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Technical Report: Copenhagen Snuff Fine Cut and (b) (4) Intentions and Perceptions Study in Support of MRTPA MR0000108 (b) (4)

Version 1.1

Sponsored by:

Altria Client Services LLC (ALCS)

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Submitted by:

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September 17, 2021

VERSION HISTORY

Version	Version Date	Modification
v1.0	**August 18, 2021**	NA – original submission
v1.1	**September 17, 2021**	Corrected counts of MST users (exclusive vs dual)

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SIGNATURE PAGE

This study was conducted in accordance with the specifications noted in the study protocol (ALCS Project Number: (b) (4)). The principals below have approved this Technical Report.

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1. INTRODUCTION

1.1. Background

U.S. Smokeless Tobacco Company LLC (hereafter referred to as USSTC) with support from Altria Client Services LLC (hereafter referred to as ALCS) is focused on responsibly developing and marketing tobacco products that have a potential to reduce harm for adult tobacco consumers. ALCS on behalf of USSTC submitted a Modified Risk Tobacco Product Application (MRTPA) identified as MR0000108 to the Food and Drug Administration (FDA) Center for Tobacco Products for one of its previously marketed moist smokeless tobacco products (Copenhagen Snuff Fine Cut). USSTC now markets a different product under the same product name as the one for which the MRTPA was submitted. The Center for Tobacco Products (CTP) has raised a concern that, if the two products were marketed with the same name, consumers may not be able to distinguish between the two and thus could be misled to think they are using an authorized MRTP when they are not. This, according to CTP, "could affect FDA's ability to find that the proposed MRTP will benefit the health of the population as a whole and that the modified risk labeling/advertising enables the public to understand the modified risk information and its relative significance in the context of total health and in relation to all of the diseases and health-related conditions associated with the use of tobacco products. In addition, this could compromise [USSTC's] ability to conduct valid and reliable postmarket surveillance and studies, a critical requirement of an MRTP order."

In response to CTP's concerns, USSTC has decided to revise the name (from "Copenhagen Snuff Fine Cut" to (b) (4)) and appearance of the can of the proposed MRTP to ensure that consumers would be able to distinguish the proposed MRTP from the currently marketed product. ALCS conducted this bridging study to demonstrate that the perception and intentions data submitted in the MRTPA is applicable to the revised MRTP, (i.e., the MRTP when marketed with the revised name and can appearance).

1.2. Purpose

The primary purpose of this research is to determine whether differences in brand name, can design and can color between the proposed MRTP can (original MRTP can; "Copenhagen Snuff") and a revised version of the MRTP can (revised MRTP can; (b) (4)) will differentially impact intentions to try and use the (b) (4) MRTP product, as well as risk perception of general harm, among adult (21+) users and non-users of tobacco. This bridging study is designed to determine if the research data submitted to FDA as part of the MRTPA is applicable to the revised MRTP can as it is to the original MRTP can.

1.3 Objectives

The objectives of this behavioral intentions and perceptions study include:

1. To assess the effect of differences in brand name, can design, and can color on behavioral intentions to try and use the MRTP among adult users and non-users of tobacco products.
2. To evaluate the effect of differences in brand name, can design, and can color on risk perceptions of general harm of the MRTP, among adult users and non-users of tobacco products.

Findings are reported separately for each study group: Adult Smokers, MST Users, and Non-Users.

1.4 Primary Research Questions:

- Do intentions to try differ between the original MRTP can and the revised MRTP can?
- Do intentions to use differ between the original MRTP can and the revised MRTP can?
- Do risk perceptions of general harm differ between the original MRTP can and the revised MRTP can?

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2. STUDY DESIGN

2.1 Overview

This quantitative study was an online, crossover experimental design – participants evaluated both the original MRTP can and the revised MRTP can with two rotations to control for order effects in evaluations: Rotation 1 and Rotation 2. Participants in Rotation 1 saw a print advertisement for the original MRTP can first, followed by a print advertisement for the revised MRTP can. Participants in Rotation 2 saw a print advertisement for the revised MRTP can first, followed by a print advertisement for the original MRTP can. Print advertisements in both rotations included the modified risk claim. (See Section 2.2 Study Stimuli).

The study was based on a single, online, national cross-sectional sample of 827 qualified adults drawn from the (b) (4) and it generates survey samples that are representative of and statistically projectable to the non-institutionalized U.S. population aged 21 years and older.

To select a representative sample for this study, (b) (4) used a patented sample selection methodology to select study-specific samples that are demographically balanced and representative of the target population within each of the three user groups. As a result of this a priori sample balancing, no post-stratification weighting was deemed necessary.

Analytic Groups. Beyond exposure and evaluation of the two can types, a participant was assigned to user group and rotation as described below:

1. **User Groups.** Participants were first assigned to one of the three subgroups based on their current and prior use of tobacco products including cigarettes and smokeless tobacco (Adult Smokers, MST Users, and Non-Users).

2. **Rotation**. To control for order effects, participants were then randomly assigned to one of the two rotations with approximately half of the participants assigned to each of the rotations, with the rotations as follows:

   - **Rotation 1**: Viewed the original MRTP can ad with claim first and the revised MRTP ad with claim second

   - **Rotation 2**: Viewed the revised MRTP can ad with claim first and the original MRTP can ad with claim second

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Item Completeness. For each question, participants who attempted to skip a question were prompted as follows: “Your response to this question is important to us. Please respond before continuing.” If the participant still chose to proceed without responding,

they were allowed to continue the interview. During post-field data processing, participants who failed to complete all of the questions in the main questionnaire were flagged as “Incomplete” and not counted toward the completion quota nor included in the final dataset. These participants were replaced with participants who did complete all questions in the main questionnaire by the field close date. In total, one respondent was flagged as “Incomplete” and removed prior to analysis.

2.2 Study Stimuli

After screening, all participants were presented with a written description of the proposed MRTP product and an unbranded image of the proposed MRTP product (Figure 1). The description and image were available to participants throughout the questionnaire, so that they may refer to it at any time. The proposed MRTP product was described as follows:

> “*A finely cut form of tobacco that is sold in a fiberboard can. It is 100% American grown tobacco. The fine cut tobacco is used by placing it between the teeth/gum and cheek of the mouth*.”

Figure 1: Unbranded image of proposed MRTP product

After answering the screening questions and being presented with the unbranded product image and product description, participants were presented with a description of the task. This description indicated that participants would view promotional materials and that they may view them for as long as they like. Participants must have viewed each promotional material at least once before being allowed to proceed in the questionnaire. Once the participant viewed each of the respective promotional materials (Figure 2, Figure 3, respectively) in their assigned rotation (Rotation 1 or 2), they answered questions regarding their risk perception of general harm and intentions to try and use the product.

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Figure 2: Original MRTP can

Figure 3: Revised MRTP can

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All four warnings (per section 3 of the Comprehensive Smokeless Tobacco Health Education Act (CSTHEA), as amended by section 204 of the Tobacco Control Act, in accordance with an FDA approved warning plan) were used during the evaluation, but each participant was exposed to only one of the warnings during testing, randomly assigned by participant. Warnings were randomized within subgroups. The four warnings included:

- WARNING: This product can cause mouth cancer.
- WARNING: This product can cause gum disease and tooth loss.
- WARNING: This product is not a safe alternative to cigarettes.
- WARNING: Smokeless tobacco is addictive.

2.3 Study Instrument

The overall questionnaire flow is described below and depicted in Figure 4:

1. Qualification screening, tobacco use (including intention to quit smoking cigarettes, asked of cigarette smokers only), and informed consent
2. Random assignment to one of two rotations (Rotation 1 or Rotation 2)
3. Viewing of stimuli
4. Post-stimuli exposure questionnaire
    a. General harm of the product
    b. Intentions to try the candidate product
    c. Intentions to use the candidate product
5. Repeat Steps 3 and 4 for the other product stimuli in the rotation
6. Additional demographic questions and debrief

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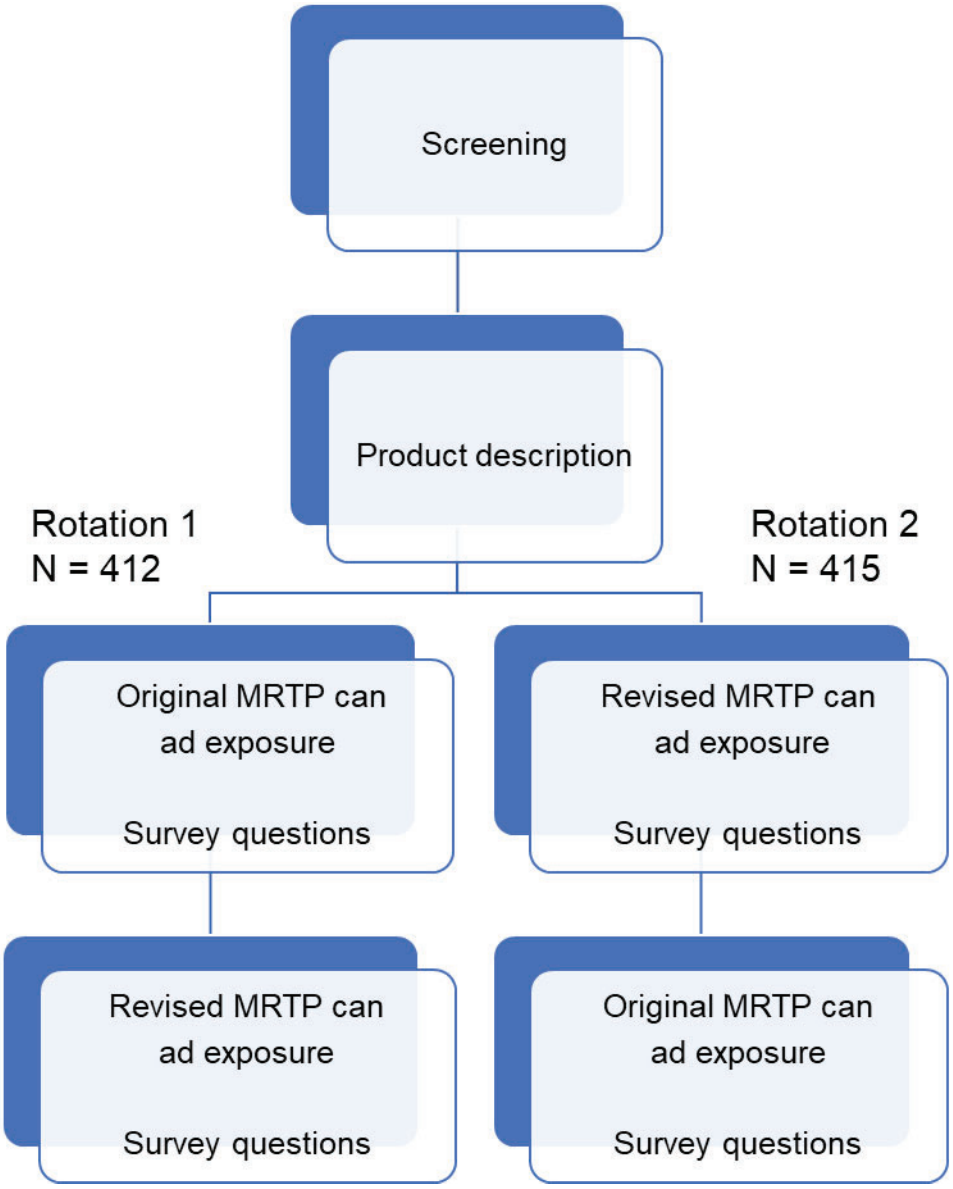
Figure 4: Study Flow



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3. STUDY POPULATION

3.1 Product User Groups

The total unique participant population in this study was designed to be approximately 900, with approximately 300 participants in each of three groups. However, the total sample included 827 participants, with only 225 participants in the MST Users group (Group 2), due to lower than expected qualification of MST Users. Descriptions and final respondent counts are provided in Table 1.

Table 1: Product User Groups

Use Group	Description
Group 1 **Adult Smokers** (N=301)	• Smoked cigarettes in the past 30 days • Did NOT use MST in the past 30 days • Smokes cigarettes "every day" or "some days" • Does NOT use MST "every day" or "some days" • Smoked cigarettes to its lifetime criterion • Adult smokers not planning to quit (N=232) OR Adult smokers planning to quit) in the next 30 days (N=69) • This group may be using other tobacco products, except MST
Group 2 **MST Users** (N=225)	Exclusive MST Users (N=187) • Used MST in the past 30 days • Uses MST "every day" or "some days" • Used MST 20+ times in their lifetime • Did not smoke cigarettes in the past 30 days • Does not smoke cigarettes "every day" or "some days" • This group may be using other tobacco products, except cigarettes. OR Dual Users (N=38) • Smoked cigarettes in the past 30 days • Smokes cigarettes "every day" or "some days" • Smoked 100+ cigarettes in their lifetime • Used MST in the past 30 days • Uses MST "every day" or "some days • Used MST 20+ times in their lifetime • This group may be using other tobacco products
Group 3 **Non-Users** (N=301)	Former Adult Tobacco Users (N=92) • Used cigarettes, MST or cigars to their lifetime criterion OR other tobacco products on a consistent basis • Did NOT use any tobacco in the past 30 days • Does NOT use any tobacco "every day" or "some days" • Has NOT used any tobacco products in the last 6 months OR Adult Never Users (N=209) • Did NOT use tobacco in the past 30 days • Does NOT use tobacco "every day" or "some days" • Never used cigarettes, cigars, or MST to their lifetime criterion NOR other tobacco products on a consistent basis • Any of the above OR Never tried

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3.2 Sample Size Determination

Power analyses were conducted using G*Power (Faul et al., 2009). The analyses for **Objective 1** of this study involved a series of ANCOVAs that compared behavioral intentions (intentions to try, use) after exposure to the promotional materials to determine any differences that participants perceived between the two different can types, assessing also for the impact of order of presentation (Rotation 1 and Rotation 2). Based on the results of prior research on the relationship between relative risk warning labels and behavioral intentions (Rodu et al., 2016), small effect sizes were anticipated in the current study. Thus, assuming a small effect size of f = 0.15 (Cohen, 1988; Dunlop et al., 1996; Ferguson, 2009), a two-tailed test, two assumed covariates, and 80% statistical power to detect differences between the products on changes to any of the behavioral intentions, we expected a required minimum sample size of 274 participants per subgroup for each rotation in order to detect a significant difference.

The initial analyses for **Objective 2** involved comparing risk perception proportions between the two different can types and two different presentational orders. We determined sample size with the following formula:

$$d = \sqrt{\frac{Z^2 P(1-P)}{n}}$$ (α=0.05, z-value = 1.96)

Using Table 2, for 300 respondents in each group, if we were to have a 50% proportion for one group, and wanted a 95% confidence interval and 80% statistical power, a difference of 5.7% would be detected from another study group in another condition (from Fleiss, Levin, and Paik, 2003), which would be enough power to detect a medium sized effect of less than 10% difference. The level of precision and the confidence intervals for other proportions are shown in Table 2 based on the estimated sample sizes of *n*=300 participants per study group within each condition. The level of precision and the confidence intervals for different proportions of correct answers are shown in Table 2 based on the estimated sample sizes of *n*=300 participants per study group within each condition.

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Table 2: Precision and 95% Confidence Intervals for Different Proportions

n	Proportion (*P*)	Precision (*d*)[1]	95% Confidence Interval
300	0.9	0.034	0.866 - 0.934
	0.85	0.040	0.810 – 0.890
	0.8	0.045	0.755 – 0.845
	0.7	0.052	0.648 – 0.752
	0.6	0.055	0.545 – 0.655
	0.5	0.056	0.444 – 0.556
	0.4	0.055	0.345 – 0.455
	0.3	0.052	0.248 – 0.352
	0.2	0.045	0.155 – 0.245
	0.15	0.040	0.110 – 0.190
	0.1	0.034	0.066 – 0.134

Each of the power analyses above yielded slightly different sample size requirements. Therefore, a decision was made to round up the target to 300 participants per study group to ensure that the study was sufficiently powered for all the described analyses. The sample size was rounded up by approximately 10% to ensure power in the event of missing data.

The actual number of qualified respondents completing the study are provided in Table 3 by study group and rotation. As noted, the number of MST Users fell below the target and thus the statistical power is lower than planned. Fewer members of the (b) (4) qualified as MST Users based on the study criteria than had been forecast based on previous studies; (b) (4) and the Sponsor decided to complete the study on schedule after obtaining the maximum number possible (N=225) in Group 2. While the two other groups each had a total of 301 cases with a margin of error of 5.7%, the MST Users group with 225 cases would have a margin of error of 6.5% (with a proportion of 50%). This is still a large enough sample to detect an effect of less than 10% difference.

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Table 3: Achieved Sample Sizes by Quota Group

	Adult Smokers	MST Users	Non-Users	Total Participants
Rotation 1	153	106	153	412
Rotation 2	148	119	148	415
Total	301	225	301	827

3.3 Inclusion Criteria

Participants must have satisfied the following criteria to be enrolled into the study:

- Must be an adult age 21 or older, irrespective of whether or not they are a current tobacco user.
- Voluntarily consent to serve as a participant in the study by electronically acknowledging Informed Consent Statement (ICS) approved or given an exempt determination by a qualified Institutional Review Board (IRB).
- Acknowledge willingness and ability to comply with all study requirements.
- Meet criteria for inclusion in study groups (see Section 3.1).
- Provide valid responses to all of the main questionnaire questions (See Section 4.4)

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3.4 Exclusion Criteria

A participant who met any of the following exclusion criteria was disqualified from the study (the number of such disqualifications is shown in parentheses):

1. Is unable to read, speak, or understand English. (0 disqualified)
2. Cannot see well enough to read/view the promotional materials (e.g., need contact lenses or glasses to read, but do not have them at the time of the questionnaire), if applicable. (0 disqualified)
3. Is a current or former employee or has a first-degree relative (e.g., parent, spouse, sibling, child) or household member who is a current or former employee of the tobacco, e-cigarette, or e-vapor industry. (0 disqualified)
4. Is a current or former employee or has a first-degree relative (e.g., parent, spouse, sibling, child) or household member who is a current or former employee of a market research or advertising company involved in the conduct of the research. (154 disqualified)
5. Is a named party or a class representative in litigation with or involved in litigation with any tobacco, e-cigarette, or e-vapor company or has a first-degree relative (e.g., parent, spouse, sibling, child) or household member who is a named party or a class representative in litigation with or involved in litigation with any tobacco, e-cigarette, or e-vapor company. (11 disqualified)

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4. STUDY PROCEDURES

4.1 Recruitment

Adult participants were invited to participate online, through e-mail invitation. (b) (4) recruited members from its probability-based (b) (4) to fill the study according to the study group requirements outlined in Section 3.1.

To be eligible for enrollment, individuals must have successfully completed the following:

a) Receive an e-mail invitation to complete an online questionnaire
b) Read and agree to the Informed Consent Statement
c) Meet all inclusion criteria, meet none of the exclusion criteria and complete a qualifying screener
d) Age verified by a third party vendor[1]

Members of the (b) (4) are recruited at random and by invitation only from the full general US population. Unlike most online panels, the panel is built on a probability-based sample of residential addresses using a process called "address-based sampling" (ABS). (b) (4) members are not able to join without being selected randomly and asked to join; therefore, they are not an "opt-in non-probability sample." Because all US households have an equal and known chance of selection for recruitment into the (b) (4) (not just online households), inferences from this research can be made about the US population, following social science standards. Invitees must consent to receiving online questionnaires and undergo a thorough validation and profiling process before being admitted to the panel. This profiling process includes taking a series of (b) (4)-generated questionnaires about various topics (e.g. consumer behavior, public affairs, media consumption) that can be used to assess the panelist's eligibility for certain surveys that target specific behaviors and attitudes.

(b) (4) uses the probability-based ABS for panel recruitment so that it can properly represent the adult population of the US. This representativeness is not only achieved with respect to a broad set of geodemographic characteristics, but also hard-to-reach adults – such as those without a landline telephone or Spanish-language dominant individuals. Households without internet access at the time of recruitment are provided with an internet-enabled tablet to use, so that (b) (4) represents both the online and offline population of the US. Consequently, the natural distribution of (b) (4) (b) (4) mirrors that of the US adults closely, barring occasional disparities that emerge for certain subgroups due to differential attrition rates among recruited panel members.

[1] Age verification was conducted by (b) (4), a separate, third-party company. The age verification system cross-checks the information that a participant provides, such as name, birthdate, and address, against public records databases from multiple data sources to verify a participant's age.

To identify the specific panelists to be used for this project, a sample consisting of all panelists age 21 and older was recruited.

A patented sample selection methodology has been developed that ensures the selected samples behave as EPSEM (equal probability selection method). This methodology relies on a PPS (probability proportional to size) procedure to select study-specific samples that are demographically balanced and representative of the target population.

To select a representative sample for this study, (b) (4) used this PPS selection methodology. Briefly, this methodology starts by weighting the entire (b) (4) to benchmarks secured from the U.S. Census Bureau's American Community Survey (ACS) and the March Supplement of the Current Population Survey (CPS) along several dimensions. This way, the weighted distribution of (b) (4) matches that of the US adults – even with respect to the above mentioned few dimensions where minor misalignments may result from differential attrition rates. Using the above weights as the measure of size (MOS) for each panel member, in the next step a PPS (probability proportional to size) procedure is used to select study specific samples. It is the application of this PPS methodology with the above MOS values that produces demographically balanced and representative samples. The purpose of this process is to ensure that the participants in each demographic subpopulation are demographically balanced and representative.

The initial sample frame for this study was recruited such that every panelist within the frame had an opportunity to qualify for the study. Additional participants were not recruited until a minimum of 36 hours had elapsed to ensure that all potential participants had time to access and complete the questionnaire.

Participants were compensated for taking part in the survey. Members of the (b) (4) were compensated by having the cash equivalent of $1 credited to their panel account; participants can use their panel credits for checks, gift cards, or items of equivalent value. Panel management is compliant with market research industry standards, as well as applicable data protection and privacy laws. Some potential participants who had not responded to the first two reminder email invitations received a third reminder message that offered an incentive (equivalent to $5 cash) to encourage their participation, in an effort to more fully fill the MST Users quota.

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4.2 Study Implementation

Potential participants were invited to participate by (b) (4) for study completion. A participant invited to the questionnaire went online (using either a personal computer or mobile device) and entered his/her email address and password before accessing the link to the questionnaire. The questionnaire invitation notified the participant of an opportunity to share his/her opinions.

The median response time for completing the questionnaire was less than eight minutes. The survey was in field from July 7-26, 2021.

4.3 Participant Discontinuation

Participants were informed that their participation was completely voluntary, and that they may discontinue their participation at any time for any reason. Study staff also informed participants that the study staff or Sponsor may discontinue the study or a particular individual's participation at any time. Premature discontinuation of participation could happen for any of the following reasons:

1. Withdrawal of informed consent (participant's decision to withdraw at any time for any reason).
2. Failure to comply with study procedures or other protocol requirements.
3. Termination of an individual's participation by (b) (4)
4. Termination of the study by the Sponsor.

(b) (4) tracked respondent withdrawals or discontinuations. A total of 451 qualified respondents started the questionnaire but failed to complete it ("breakoffs"). Table 4 presents a summary of the point in the questionnaire where these breakoffs occurred.

Table 4: Questionnaire Breakoffs

Questionnaire Position (in sequential order)		Breakoffs	
Variable Name	**Description**	**N**	**%**
Intro1	Introductory text of screener	110	24%
AGE	DOB (open-ended)	66	15%
mremploy	Market research industry employment	34	8%
litigation	Involved in tobacco industry litigation	9	2%
certifyage	Self-certification of being age 21+	38	8%
Consent_kp	ICF	78	17%
evertriedtob	Ever tried tobacco products	17	4%
hintrotypes	Introduction to section about smoking status	21	5%
tobacused	Which tobacco products ever used even once	19	4%
tobaconsist	Which tobacco products ever used on consistent basis	3	1%
cig100	Cigarette lifetime threshold	1	0%
dip20	Smokeless tobacco lifetime threshold	3	1%
usagenow	Current usage of tobacco products	4	1%
P30days	Tobacco products used in past 30 days	2	0%
famdip	Familiarity with smokeless tobacco	3	1%
Control_Intro	Introductory text to Original Can section	1	0%

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Test_Image	Presentation of Revised Can product image	1	0%
Other	Connection failure or timed out	41	9%
Total Breakoffs		**451**	**100%**

Four respondents completed the questionnaire in less than one-third the median time, thus making the quality of their responses questionable. Upon review by (b) (4) statisticians, the data from these respondents were retained because their response patterns did not differ markedly from those of other respondents closer to the median completion time.

Per standard practice, participants who discontinued the questionnaire before completion were allowed to re-enter and complete the questionnaire during the study field time.

4.4 Replacement of Participants

During post-field data processing, participants who failed to complete all of the questions in the main questionnaire were flagged as “Incomplete” and not counted toward the completion quota nor included in the final dataset, however they still received the incentive compensation. These participants were replaced with participants who did complete all questions in the main questionnaire by the field close date. There was one participant who was removed for being Incomplete.

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5. DATA MANAGEMENT

The sponsor (ALCS) contracted with (b) (4) to conduct the online data collection. (b) (4) worked with ALCS to finalize the questionnaire and prepare it for programming and deployment. After collecting the data, (b) (4) performed data quality checks as described in the data validation section below, and performed database lock prior to analysis and transfer of data files to ALCS. (b) (4) furnished demographic and inclusion/exclusion information to ALCS at the completion of the study. (b) (4) did not include any personally identifiable information in the data set or reporting. (b) (4) provided final dataset(s) to ALCS upon completion of the research. End users at ALCS received all of the data files without participant personally identifiable information (PII).

5.1 Data Validation

To ensure the quality of the data collected, (b) (4) undertook the following steps:

- **Internet Protocol (IP) Address Check**: Ensured participant took the questionnaire from appropriate geographic location.
- **Duplicate Participant Check:** Participants were screened against multiple questionnaire completion.
- **Engagement:** Data from participants who completed the questionnaire in less than one third the median questionnaire time, as defined during the first 10% of the questionnaire completes, were reviewed.
- **Data Reviews**: Data reviews were conducted during the data collection period by project management staff. This included checking of real time data top-lines after the first night of data collection to ensure the questionnaire program was working as intended and all data was collected appropriately.

5.2 Database Lock

After data collection was complete, data quality and completeness was evaluated. Once the data quality check was complete, the database was locked, and the data was no longer subject to change.

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5.3 Data Transfer of Study Results

Study data transfers were sent to ALCS, electronically and in a password encrypted format mutually agreed upon by ALCS. Data transferred to ALCS did not include any participant PII.

A codebook was used to organize and match questionnaire items with variable names found in the database. Due to the nature of behavioral research, ALCS does not have standard variable names that are used in all datasets. Therefore, ALCS worked with (b) (4) prior to data collection to create variable names used in the codebook and final data submission. The data set provided to ALCS included the variables in the following order:

- Subject identification (ID)
- Demographic information
- User group
- Rotation assignment
- Design-related aspects (i.e., presentation of stimuli, duration of stimuli)
- Primary outcome measures
    - Separate scale/questionnaire items presented first
    - Composite scores immediately following the last individual questionnaire item to comprise the composite score
- Any additional variables

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6. PROTECTION OF HUMAN SUBJECTS

6.1. Institutional Review Board (IRB)

This study was an online quantitative study that did not involve intervention. Therefore, the risks presented to the participants were minimal. Nevertheless, study conduct followed the principles set forth by the Belmont Report and, where applicable, guidelines established under 21 CFR § 50 and 56.

Before study initiation, (b) (4) submitted the study protocol, ICS, and questionnaire to a qualified IRB (Advarra) for review. The IRB determined that the study was exempt from IRB review, and documentation of such was provided to the study sponsor and is included in the Appendix of this report.

6.2. Ethics

This study was conducted in compliance with the study protocol and, where applicable, in accordance with principles of Good Clinical Practice (GCP) based on the current International Conference on Harmonization (ICH), guidelines for GCP, and the corresponding sections of the Code of Federal Regulations (CFR).

Freely given informed consent was obtained from every participant. For further details on informed consent, see Section 6.3. The rights, safety and well-being of the participants are the most important considerations. Study personnel involved in conducting this study will be qualified by education, training, and experience to perform their respective task(s).

6.3. Informed Consent Procedures

Participants electronically acknowledged their review and agreement of the ICS by clicking a box next to the word “Agree” at the end of the statement.

6.4. Confidentiality

(b) (4)

By signing the protocol for this study, (b) (4) and the study staff affirmed to ALCS that information furnished to the study staff by ALCS will be maintained in confidence. Data generated by this study will be considered highly confidential by the study staff.

The confidentiality of records that could identify participants must be protected, respecting the privacy and confidentiality rules in accordance with applicable legal or regulatory requirement(s), if any. By signing the protocol, the study staff agreed that ALCS (or Sponsor representative), IRB, or Regulatory Agency representatives may

review and/or copy study documents in order to verify data. By acknowledging the ICS, the Participant agreed to this possibility.

6.5. Debriefing

Participants were presented and asked to confirm their understanding of a disclaimer statement at the conclusion of the research:

> "The modified risk claims that you saw during this study are used solely for purposes of this research investigation. These modified risk claims have not been authorized by any US government agency or entity for use with smokeless tobacco products. There is no such thing as a safe tobacco product. Smokeless tobacco products contain nicotine, which is addictive. Scientific studies have not demonstrated that using smokeless tobacco products is safe or risk-free. We would also like to emphasize that in conducting this research, we were not trying to market, sell, or promote a tobacco or nicotine product to you. Finally, smokeless tobacco products should never be viewed as an alternative to quitting all tobacco. If you are an adult tobacco product user concerned about the health risks from such use, the best choice is to quit. No participants will receive products during, or at the conclusion, of this study.
>
> I have read and understand this statement.
>
> 1. Yes"

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7. OUTCOME MEASURES

7.1 Study Questionnaire Overview

The questionnaire contained screening questions about sociodemographics and prior and current tobacco use behavior, followed by presentation of study stimuli and survey questions.

7.2 Primary Endpoints

All items, unless otherwise marked, were taken from published research or national questionnaires, or were developed by internal ALCS subject matter experts. Many items developed by ALCS subject matter experts were validated as part of ALCS validation studies, which were conducted in accordance with guidance and best practices (e.g., FDA, 2009). The validation process confirmed word choice and the number of items to be included for each construct, as well as response options and scaling.

7.2.1 Intention to Try

Intention to try was measured with three items, each asked after viewing the promotional materials for the original and revised MRTP cans. The first item was measured on a 6-point scale, ranging from *"Strongly Disagree to Strongly Agree*[2]*".* The other two items were also measured on a 6-point scale, ranging from "*Definitely Not to Definitely*[3]*."*

- "I am open to trying {PRODUCT} in the next 30 days."
- Based on what you know about {PRODUCT}, how likely or unlikely are you...?
    - to try {PRODUCT}
    - to try {PRODUCT} if one of your best friends were to offer {PRODUCT} to you

A composite score of intention to try was created by taking the average of these three items.

(b) (4)

[2] The full scale is: *Strongly disagree, Disagree, Somewhat disagree, Somewhat agree, Agree, Strongly agree*

[3] The full scale is: *Definitely not, Very unlikely, Somewhat unlikely, Somewhat likely, Very likely, Definitely*

7.2.2 Intention to Use

Intention to use was measured with four items, each asked after viewing the promotional materials for the original and revised MRTP cans. Each item was measured on a 6-point scale, ranging from "*Strongly Disagree to Strongly Agree*[4]*."*

- "I would consider using {PRODUCT} more than once."
- "I expect to use {PRODUCT}."
- "It is likely that I will regularly use {PRODUCT} in the next 6 months."
- "{PRODUCT} will be my regular brand of snuff/dip/smokeless tobacco in the next 30 days."

A composite score of intention to use was created by taking the average of these four items.

7.2.3 Risk Perceptions

Risk Perceptions – General Harm of the MRTP products was based on response to one item. This item was asked after exposure to the promotional materials for the original and revised MRTP cans. Responses were made using a three-point scale: *"Not at all harmful,", "Moderately harmful," "Very harmful."* Each product yielded a risk score formed from the proportion of those rating it as "moderately harmful" or "very harmful" and was analyzed through McNemar's chi-square test. This risk item was adapted from an item in the Centers for Disease Control's National Adult Tobacco Survey ("How harmful do you think using smokeless tobacco is to a person's health?" *Not at all harmful, Moderately harmful, Very harmful).*

- "How harmful do you think using {PRODUCT} is to a person's health?"

(b) (4)

[4] The full scale is: *Strongly disagree, Disagree, Somewhat disagree, Somewhat agree, Agree, Strongly agree*

8. STATISTICAL METHODOLOGY AND ANALYSES

8.1 Analytic Overview

Analysis concentrated on the two primary objectives described in Section 1.2. Differences in behavioral intentions after exposure to the promotional materials were analyzed between the two cans (Original MRTP can vs. Revised MRTP can) with mixed design analysis of covariance (ANCOVA). Differences in risk perceptions were assessed using McNemar's chi-square test.

8.2 Analytic Background and Plan

The following section outlines the general approach to the planned analysis:

- **Hypothesis Testing:** All significance tests started with an initial assumption that the null hypothesis was true, and hypothesis testing was used to compare differences in behavioral outcome measures (intentions and perceived harm). A statistical significance level of $p<.05$ was used, unless otherwise noted.
- **Experimental Variable** - Product Can: Primary analyses focused on two product cans ("original MRTP can" and "revised MRTP can").
- **Experimental Variable** - Rotation Order: Primary analyses focused on the order in which the cans were presented.
- **Experimental Variable** - Period: Primary analyses focused on the period in which the cans were presented.
- **Product User Groups:** Each analysis described below was conducted separately for Adult Smokers, MST Users, and Non-Users.
- **Analytic Software:** All statistical analyses were conducted using the Statistical Analysis System (SAS; version 9.3 or higher[5]) from the SAS Institute.
- **Descriptive Statistics**: We report descriptive statistics for all outcomes. The minimum, maximum, means and standard deviations for continuous variables are reported, while frequencies and percentages are reported for categorical variables. These descriptive statistics are provided for the specific product user groups.
- **Treatment of Missing Data:** Based on the random assignment that takes place in a two-way cross over design, the data analysis was performed based on a Missing at Random Assumption (MAR). (b) (4)
- **Assess Need for Covariates:** Variables under consideration for covariates in this study included demographics and extent of use of tobacco products. In general, random assignment equated the Product Rotation groups with regard to all these factors that could affect responses. Our initial analyses examined differences between the Product Can groups regarding demographics and extent

[5] SAS Institute Inc. Released 2017. SAS Software, version 9.4 or later of the SAS System for Windows.

of use of tobacco products to ensure that random assignment had generally equated the Product Can groups regarding factors that could affect responses. If there were no significant differences in participant characteristics, the use of covariates would not be warranted.

8.3 Primary Statistical Analysis Objectives

After detailing all descriptive statistics for all measures by condition, there were two primary analytic objectives that formed the main focus for the study.

Primary Analysis Objective 1: Assess differences in behavioral intentions between the two experimental conditions as a result of viewing each product can (original MRTP can or revised MRTP can). Two separate analyses of covariance (ANCOVA) were conducted for each the following questions:

- Do intentions to try the MRTP differ between the original MRTP can and the revised MRTP can? Intentions to try is an average value composite formed from three individual items, each with a 6-point scale.
- Do intentions to use the MRTP differ between the original MRTP can and the revised MRTP can? Intentions to use is an average value composite formed from four individual items, each with a 6-point scale.

Each ANCOVA employed a two-way crossover study design that was used to measure the effect of MRTP product can (i.e. original MRTP can or revised MRTP can) and included the following as fixed effects:

- Product can (original MRTP can or revised MRTP can)
- Rotation (the order of presentation of original MRTP can or revised MRTP can)
- Period (the time when respondents saw the original MRTP can or the revised MRTP can; in Rotation 1 the original can was in Period 1 and the revised can was in Period 2, while Rotation 2 was vice-versa).

To control for participant-level variance, the linear mixed model also included the following variable as random effects:

- Respondent random intercept

(b) (4)

Primary Analysis Objective 2: Assess differences in perceptions in perceived harm after viewing each product can (original or revised). Perception of harm was measured with a single item with three categories (Not at all harmful, Moderately harmful, Very harmful). The values were then dichotomized with 'Moderately' and 'Very' harmful being classified as 'Harmful'. The aggregated values represent the proportion in each group who perceived the product as 'harmful'. We employed a series of McNemar's tests to

analyze the resulting proportions of perceived harm and assess the significance of the difference in perceptions of general harm between the two product cans.

9. RESULTS

9.1 Summary of Analyses

Table 5 below presents a summary of all the primary analyses performed and presented in the tables that follow.

Table 5: Summary of Analyses

Domain	Statistical Method	Tables
Demographics	Descriptive statistics	Table 6 – Table 7
Primary Objective 1	Descriptive statistics	Table 8 – Table 9
Primary Objective 1	Mixed-design ANCOVA	Table 9 – Table 14
Primary Objective 2	Descriptive statistics	Table 15
Primary Objective 2	McNemar's Test	Table 16
Primary Objective 2	Crosstabulation	Table 17

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9.2 Demographics

In total, 827 participants completed the questionnaire. Of these, 301 were in the Adult Smoker sample; 225 were in the MST Users sample; and 301 were in the Non-Users sample.

Table 6 and Table 7 presents a descriptive summary of the demographic variables by study user group.

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Table 6: Descriptive Statistics for Demographics - Categorical Variables

	Adult Smokers		MST Users		Non-Users	
Race/Ethnicity	**N**	**%**	**N**	**%**	**N**	**%**
Total	**301**	**100.0**	**225**	**100.0**	**301**	**100.0**
White, Non-Hispanic	222	73.75	188	83.56	220	73.09
Black or African American, Non-Hispanic	24	7.97	3	1.33	22	7.31
Other, Non-Hispanic	12	3.99	8	3.56	16	5.32
Hispanic	31	10.3	15	6.67	26	8.64
2+ races, Non-Hispanic	12	3.99	11	4.89	17	5.65
Gender	**N**	**%**	**N**	**%**	**N**	**%**
Total	**301**	**100.0**	**225**	**100.0**	**301**	**100.0**
Male	147	48.84	209	92.89	139	46.18
Female	154	51.16	16	7.11	162	53.82
Education	**N**	**%**	**N**	**%**	**N**	**%**
Total	**301**	**100.0**	**225**	**100.0**	**301**	**100.0**
Less than HS	43	14.29	10	4.44	14	4.65
HS	111	36.88	40	17.78	77	25.58
Some college	102	33.89	72	32.00	86	28.57
Bachelor or higher	45	14.95	103	45.78	124	41.20
Income	**N**	**%**	**N**	**%**	**N**	**%**
Total	**301**	**100.0**	**225**	**100.0**	**301**	**100.0**
Under $10,000	15	4.98	10	4.44	3	1.00
$10,000 to $24,999	56	18.60	21	9.33	13	4.32
$25,000 to $49,999	76	25.25	33	14.67	44	14.62
$50,000 to $74,999	53	17.61	52	23.11	54	17.94
$75,000 to $99,999	33	10.96	32	14.22	41	13.62
$100,000 to $149,999	42	13.95	53	23.56	66	21.93
$150,000 or more	26	8.64	24	10.67	80	26.58
Region	**N**	**%**	**N**	**%**	**N**	**%**
Total	**301**	**100.0**	**225**	**100.0**	**301**	**100.0**
Northeast	56	18.60	23	10.22	58	19.27
Midwest	75	24.92	74	32.89	74	24.58
South	115	38.21	88	39.11	112	37.21
West	55	18.27	40	17.78	57	18.94

(b) (4)

Table 7: Descriptive Statistics for Demographics - Continuous Variables

	Adult Smokers	MST Users	Non-Users
Age			
N	**301**	**225**	**301**
Mean	51.0	51.1	52.1
Median	52.0	52.0	54.0
Std Dev	13.6	13.3	16.2
Max	87.0	82.0	92.0
Min	23.0	24.0	21.0

9.2 Primary Objective 1

As stated in Section 1.3, the first primary objective of this behavior and perceptions study is to assess the effect of differences in brand name, can design, and can color on behavioral intentions to try and use the MRTP among adult users and non-users of tobacco products. Evaluating this objective involves answering two of the primary research objectives noted in Section 1.4:

- Do intentions to try differ between the original MRTP can and the revised MRTP can?
- Do intentions to use differ between the original MRTP can and the revised MRTP can?

9.2.1 Descriptive Statistics

Table 8 presents a descriptive summary of the outcome measures for Primary Objective 1 by study user group as well as by Rotation. Rotation 1 refers to those who saw the Original Can first, and Rotation 2 refers to those who saw the Revised Can first.

(b) (4)

Table 8: Descriptive Statistics for Outcome Variables - Categorical Variables

	Adult Smokers			MST Users			Non-Users		
Intention to Try: Original Can	Rotation		Total	Rotation		Total	Rotation		Total
	1	2		1	2		1	2	
N	153	148	301	106	119	225	153	148	301
Mean	1.34	1.54	1.44	3.58	3.34	3.45	1.07	1.06	1.07
Median	1.00	1.00	1.00	3.83	3.33	3.33	1.00	1.00	1.00
Std Dev	0.76	1.01	0.90	1.66	1.52	1.59	0.37	0.31	0.34
Max	4.67	4.67	4.67	6.00	6.00	6.00	5.00	4.00	5.00
Min	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Adult Smokers			MST Users			Non-Users		
Intention to Try: Revised Can	Rotation		Total	Rotation		Total	Rotation		Total
	1	2		1	2		1	2	
N	153	148	301	106	119	225	153	148	301
Mean	1.32	1.55	1.43	3.40	3.21	3.30	1.07	1.09	1.08
Median	1.00	1.00	1.00	3.67	3.33	3.33	1.00	1.00	1.00
Std Dev	0.78	0.99	0.90	1.52	1.43	1.47	0.29	0.35	0.32
Max	5.00	4.67	5.00	6.00	6.00	6.00	3.33	4.00	4.00
Min	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Adult Smokers			MST Users			Non-Users		
Intention to Use: Original Can	Rotation		Total	Rotation		Total	Rotation		Total
	1	2		1	2		1	2	
N	153	148	301	106	119	225	153	148	301
Mean	1.20	1.40	1.30	3.05	2.74	2.89	1.03	1.03	1.03
Median	1.00	1.00	1.00	2.75	2.25	2.50	1.00	1.00	1.00
Std Dev	0.57	0.89	0.75	1.66	1.51	1.59	0.15	0.17	0.16
Max	4.50	6.00	6.00	6.00	6.00	6.00	2.00	2.25	2.25
Min	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Adult Smokers			MST Users			Non-Users		
Intention to Use: Revised Can	Rotation		Total	Rotation		Total	Rotation		Total
	1	2		1	2		1	2	
N	153	148	301	106	119	225	153	148	301
Mean	1.22	1.38	1.30	2.71	2.68	2.69	1.02	1.03	1.02
Median	1.00	1.00	1.00	2.50	2.25	2.50	1.00	1.00	1.00
Std Dev	0.63	0.79	0.72	1.44	1.37	1.40	0.13	0.16	0.14
Max	5.25	4.25	5.25	6.00	6.00	6.00	2.00	1.00	2.00
Min	1.00	1.00	1.00	1.00	1.00	1.00	2.00	1.00	1.00

(b) (4)

Results for Descriptive Statistics:

- **Intentions to Try:** The mean scores for Intention to Try were similar for both the Original MRTP Can and the Revised MRTP Can for each subgroup. The mean score for Intention to Try among Adult Smokers was nearly identical with a mean score of 1.44 for the Original MRTP Can and a mean score of 1.43 the Revised MRTP Can, indicating low intentions to try. For MST Users, the mean score ranged from 3.30 for the Revised MRTP Can to 3.45 for the Original MRTP Can. Intentions to Try were very low among Non-Users whereby the mean score for the Original MRTP Can was 1.07 and the mean score for the Revised MRTP Can was 1.08.

- **Intentions to Use:** The mean scores for Intention to Use were similar for both the Original MRTP Can and the Revised MRTP Can for each subgroup. The mean score for Intention to Use among Adult Smokers was identical for both the Original MRTP Can and the Revised MRTP Can with a mean score of 1.30, indicating low intentions to try. For MST Users, the mean score ranged from 2.69 for the Revised MRTP Can to 2.89 for the Original MRTP Can. Intentions to Use were very low among Non-Users whereby the mean score for the Original MRTP Can was 1.03 and the mean score for the Revised MRTP Can was 1.02.

9.3. Mixed-Design ANCOVA

9.3.1 Intention to Try

The tables below show the results of Mixed-Design ANCOVA, which was a linear mixed model with Product format (Original vs. Revised MRTP Can), Rotation (Original first vs. Revised first), and Period (the first period vs. the second period of presentation of original MRTP can or revised MRTP can) as fixed effects, and respondent intercept as a random effect. A variance component matrix was assumed.

Table 9 below presents the results of the Mixed-Design ANCOVA analysis for the behavioral intentions outcome, **Intention to Try, among Adult Smokers.**

Table 9: Intention to Try, Adult Smokers: Summary of Analysis of Effects of Product (Original vs. Revised MRTP Can), Rotation and Period.

(b) (4)

Source	Estimate	Standard Error	DF	t	P Value
Intercept	1.5307	0.07332	299	20.88	<.0001
Product	0.005299	0.02127	299	0.25	0.8034
Rotation	-0.2105	0.1007	299	-2.09	0.0374
Period	0.01431	0.02127	299	0.67	0.5017

Results for Intention to Try Among Adult Smokers: Based on the ANCOVA analysis, there is not a significant difference between the Intention to Try composite scores for each can among adult smokers (p-value=0.8034). The coefficients for Rotation and Period are also not significant.

Table 10 below presents the results of the Mixed-Design ANCOVA analysis for the behavioral intentions outcome, **Intention to Try, among MST Users.**

Table 10: Intention to Try, MST Users: Summary of Analysis of Effects of Product (Original vs. Revised MRTP Can), Rotation and Period.

Source	Estimate	Standard Error	DF	t	P Value
Intercept	3.1845	0.1408	223	22.62	<.0001
Product	0.1572	0.04517	223	3.48	0.0006
Rotation	0.2117	0.1995	223	1.06	0.2897
Period	0.02834	0.04517	223	0.63	0.5310

Results for Intention to Try Among MST Users: Based on the ANCOVA analysis, there is a significant difference between the Intention to Try composite score for each can (p-value=0.0006), with Intention to Try the Original Can being greater by 0.16 than Intention to Try the Revised Can among MST users (as indicated by coefficient estimate of 0.1572 for Product. However, the mean ratings for each Product Can still fall within the same category on the six-point scale; that is, the means for Original and Revised Cans (3.45 and 3.30, respectively) fall between the *Somewhat disagree* and *Somewhat agree* categorical responses. The coefficients for Rotation and Period are not significant.

Table 11 below presents the results of the Mixed-Design ANCOVA analysis for the behavioral intentions outcome, **Intention to Try, among Non-Users.**

Table 11: Intention to Try, Non-Users: Summary of Analysis of Effects of Product (Original vs. Revised MRTP Can), Rotation and Period.

(b) (4)

Source	Estimate	Standard Error	DF	t	P Value
Intercept	1.0699	0.02720	299	39.34	<.0001
Product	-0.00912	0.01536	299	-0.59	0.5532
Rotation	-0.00457	0.03503	299	-0.13	0.8963
Period	0.01566	0.01536	299	1.02	0.3090

Results for Intention to Try Among Non-Users: Based on the ANCOVA analysis, there is not a significant difference between the Intention to Try composite score for each can among non-users (p-value=0.5532). The coefficients for Rotation and Period are also not significant.

9.3.2 Intention to Use

Table 12 below presents the results of the Mixed-Design ANCOVA analysis for the behavioral intentions outcome, **Intention to Use, among Adult Smokers**.

Table 12: Intention to Use, Adult Smokers: Summary of Analysis of Effects of Product (Original vs. Revised MRTP Can), Rotation and Period.

Source	Estimate	Standard Error	DF	t	P Value
Intercept	1.4016	0.05967	299	23.49	<.0001
Product	0.000414	0.02019	299	0.02	0.9837
Rotation	-0.1810	0.08131	299	-2.23	0.0267
Period	-0.02492	0.02019	299	-1.23	0.2181

Results for Intention to Use Among Adult Smokers: Based on the ANCOVA analysis, there is not a significant difference between the Intention to Use composite scores for each can among adult smokers (p-value=0.9837). The coefficient for Rotation is significant (p-value=0.0267), indicating that Intention to Use is slightly higher in Rotation 2 (i.e., Revised Can shown first) than in Rotation 1 (i.e., Original Can shown first), but not for Period.

Table 13 below presents the results of the Mixed-Design ANCOVA analysis for the behavioral intentions outcome, **Intention to Use, among MST Users.**

Table 13: Intention to Use, MST Users: Summary of Analysis of Effects of Product (Original vs. Revised MRTP Can), Rotation and Period.

(b) (4)

Source	Estimate	Standard Error	DF	t	P Value
Intercept	2.5409	0.1377	223	18.45	<.0001
Product	0.2049	0.04565	223	4.49	<.0001
Rotation	0.1666	0.1947	223	0.86	0.3931
Period	0.1418	0.04565	223	3.11	0.0021

Results for Intention to Use Among MST Users: Based on the ANCOVA analysis, there is a significant difference between the Intention to Use composite score for each can (p-value=<.0001), with Intention to Use the Original Can being greater by 0.20 than Intention to Use the Revised Can among MST users (as indicated by coefficient estimate of 0.2049 for Product. However, the mean ratings for each Product Can still fall within the same category on the six-point scale; that is, the means for Original and Revised Cans (2.89 and 2.69, respectively) fall between the *Disagree* and *Somewhat disagree* categorical responses. The coefficient for Rotation is not significant, but the coefficient for Period is significant (p-value=<.0021) with a small effect, indicating that the Intention to Use composite score is slightly greater when the Original Can is shown in Period 1 than in Period 2.

Table 14 below presents the results of the Mixed-Design ANCOVA analysis for the behavioral intentions outcome, **Intention to Use, among Non-Users.**

Table 14: Intention to Use, Non-Users: Summary of Analysis of Effects of Product (Original vs. Revised MRTP Can), Rotation and Period.

Source	Estimate	Standard Error	DF	t	P Value
Intercept	1.0271	0.01248	299	82.32	<.0001
Product	0.003268	0.004707	299	0.69	0.4880
Rotation	-0.00753	0.01688	299	-0.45	0.6558
Period	0.003268	0.004707	299	0.69	0.4880

Results for Intention to Use Among Non-Users: Based on the ANCOVA analysis, there is not a significant difference between the Intention to Use composite score for each can among non-users (p-value=0.4880). The coefficients for Rotation and Period are also not significant.

(b) (4)

9.4 Primary Objective 2

As stated in Section 1.3, the second primary objective of this behavior and perceptions study is to assess the evaluate the effect of differences in brand name, can design, and can color on risk perceptions of general harm of the MRTP, among adult users and non-users of tobacco products. Evaluating this objective involves answering one of the primary research objectives noted in Section 1.4:

- Do risk perceptions of general harm differ between the original MRTP can and the revised MRTP can?

9.4.1 Descriptive Statistics

Table 15 presents a descriptive summary of the outcome measures for Primary Objective 1 by study user group.

Table 15: Descriptive Statistics for Outcome Variables - Categorical Variables

	Adult Smokers		MST Users		Non-Users	
Risk Perception: Original Can	**N**	**%**	**N**	**%**	**N**	**%**
Not at all harmful	2	0.66	6	2.67	4	1.33
Moderately harmful	136	45.18	172	76.44	80	26.58
Very harmful	163	54.15	47	20.89	217	72.09
Risk Perception: Revised Can	**N**	**%**	**N**	**%**	**N**	**%**
Not at all harmful	2	0.66	7	3.11	1	0.33
Moderately harmful	140	46.51	171	76.00	71	23.59
Very harmful	159	52.82	47	20.89	229	76.08

Results for Descriptive Statistics:

- **General Harm:** The vast majority of participants reported some level of harm associated with use for both the Original MRTP Can and the Revised MRTP Can. 99.33% of Adult Smokers, 97.33% of MST Users, and 98.67% of Non-Users of tobacco responded that using the Original MRTP can was either moderately harmful or very harmful to a person's health. 99.33% of Adult Smokers, 96.89% of MST Users, and 99.67% of Non-Users of tobacco indicated that using the Revised MRTP Can was either moderately harmful or very harmful to a person's health.

(b) (4)

9.4.2 Risk Perceptions: McNemar's Test

Table 16 below presents a summary of McNemar's Chi-Square Test comparing risk perceptions of the Original and Revised cans.

Table 16: Risk Perceptions: McNemar's Chi-Square Test

	Adult Smokers	MST Users	Non-Users
Risk Perceptions: Original vs Revised Can			
Chi-square	-	0.33	3.00
p value	-	0.564	0.083
Agreement coefficient (Kappa)	1	0.762	0.400

Results for McNemar's Chi-Square Test:

- Risk perceptions did not differ between the Original and Revised Can for any of the user groups.
- There is perfect agreement (Kappa=1) on risk perceptions between the Original and Revised Can among Adult Smokers and this caused the chi-square and p value to be non-estimable.
- There is high agreement (Kappa=0.762) on risk perceptions between the Original and Revised cans among MST Users, and the difference is not significant (p-value=0.564).
- There is moderate agreement (Kappa=0.400) on risk perceptions between the Original and Revised Cans among Non-Users and the difference is not significant (p-value=0.083).

(b) (4)

9.4.3 Crosstabulation of Risk Perceptions (Original vs. Revised Can)

Table 17 presents a crosstabulation of respondents' perceptions of general harm for both the original and revised cans, broken out by user group.

Table 17: General Harm Perceptions (Original by Revised Can) by User Group

		Adult Smokers				MST Users				Non-Users			
		Revised Can				Revised Can				Revised Can			
		Not Harmful		Harmful		Not Harmful		Harmful		Not Harmful		Harmful	
		N	%	N	%	N	%	N	%	N	%	N	%
Original Can	Not Harmful	2	0.66	0	0.00	5	2.22	1	0.44	1	0.33	3	0.99
	Harmful	0	0.00	299	99.33	2	0.89	217	96.44	0	0.00	297	98.67

Results for Crosstabulation of Risk Perceptions:

- Based on the crosstabulation, there is significant overlap between the risk perceptions of the Original and Revised Cans among all three user groups, with the vast majority of all groups perceiving both cans as harmful.

9.5 Summary of Results

Referring back to the Primary Research Questions presented in Section 1.4:

- For both the Intention to Try and Intention to Use composite measures, ANCOVA analysis shows there is a significant difference between the score among MST Users, but not among Adult Smokers and Non-Users. On both measures, MST Users indicated a greater Intention to Try or Use the Original Can over the Revised Can. (Table 10, Table 13) However, in both instances, the mean ratings for each Product Can still fall within the same categorical responses on the six-point scale.
- The McNemar's Chi-Square test shows no significant difference in risk perceptions between the Original and Revised Cans among any of the user groups.

(b) (4)

10. LIST OF ABBREVIATIONS

Abbreviation	Word or Phrase
ABS	Address-Based Sampling
ACS	American Community Survey
ALCS	Altria Client Services LLC
ANCOVA	Analysis of Covariance
ASNPQ	Adult Smokers Not Planning To Quit
ASPQ	Adult Smokers Planning To Quit
CPS	Current Population Survey
CSTHEA	Comprehensive Smokeless Tobacco Health Education Act
CTP	Center for Tobacco Products
EPSEM	Equal Probability Selection Method
FDA	Food and Drug Administration
ICS	Informed Consent Statement
ID	Identification
IP	Internet Protocol
IRB	Institutional Review Board
MOS	Measure of Size
MRTP	Modified Risk Tobacco Product
MRTPA	Modified Risk Tobacco Product Application
MST	Moist Smokeless Tobacco
PII	Personally Identifiable Information
PPS	Probability Proportional to Size
SAP	Statistical Analysis Plan
SAS	Statistical Analysis System
USSTC	U.S. Smokeless Tobacco Company LLC

(b) (4)

11. REFERENCES

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Earlbaum Associates.

Dunlop, W. P., Cortina, J. M., Vaslow, J. B., & Burke, M. J. (1996). Meta-analysis of experiments with matched groups or repeated measures designs. *Psychological Methods*, 1, 170-177.

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Ferguson, C. J. (2009). An effect size primer: A guide for clinicians and researchers. *Professional Psychology: Research and Practice,* 40(5), 532.

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(b) (4)

12. APPENDIX

Documentation of IRB Exemption

(b) (4)

(b) (4)

EXEMPT DETERMINATION

DATE: 18 Jun 2021

TO: (b) (6)

PROJECT: Altria Client Services LLC - (b) (4) Copenhagen Snuff Fine Cut and Copenhagen Classic Snuff Intentions and Perceptions Study in Support of MRTPA MR0000108 (Pro00054776)

DOCUMENTATION REVIEWED:

Protocol Version:
- Protocol Version 1.0 (Dated 4-June-2021)

Consent Form:
- Informed Consnet Form (v1, Dated 2-June-2021)

Other Material:
- Internet, ALCS Cope MST Questionnaire (Dated 4-June-2021)

Using the Department of Health and Human Services regulations found at 45 CFR 46.104(d)(2) the IRB determined that your research project is exempt from IRB oversight. All study related documents will be removed from our active files and archived.

Please be advised that as (b) (4) IRB is not overseeing the conduct of the study, specific IRB details such as the IRB company name and contact information should be removed from the consent form and all study materials, and study materials should not state that the study is "approved" by an IRB. Study materials may include a general statement that the study was reviewed by an IRB, such as, "This study has been reviewed by an institutional review board (IRB), which is a committee that has reviewed this research study to help ensure that your rights and welfare as a research participant are protected and that the research study is carried out in an ethical manner.

Note: You will still be able to access this study via the (b) (4) under the "Archived" tab on your Dashboard for three years. After three years, the study will be removed from the system in accordance with IRB regulations.

The IRB granted this exemption with an understanding of the following:

1. The research project will only be conducted as submitted and presented to the IRB, without additional change in design or scope.

2. Should the nature of the research project change, or any aspect of the study change such that the nature of the study no longer meets the criteria found in 45 CFR 46.104(d)(2), you will resubmit revised materials for IRB review.

(b) (4)

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(b) (4)

3. It is the responsibility of each investigator to ensure that the project meets the ethical standards of the institution. Specifically, the selection of subject is equitable, there are adequate provisions to maintain the confidentiality of any identifiable data collected, and when there are interactions with research subjects, they will be informed that the activity involves research, a description of the procedures, participation is voluntary, and the contact information for the researcher.

The IRB will evaluate the new information and make a determination at that time regarding the research project's status.

This project is not subject to requirements for continuing review.

If you have any questions or concerns, please use the Contact IRB activity on the (b) (4)

Thank you for selecting (b) (4) IRB to review your research project.

Page 2 of 2

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(b) (4)

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Source Envelope:
Document Pages: 47
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Envelope Originator:
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Diana McKinney (b) (6) Principal Scientist I Altria Client Services LLC Security Level: Email, Account Authentication (None)	(b) (6) Signature Adoption: Pre-selected Style Using IP Address: (b) (6)	Sent: 9/17/2021 8:25:45 AM Viewed: 9/17/2021 8:35:19 AM Signed: 9/17/2021 8:35:32 AM
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