women, I am still unsure why men were excluded? Some additional explanation might be included as to if the authors truly believe that the findings from women only would be significantly different or scientifically meaningful?
	The authors mention slim, elegant packs—were these pack designs included in this study? Why not?
	Methods
	Page 8, line 52: Sentence should be moved to beginning of this paragraph: "Study participation always started on a Sunday." This sentence is included later in the section but should be earlier.
	Was there a Questionnaire 3? You mention 2,4,5
	Why were 2 questionnaires administered on one study session day (4 and 5)?
	Page 10, line 14: split sentence: were compared. To ensure that

packs
Page 10, line 36: add "were": "paired t-tests were used to test"
I am confused by the terms First measure vs. Second measure.  Need more clarification as to when and why there were 2 measures, were they distinct, when did each occur?
Were participants randomized to their study condition? Or randomized to order of condition?

### **VERSION 1 – AUTHOR RESPONSE**

Reviewer 1: Olivia Maynard

1. Did the authors look at the responses that were obtained from those who were 'partial completers'? It might be that these participants failed to complete because they had a more negative experience of smoking from plain packs than those who did complete? Were they more likely to drop out during the plain pack weeks or branded pack weeks? If this analysis were possible, it would also be interesting to see.

Comment: At the end of the first paragraph of the Results, we have included comparisons between full completers, partial completers and also non-completers. We have included non-completers to provide an overview of the entire sample, rather than focus only on full-completers and partial completers. We explain in the Results that partial completers were those who failed to return all the questionnaires or reported using the incorrect pack" so not all partial completers dropped out, some just failed to follow study protocol correctly. However, of those that did drop-out while using the plain packs we would not be able to attribute this to the pack. This new information reads:

"There was no significant difference in terms of age, dependence level or motivation to quit between those included in the analyses and those excluded (non-completers and partial completers). However, participants from social group ABC1 were more likely to complete the study fully (71.2% of ABC1s were full completers v 56.6% of C2DEs, p<0.01) as were participants with a past month quit attempt of one day or more (78.6% of those with a past month quit attempt completed the study fully v 59.7% of those with no past month quit attempt, p<0.05)."

- 2. I have a few comments about the Tables:
- a. Significance values are given for comparisons between Kerrods and own brand; however, the tables do not show differences between the time points, despite these being discussed in the Results section.

Comment: As we would have to show differences between both Kerrods and own brand across time then the table would be cluttered. As all significant differences between the pack types are already reported in the Results section we do not believe that this duplication is necessary, or helpful for the reader, so have made no change here.

b. Standard deviations should be given for the overall pack perceptions, as in the original paper

Comment: We agree and have included the SDs for overall pack perceptions, and indeed for all measures in Tables 1 and 2 for consistency.

c. Headings should be given in Table 2

Comment: We thank the reviewer for recognising this. The headings have now been included.

- 3. The Results section is reasonably complex
- a. It would benefit from a similar formula being used throughout i.e. discuss the results in the same order for each sub-section

Comment: We have revised the 'Feelings about smoking' section to be consistent with the other sections. This now reads: "Participants reported more negative feelings about smoking from the Kerrods pack, in terms of enjoyment, satisfaction and feeling good, relative to their own pack (see Table 1c). For the Kerrods pack, mean scores ranged from 2.68 to 2.99, while mean scores for their own packs ranged from 3.13 to 3.52. Overall ratings for their own packs did not vary across time. For the Kerrods pack, overall feelings about smoking were rated more negatively at the weekend compared with midweek (p<0.05). Results were consistent across age group, social grade and dependence level." We also added in demographic differences for the avoidant behaviour/behaviour change section to be consistent with the other sections.

b. Given that in the Analysis section it is stated that a composite score was created for each of the 4 question sub-types (as Cronbach's alpha was acceptable for each) it seems that only the overall score for each of the subtypes needs to be reported in the Results section?

Comment: While this would certainly be possible we feel that it would be less informative for the reader than allowing them to examine the ratings for each individual item and thus gain a richer insight to the range of response attributes.

c. Some parts are repetitive (i.e. second sentence of 'Feelings about smoking' section)

Comment: We have revised this sentence accordingly, in response to comment 3a for Reviewer 1.

4. Was a correction used for multiple comparisons on the t-tests?

Comment: Given that all our comparisons involved only two groups (Kerrods v own pack) or (midweek v weekend) we did not feel the need to use a correction for multiple comparisons. A multiple comparisons correction would have applied had we been comparing 3 or more groups.

### Reviewer 2

1. Throughout the manuscript, the authors should comment more thoroughly on the pilot study they conducted previously, particularly because the Methods and Results are very similar. It would be useful to comment on the similarities and differences between the two studies.

Comment: To clarify the similarity between the studies, which used the same approach, the sentence "We aimed to extend this previous study but with a larger and more nationally distributed sample" now reads "We aimed to extend this previous study by following the same approach but with a larger and more nationally distributed sample". In terms of study differences we mentioned the difference in study duration but have added in some other important differences. We now specify that the pilot

study included both men and women smokers and clarify that new questions on health warnings were included. We have revised the paragraph on the pilot study in the Introduction and now mention that a questionnaire was used throughout the study, post-study interviews were conducted with a subsample of participants, and the retention rate was 34%. This paragraph now reads:

"To date only one study has attempted a real world test of plain packaging. This study used a design which involved young adult men and women smokers in Glasgow (Scotland) transferring cigarettes from their own packs into plain packs provided and using these packs instead of their own packs for two weeks, and their own packs for two weeks.3 Participants completed a questionnaire twice a week throughout the study to allow for comparisons to be made between the plain packs and their own packs. Pack perceptions and feelings, and feelings about smoking, were more negative for plain packs, and participants were more likely to report avoidant behaviours (e.g. covering the pack) and cessation related behaviours (e.g. thinking about quitting) when using the plain packs. Post-study interviews were conducted with a sub-sample of participants (N=18) to explore their experiences of using the brown (plain) packs. In the post-study interviews women were more likely than men to report avoidant behaviour when using the plain packs, and only women reported reduced consumption when using plain packs. The pilot nature of this study, recruitment within a single city, low retention rate (34%) and relatively small final sample (N=48) means that further research is needed to test these findings."

a. Can the authors state whether there was any observed difference between genders in the pilot study? Is this why only females were selected in the present study?

Comment: The pilot study included post-study interviews, as mentioned in response to the previous comment, where it was found that only young women reported reducing consumption when using plain packs. We have now included this information and slightly revised the first sentence of the following paragraph, which now reads: "We aimed to extend this previous study by following the same approach but with a larger and more nationally distributed sample of young adult women smokers, who appeared to be more influenced by pack design than men in the pilot study." The findings of the pilot focus group influenced the decision to focus exclusively on young women but it was not the only reason. As we had already explained in the Introduction smoking prevalence among young women is very high in the UK and many innovative packs are targeted at young women. We had also mentioned that the importance of packaging aesthetics appears more pronounced among women than men, and have added an additional reference supporting this point. We have also slightly revised the sentence about smoking prevalence among women being in long-term decline to explain that this rate of decline is slower than it is for men and remains particularly high for young women. This now reads: "In the UK smoking prevalence among women is currently 20% and in long-term decline, but prevalence is declining at a slower rate than for men and remains particularly high for young adult women, with 25% of 25-34 year old women and 30% of 20-24 year old women smokers.5" In short, there were multiple reasons for focusing only on women, which we feel is clear from the revised Introduction.

b. The findings largely support those in the original, pilot study. It would be nice to see some description of how the studies compare in the Discussion.

Comment: We agree that additional information comparing the two studies would be informative. We have included a comparison of the findings at the end of the first paragraph of the Discussion. This reads: "These findings closely reflect those of a pilot study using the same approach.3 The key differences to emerge between the studies were that in the pilot study stubbing out cigarettes early when using the plain packs was never significant and forgoing cigarettes when using plain packs was not always significant. As level of consumption was not measured in the pilot study questionnaires no comparisons can be made."

2. Some demographic data on the participants' dependence, social grade and age group would be interesting, particularly as these are used in the analyses.

Comment: We agree that this information is of interest and have included a brief description of the demographic data in the first paragraph of the Results section. This reads: "The average age of the full completers was 27.14 years (sd 5.63); 84 (44.9%) were from social grade ABC1 and 103 (55.1%) from social grade C2DE; 96 (51.3%) had light/moderate dependence and 91 (48.7%) high dependence; average daily cigarette consumption was 17.28 (sd 7.19); 33 (17.6%) had given up for one day or more in the previous month and 129 (69.0%) indicated that they would like to or really wanted to give up smoking."

3. Can the authors describe the protocol if a participant smoked more than one pack of cigarettes a day? Were they provided with a second pack of Kerrods, or did they then go on to smoke cigarettes from their own packs?

Comment: Participants were informed to retain and re-use the same plain pack if they smoked more than 20 cigarettes in a day when using the Kerrods packs. We now mention in the 'Materials and Procedure section' that "Participants were instructed to retain and re-use the Kerrods packs if they smoked more than 20 cigarettes in a day."

4. Were the health warnings on the branded packs controlled by the experimenters, or did participants simply use whichever health warning came with their packs? Was choosing three (low, medium, high) salience warnings for the plain packs done in order to combat this problem? If so, the authors should make it clear that this is how this problem was overcome.

Comment: We used different health warnings on packs because it is more natural for smokers to have packs featuring different warnings throughout the course of a typical week, rather than packs with the same warning every day. When it came to selecting which warnings to use, we decided to avoid using only warnings with high or low salience, as this could possibly influence response to the warning items. We used past research in the UK to guide selection, as explained in the Methods section. We could not have ensured that packs were used in a certain order, but this was not our intention. We could however ensure that at least two brown packs within the completion packs featured each of the three warnings. We have included additional information explaining that: "Each completion pack contained at least two packs with each of the three warnings. We included packs with different health warnings to reflect the types of warnings that smokers receive on packs and prevent all packs featuring only warnings found to have high or low salience, as this could potentially influence response to the warning items."

## Minor comments:

1. The meaning of the word 'response' in the first sentence of the abstract is unclear, as changes in smoking behaviour can also be seen as a 'response' to plain packaging.

Comment: We have changed "young adult women smokers' response" to "young adult women smokers' cognitive and emotional response".

2. The manuscript would benefit from a proof-read, to improve clarity, primarily by reducing sentence length.

Comment: We have proof-read the paper and made several changes, including breaking up longer sentences as suggested.

3. Figure 1 should label the 'high', 'medium' and 'low' salience health warnings and these images should also be presented in the same order as they are described in the text.

Comment: The order reported in the text is now consistent with the order shown in Figure 1. We have not changed the caption for Figure 1 because we felt that this could potentially mislead some readers, who may interpret mention of high, medium and low salience as reflecting the findings of the present study rather than of separate research. But we agree that greater clarity is needed and have instead revised the Methods so that the reader will be aware of the salience of each warning. This now reads "Past research has found these three warnings to have high (lungs), medium (smoke in child's face) and low salience (seeking help) among smokers.11"

4. Could the authors clarify how social grade based on occupation was calculated?

Comment: We mention that "Social grade was measured via occupation" but fail to explain how. We have revised this sentence, which now reads: "Social grade, based on occupation, was classified in accordance with the six groups (A – upper middle class; B – middle class; C1 – lower middle class; C2 – skilled working class; D – working class and E – those at lowest level of subsistence) used by the British National Readership Survey. These six groups were combined to form 2 groups to enable broad comparison between middle class (ABC1) and working class (C2DE) participants."

5. 1st sentence of 3rd paragraph: the authors should change the description of smoking status from (low/medium, high) to (light/moderate, high) to be consistent with the Methods section.

Comment: We have changed low/medium to light/moderate.

6. Perhaps the word 'timepoints', rather than 'measures' should be used for describing the data obtained at the ends of weeks one and two, to avoid confusion with measures across pack types.

Comment: We have changed the terminology to avoid confusion. Rather than referring to 'first measure' and 'second measure' we now refer to 'midweek' and 'weekend'. For example: "While there was no difference in the Kerrods ratings across time, the own pack ratings were stronger at the weekend compared with midweek (p<0.001)."

7. Table 3 should be placed after the penultimate paragraph of the Results section.

Comment: We have moved Table 3 to the suggested location.

8. The section within the hyphens in the 6th sentence of the Study Strengths section would be better placed within parentheses. Also in this sentence, it should be made clear that the fact that only 2 countries not using pictorial warnings on the front of packs, is only among countries already with warnings; as some countries don't have pictorial warnings on either front or back of packs.

Comment: We have not changed the hyphens to parentheses but have instead broken this long sentence up, as suggested in the second minor comment by reviewer 2. We now clarify that we are referring to countries outside of Europe that use picture warnings. We now refer to 'very few' countries rather than 'two countries' because we are aware that Argentina also use picture warnings only on the reverse panel. The revised sentence reads: "The positioning of images only on the reverse panel of packaging is inconsistent with the Guidelines for Article 11 of the Framework Convention on Tobacco Control16 and best international practice. Indeed, very few countries outside of Europe that require pictorial warnings to be displayed on cigarette packs, such as Argentina and Venezuela, fail to use pictorial warnings on the pack front. Including pictorial warnings only on the reverse panel of packaging has been found to reduce warning effectiveness.9"

Reviewer 3: Maansi Bansal-Travers, Ph.D., M.S.

1. Methods need a bit more clarification; no supplemental documents included; the sentence in the Discussion: "That warnings on plain packs were attended to more closely and more deeply processed has not, we believe, been previously reported in the plain packaging literature..." is inaccurate--I believe there is a study that Dave Hammond was involved with, perhaps for the EU or the UK, that showed that plain packs with warnings were attended to more highly than branded packs with warnings.

Comment: We have included additional information in the Methods section as suggested by reviewers 2 and 3. We have included the questionnaire as a supplemental document in the resubmission and apologise for this oversight. We have also revised the sentence "That warnings on plain packs were attended to more closely and more deeply processed has not, we believe, been previously reported in the plain packaging literature" to "That warnings on plain packs were attended to more closely and more deeply processed, which was not assessed in the pilot study, advances our understanding of the possible real-world impacts of plain packaging."

### 2. Introduction

Revise line 10: 'a quarter of a century on and plain tobacco...'

Comment: Plain packaging has been fully implemented (a more appropriate term) in Australia since the paper was submitted and we have revised the sentence accordingly: "Approximately a quarter of a century on and plain tobacco packaging was fully implemented in Australia, for the first time, in December 2012".

3. Revise line 23: 'appeal of the pack, product and user,...'

Comment: We have simplified this sentence, which now reads: "appeal of the packaging and of cigarettes".

4. Should clarify that previous study conducted included men and women young adult smokers, not just women

Comment: We now mention that the study included "young adult men and women smokers" rather than just "young adult smokers".

5. Although explanations given as to why this study only included women, I am still unsure why men were excluded? Some additional explanation might be included as to if the authors truly believe that the findings from women only would be significantly different or scientifically meaningful?

Comment: We do offer a number of reasons for the exclusive focus on young women and, in response to comment 1a from reviewer 2, now also explain that 'only' young women were found to report behaviour change when using plain packs in the pilot study. We do also mention in the limitations section that the study provides no insight into the impact of plain packaging on male smokers, or indeed older women smokers or non-smokers.

6. The authors mention slim, elegant packs—were these pack designs included in this study? Why not?

Comment: The slim packs we allude to were not included in the study because they would not be allowed if plain packaging was introduced, as is the case in Australia. This did not prevent smokers of

slim cigarettes participating in the study. For the single participant smoking slimmer cigarettes (Vogue) she was given bigger plain packs suitable for smokers of Superkings cigarettes. We used two different plain pack sizes in the study, which we did not clarify in the submission, so that smokers of standard length and longer cigarettes could be recruited. The pilot study only had one pack type so only smokers of King Size cigarettes could be recruited. While most smokers smoke King Size cigarettes we wanted all cigarette smokers to be eligible for inclusion. The revised section is shown below:

"Participants were informed about the study protocol by market recruiters and, if they gave consent, were provided with a 'completion' pack. Each completion pack included seven brown (plain) cigarette packs. These brown packs were only suitable for participants who smoked King Size cigarettes, as was the case in a pilot study using the same approach.3 As nine of the top ten selling cigarette brand variants in the UK come in King Size packs most smokers would have been eligible for study inclusion. However, as all of the top 25 selling cigarette brand variants in the UK come in either King Size or Superkings packs,10 which are slightly bigger than the standard King Size pack, market recruiters were given a box of Superkings plain packs and instructed to use these where appropriate. This involved replacing the seven King Size brown packs within the completion pack with seven Superkings brown packs if an individual smoked a Superkings brand or other longer cigarettes, such as Slims or Superslims. The plain packs were otherwise identical, with a fictitious brand name Kerrods, to prevent copyright breach, and all relevant legal markings and a barcode. The completion packs also included five numbered questionnaires, labelled by day and date, and a timetable explaining when to use their own packs and the Kerrods packs and when to complete and return each of the five questionnaires."

#### 7. Methods

Page 8, line 52: Sentence should be moved to beginning of this paragraph: "Study participation always started on a Sunday." This sentence is included later in the section but should be earlier.

Comment: This sentence reads: "in an attempt to increase study compliance a text message was sent to each participant the day before study onset, always a Sunday". We do now mention, earlier in this section, that "The study, which always started on a Monday, ran for two weeks."

8. Was there a Questionnaire 3? You mention 2,4,5

Comment: Yes. We do mention that there were "five numbered questionnaires labelled by day and date". We have revised this section however to make this clearer:

"Participants were instructed to complete five questionnaires during the two weeks of the study. Questionnaires 1 and 2 were to be completed and returned, via pre-addressed envelopes or by email, on the Thursday and Sunday respectively of the first week. Questionnaires 3 and 4 were to be completed and returned on the Thursday and Sunday respectively in the second week. The first four questionnaires, which were identical (see Appendix 1), resulted in two questionnaires relating to their experience of the plain packs and two relating to their own pack."

9. Why were 2 questionnaires administered on one study session day (4 and 5)?

Comment: We explain that questionnaire 5 was different from the other four questionnaires and clarify the reason for requesting questionnaire 5 at the same time as questionnaire 4. This additional information reads "Questionnaire 5 included the same questions as the pre-study questionnaire about risk perceptions and cessation behaviour, and was to be completed and returned on the same day as questionnaire 4 to reduce participant burden."

10. Page 10, line 14: split sentence: were compared. To ensure that packs...

Comment: This has been revised.

11. Page 10, line 36: add "were": "paired t-tests were used to test"

Comment: This has been revised.

12. I am confused by the terms First measure vs. Second measure. Need more clarification as to when and why there were 2 measures, were they distinct, when did each occur?

Comment: We recognise that the terminology of 'first measure' and 'second measure' has caused some confusion, as already noted by Reviewer 2. Participants completed questionnaires on a Thursday and on a Sunday. We previously referred to these as 'First measure' and 'Second measure' respectively. We now refer to these as 'midweek' and 'weekend' and have included an explanation of this within the analyses section: "Ratings collected on the Thursday questionnaires are referred to as 'midweek' and those collected on the following Sunday are referred to as 'weekend'. For each analysis, midweek ratings of the Kerrods pack were compared with midweek ratings of their own pack and weekend ratings of the Kerrods pack were compared with weekend ratings of their own pack."

13. Were participants randomized to their study condition? Or randomized to order of condition?

Comment: Participants were randomised to order of condition. The study protocol was identical for all participants, except the order in which they used the packs (plain week 1, own week 2/ own week 1, plain week 2).