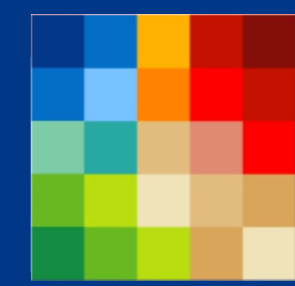


Risk Perception of E-vapor and the Impact of Promotional Materials

Jessica Parker Zdinak, Ph.D., Jenna Leighty, M.S., Maria Gogova, M.D., Stephanie Plunkett, Ph.D.



Altria

Altria Client Services

Altria Client Services LLC, 601 East Jackson Street, Richmond, VA 23219 USA

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Abstract

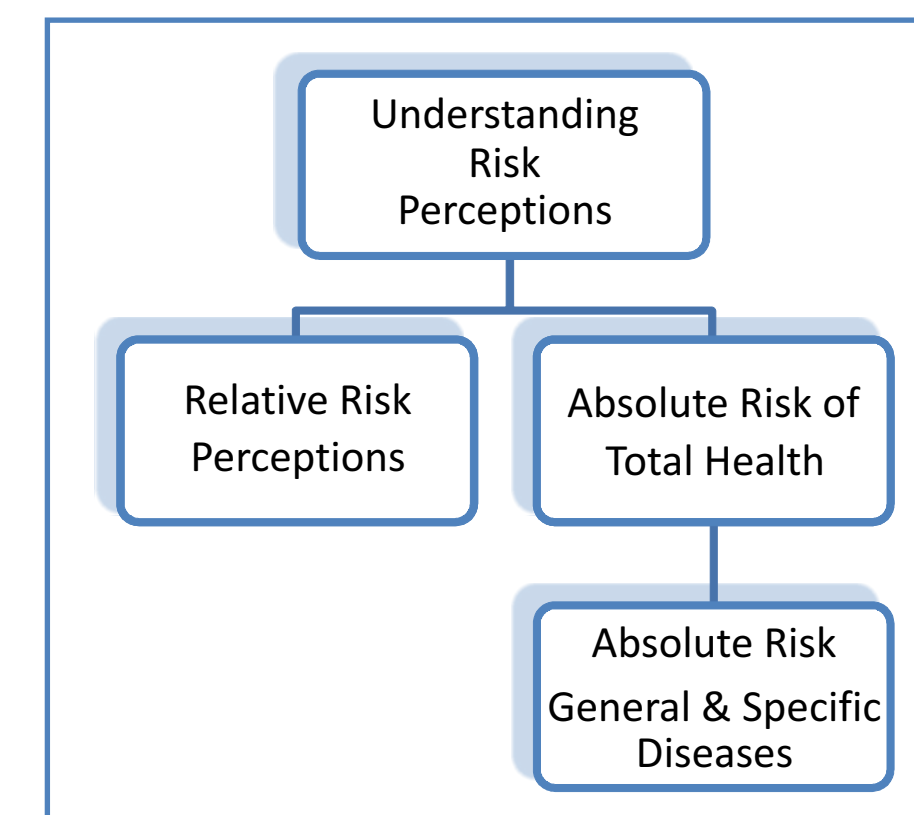
FDA's new comprehensive tobacco and nicotine strategy acknowledges the risk continuum and fosters innovation in noncombustible lower risk tobacco alternatives. Risk perceptions play a role in trial and/or adoption of potential reduced risk tobacco products, such as e-vapor. Therefore, it is important for research to assess risk perceptions of tobacco products across a continuum of risk. In the present research, we examined the effect of MarkTen® promotional materials on adult tobacco users (n = 1,688) and non-users' (n = 1,252) perceptions of risk. Participants were assigned to one of two conditions, each with a different level of exposure to promotional materials. The first condition exposed participants to a full assortment of promotional materials, whereas the second condition exposed participants to a pack shots. Participants completed pre- and post-test surveys measuring relative risk perceptions. Roughly 40% of adult smoker subgroups and 50% of non-users indicated that MarkTen® e-vapor/e-cigarette products are equally or more risky than cigarettes. Pre-post changes were minimal and no differences were found between the two conditions. These results support a growing body of evidence showing misperceptions of risk among adult smokers. For tobacco harm reduction to be successful, it is critical that adult smokers have access to truthful and accurate information about relative risk to make an informed choice.

Background

- Tobacco product risk perceptions are associated with initiation and cessation.^{2,3}
- Between 2012 and 2015, there has been an increase in perceptions of e-cigarettes as being equally or more harmful than cigarettes.⁴
- The FDA premarket tobacco application (PMTA) draft guidance for electronic nicotine delivery systems (ENDS) recommends that consumer perception studies “should address how consumers perceive product risk and include consideration of packaging and labeling,” and the evaluation of “perceptions of product risk, (should be) both absolute and in comparison to other categories of tobacco products, as well as to quitting all tobacco use.”¹
- The current study shows how ALCS assesses risk perceptions to address the recommendations in FDA's draft guidance.

Objective & Framework

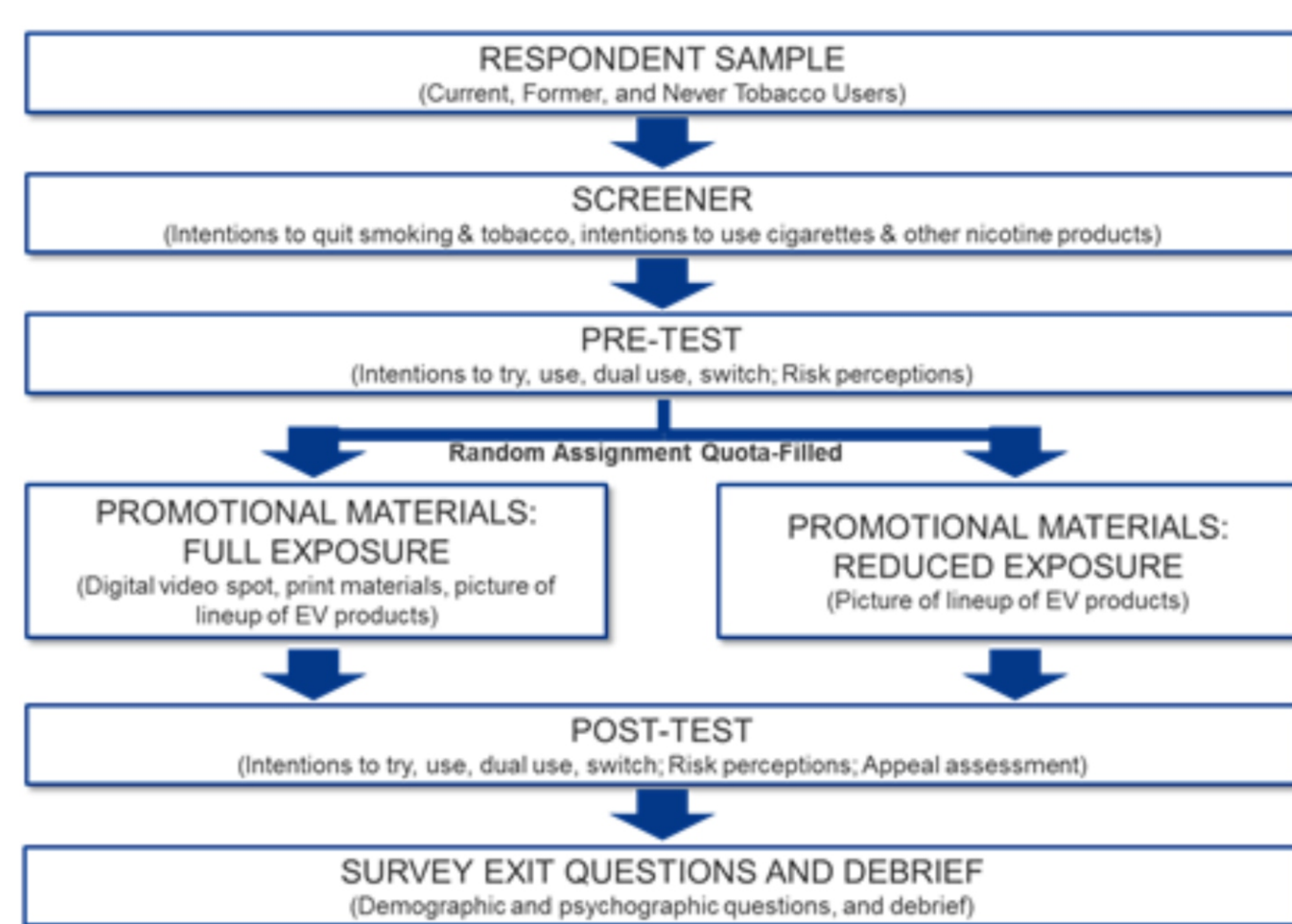
- To examine the impact of promotional materials on absolute and relative risk perceptions



Method

Design & Procedure

- Quasi-Experimental, 40-minute online survey*
- Participants were recruited from a variety of non-probability sampling methods, including online, e-mail, phone, and in-person
- Recruitment matched the U.S. population on major demographic variables (gender, age, race/ethnicity, education, and region) using quotas from PATH5
- Data were collected between February 2017 to April 2017



*No communication of risk messaging. All stimuli communicated mandated warning.

Study Groups

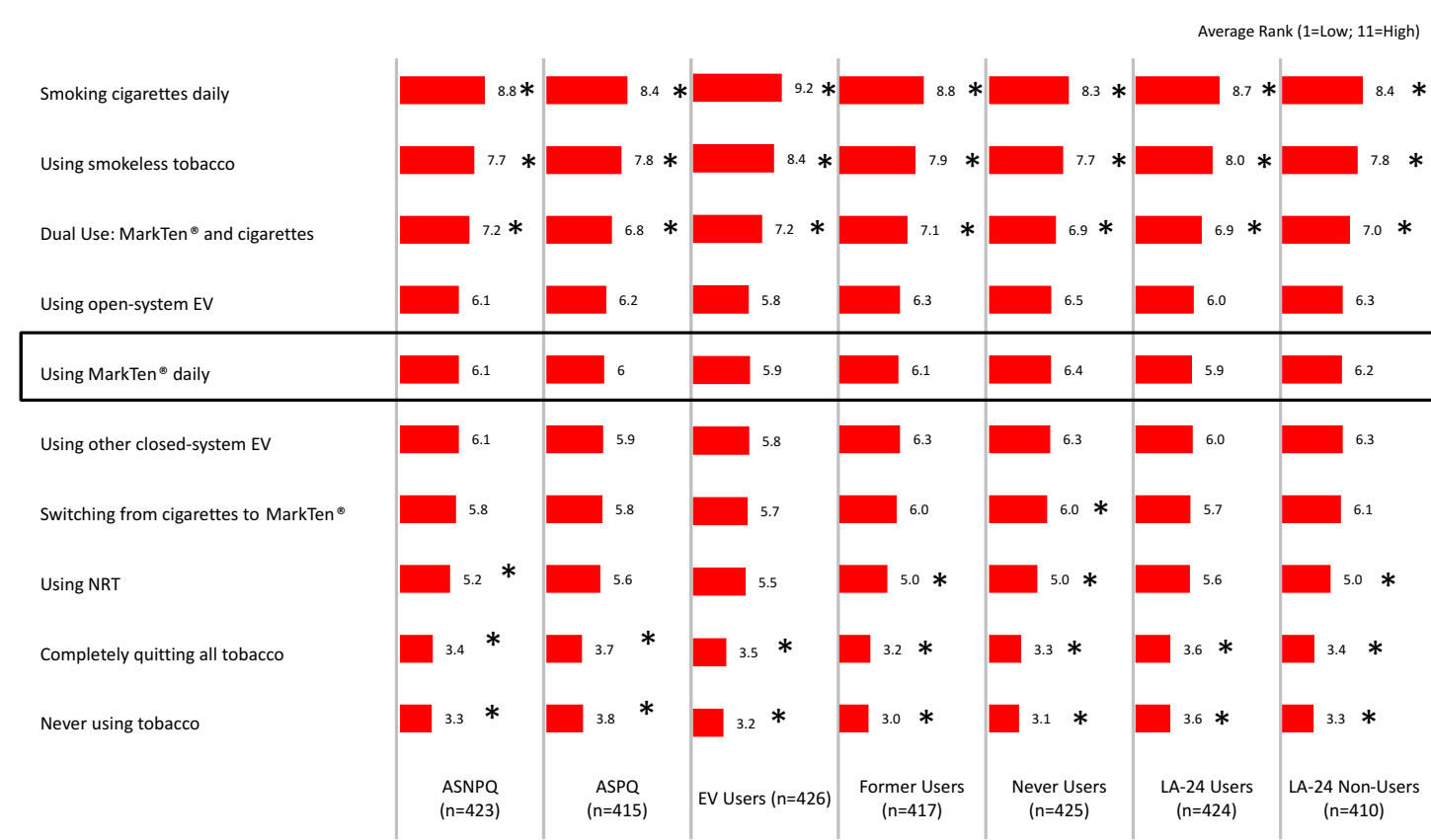
Qualified adult participants of legal age to purchase tobacco were placed into one of five groups* (N = 5,374):

- Adult smokers not planning to quit smoking (ASNPQ; n = 841):** Reported (1) smoking cigarettes in the past 30 days, (2) now smoking cigarettes “every day” or “some days” (3) has smoked 100+ cigarettes in their lifetime, (4) not planning to quit smoking cigarettes within next 30 days, (5) not using EV in the past 30 days, and (6) not using EV “every day” or “some days”
- Adult smokers planning to quit smoking (ASQP; n = 847):** Reported (1) smoking cigarettes in the past 30 days, (2) now smoking cigarettes “every day” or “some days” (3) has smoked 100+ cigarettes in his/her lifetime, (4) planning to quit smoking cigarettes within next 30 days, (5) not using EV in the past 30 days, and (6) not using EV “every day” or “some days”
- Adult e-vapor users (EV users; n = 841):** Reported (1) using EV product within the past 30 days, (2) now using an EV product “every day” or “some days”, and (3) using an EV product on a consistent basis.
- Adult former tobacco users (Former Users; n = 841):** Reported (1) having smoked 100+ cigarettes in their lifetime, used EV on a consistent basis, or used other tobacco products on a consistent basis, (2) not using any tobacco in the past 30 days, (3) not now using any tobacco products “every day” or “some days”, and (4) not having used any tobacco product for six months or more
- Adult never tobacco users (Never Users; n = 840):** Reported “No” when asked if they had ever tried “cigarettes or other tobacco products including e-vapor or cigars” even once, or reported all of the following: (1) not using tobacco in the past 30 days, (2) not using tobacco “every day” or “some days”, and (3) neither having ever used cigarettes, cigars, or oral tobacco to its lifetime threshold criterion nor any other tobacco products on a consistent basis

*An oversample of Legal Age-24 year old users and nonusers (LA-24; n = 1,681) was also included

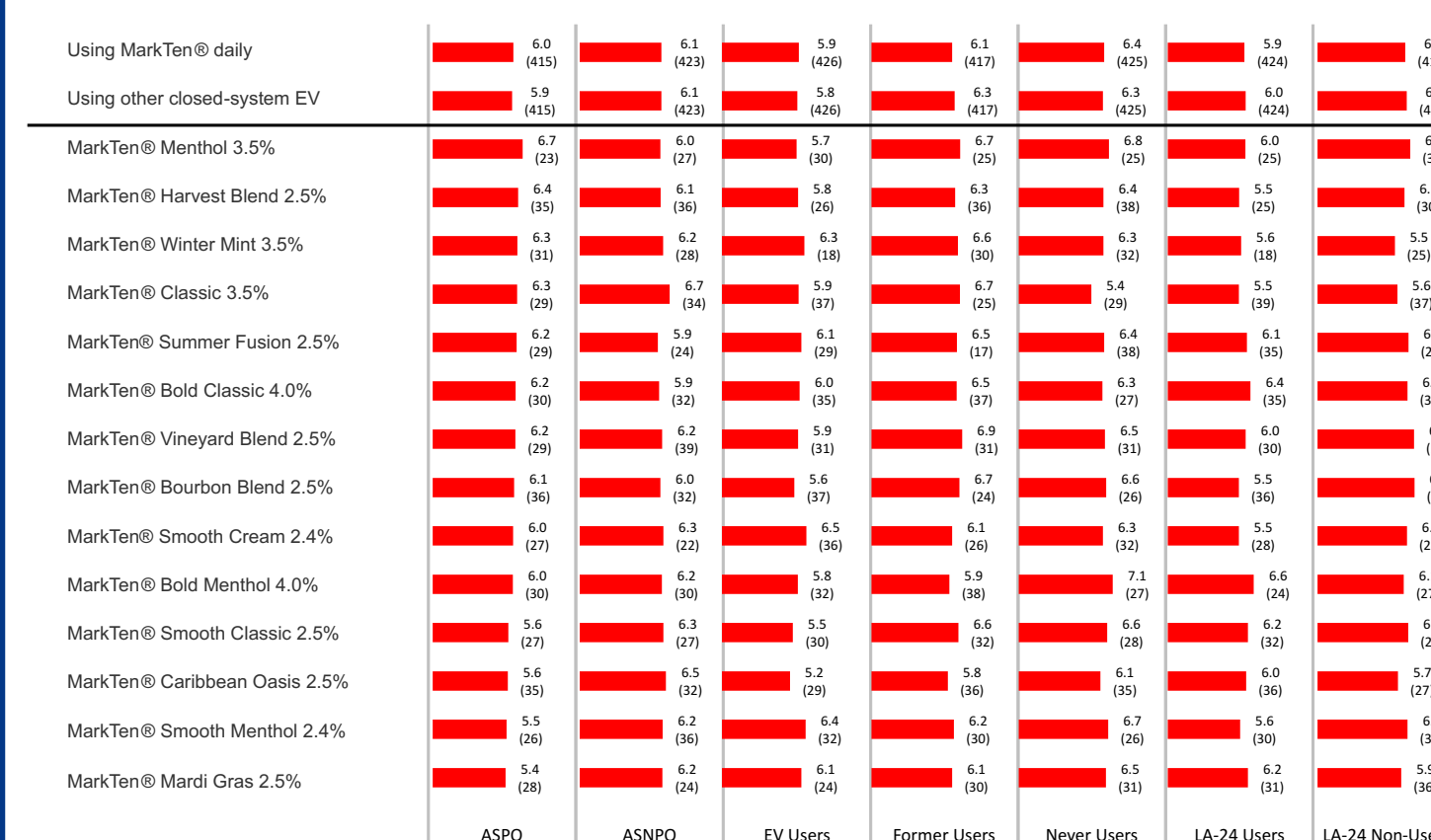
Results

Post-test relative risk: Risk perception of MarkTen® was ranked higher than that quitting, and never using tobacco and ranked lower than smoking, dual use and using smokeless tobacco.



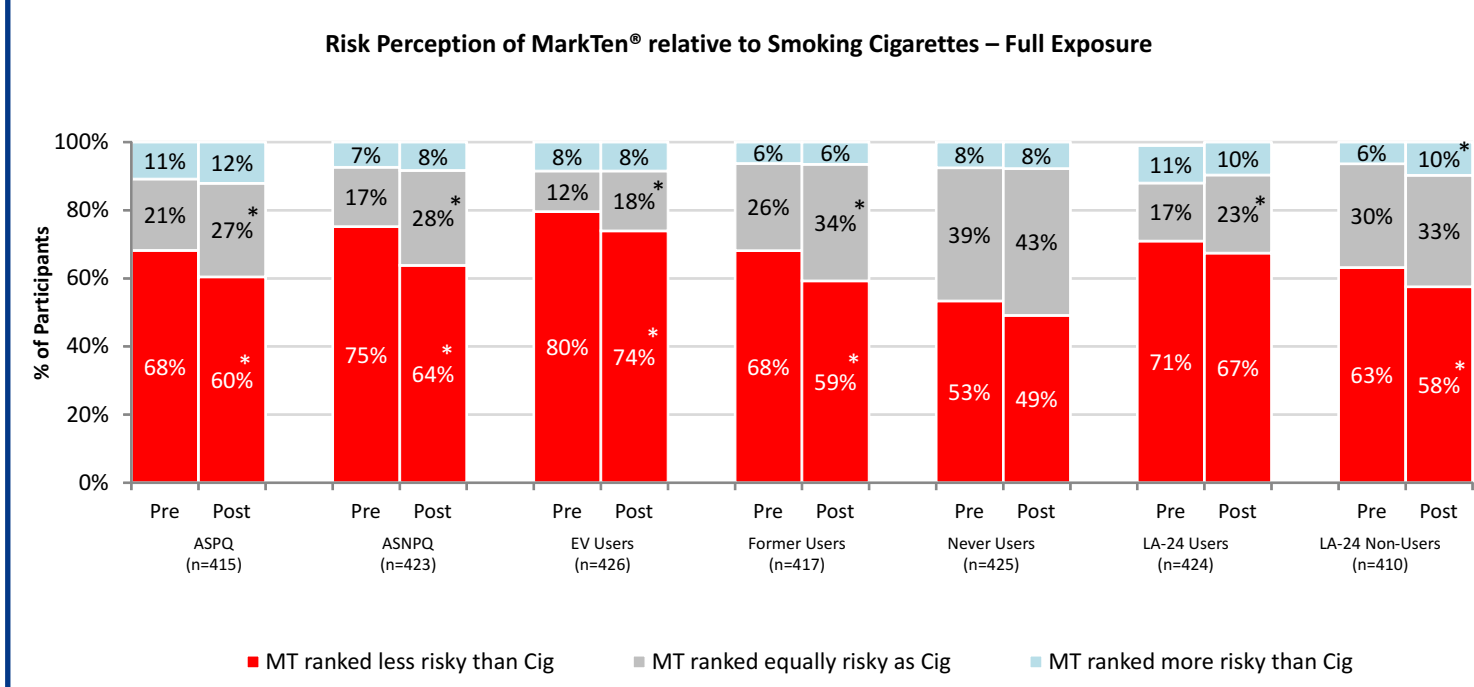
*Indicates a statistically significant difference between Using MarkTen® daily and the indicated behavior

No difference in risk perception for individual flavors/nicotine variants when compared to MarkTen® brand or e-vapor category.



Data presented here are from post-test full exposure conditions. Sample size is in parentheses.

Relative Risk: Significant increases in proportions of participants perceiving MarkTen® as equally as risky than cigarettes in all subgroups except never users and LA-24 users after viewing promotional material.



*Statistically significant at p < 0.05, McNemar's Exact Significance (2-tailed), comparing Pre vs. Post

Digital Video Spot



Print (compilation of marketing materials)



Picture (line-up of EV products)



WARNING: This product contains nicotine. Nicotine is an addictive chemical.

Measures

Relative Risk Perceptions were measured with 11 separate items at pre- and post-test:

Please rate each item for the risk you feel it could pose to a person's health.

- Smoking cigarettes daily
- Using both MarkTen® e-vapor/e-cigarette products (with prefilled, manufacturer-sealed cartridges) and cigarettes, but on separate occasions
- Completely switching from smoking cigarettes daily to using MarkTen® e-vapor/e-cigarette products (with prefilled cartridges, manufacturer-sealed cartridges) daily
- Using MarkTen® e-vapor/e-cigarette products (with prefilled cartridges, manufacturer-sealed cartridges) daily
- Using MarkTen® INSERT FLAVOR/NICOTINE LEVEL e-vapor/e-cigarette products (with prefilled cartridges, manufacturer-sealed cartridges) daily
- Using other e-vapor/e-cigarette products with prefilled, manufacturer-sealed cartridges daily
- Using e-vapor/e-cigarette products with refillable cartridges or tanks that you refill with e-liquid daily
- Using smokeless tobacco (“dip”/snuff or chewing tobacco) products daily
- Using only a Food and Drug Administration (FDA) approved over-the-counter smoking cessation medication, as directed, for quitting smoking (Nicorette® gum, the patch, etc.)
- Completely quitting all tobacco use
- Never using tobacco products
- Participants responded to items on a 10-point scale, with the end-points labeled “0 (No Risk to Health)” to “9 (Great Risk to Health)”. All relative risk items were presented on the same screen and participants were able to change their ratings throughout the exercise. Items were randomly presented to mitigate order effects.
- The ratings were converted to relative rank scores for each participant, with a value of “1” assigned to the item with the lowest rating and a value of “11” assigned to the item with the highest rating on the 0-9 scale. Items could be rated the same.
- Relative risk rankings were created by separately comparing risk of cigarettes with three tobacco use behaviors: Candidate product (MarkTen®, NRTs, & quitting).

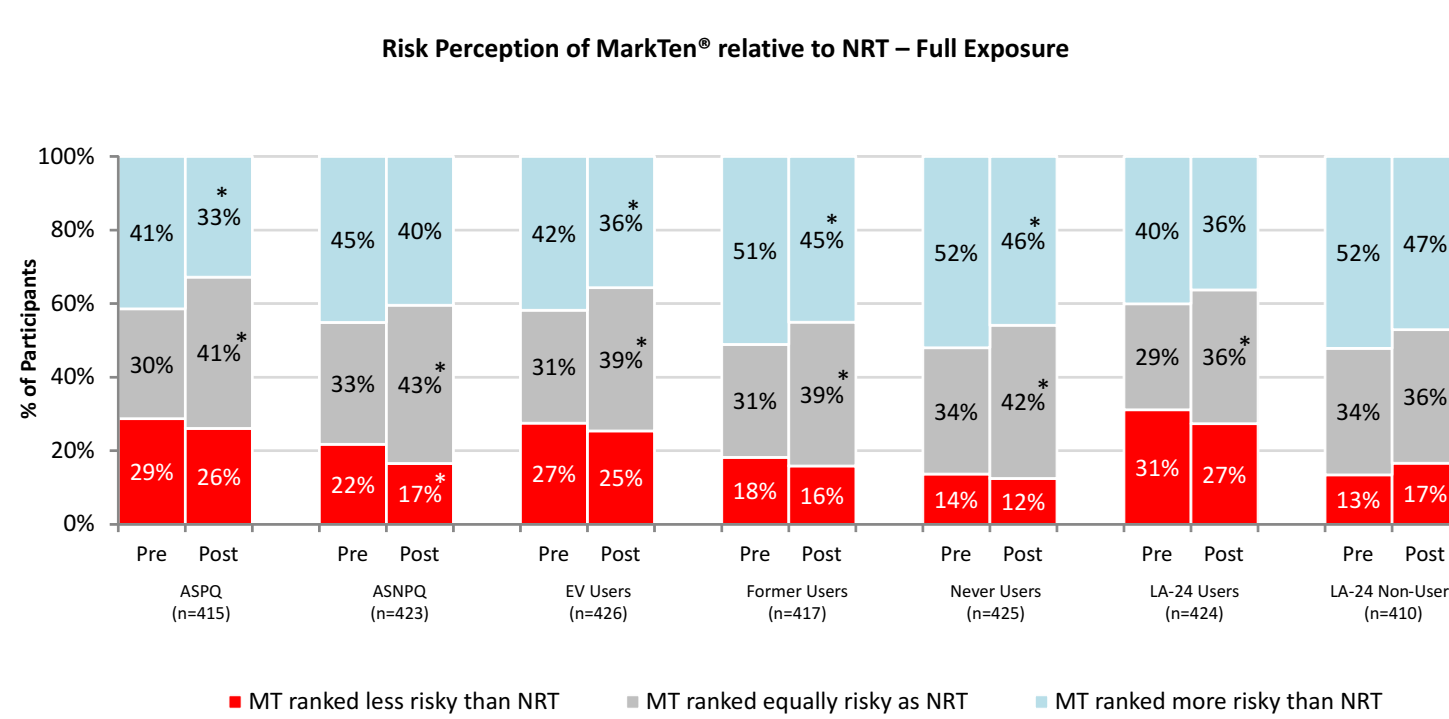
Absolute Risk Perceptions of diseases or health outcomes were measured with 11 separate items at both pre- and post-test:

How likely is it that these things will happen to a person who only [uses MarkTen® e-vapor/e-cigarette products] daily? How likely is it that these things will happen to a person who only [smokes cigarettes] daily?

- Risk harming health
- Mouth cancer
- Lung cancer
- Heart disease/heart attack
- Nicotine addiction
- Discolored teeth or decay
- Harming someone nearby (i.e., second-hand smoke)
- Trouble catching their breath
- Bad cough
- Harm to baby if pregnant or nursing
- Worsens an existing illness (such as diabetes, respiratory, or heart conditions)

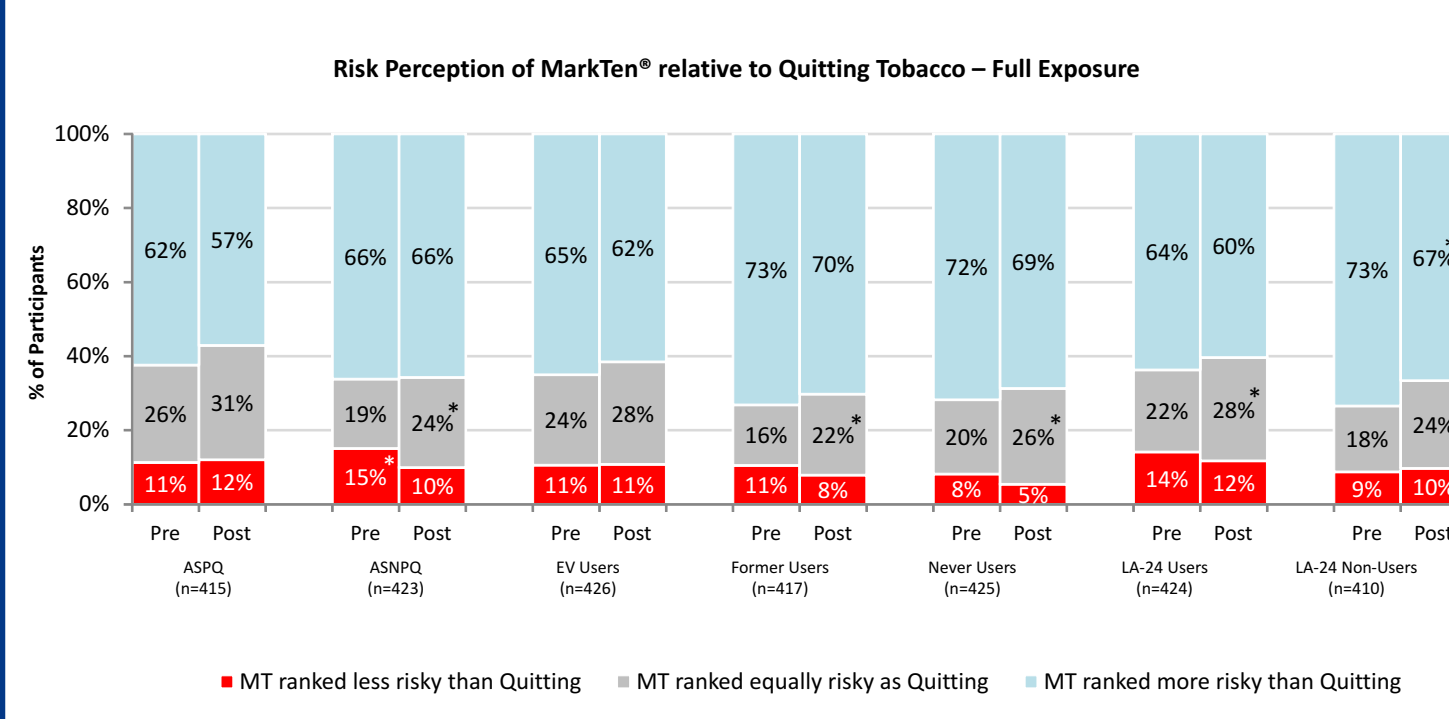
- Participants responded to items on an 11-point scale, ranging from 0% (Extremely Unlikely) to 100% (Extremely Likely). Items were randomized and presented on the same screen.

Relative Risk: Significant increase in proportion of participants perceiving MarkTen® equally or more risky than NRT in all subgroups but LA-24 non-users after viewing promotional material.



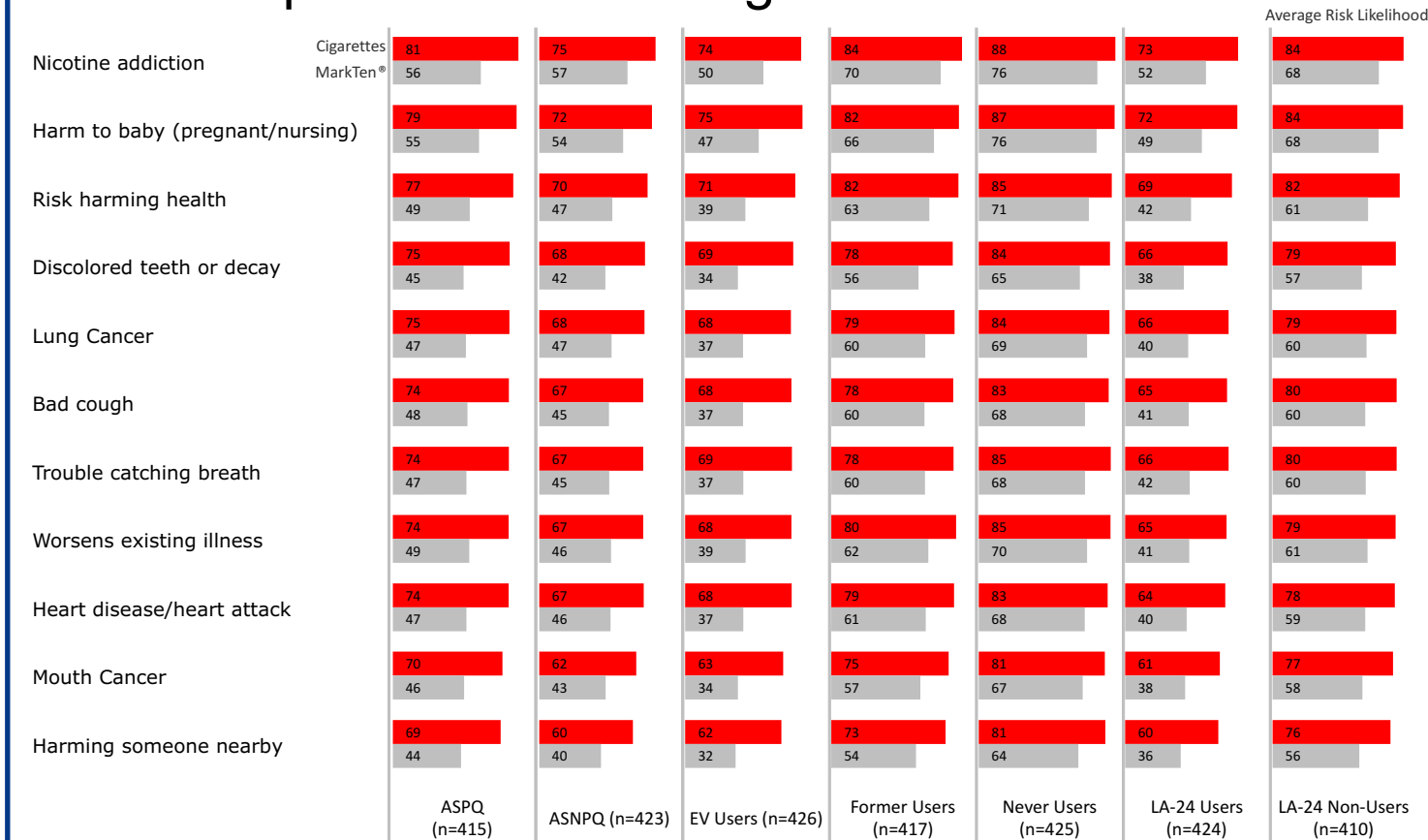
*Statistically significant at p < 0.05, McNemar's Exact Significance (2-tailed), comparing Pre vs. Post

Relative Risk: Significant increase in proportion of participants perceiving MarkTen® equally risky as quitting in all subgroups but EV users and ASQP after viewing promotional material.



*Statistically significant at p < 0.05, McNemar's Exact Significance (2-tailed), comparing Pre vs. Post

Absolute Risk: MarkTen® is perceived as significantly less risky than smoking cigarettes across all disease conditions and health outcomes, but still perceived as having risk.



Under Full Exposure condition, there is statistically significant difference in absolute risk perceptions between cigarettes and MarkTen® XL across all general and specific diseases and all subgroups (p < 0.05).

Discussion

- Despite the ability to differentiate relative risk of MarkTen® when compared to conventional tobacco products, NRT, and cessation, nearly 40% of adult smokers indicated that MarkTen® e-vapor products are equally or more risky than cigarettes after viewing promotional materials.
- Our results support a growing body of evidence that adult smokers who do not currently use e-vapor products are more likely than current e-vapor users to believe an e-vapor product (MarkTen®) is more risky than cigarettes.
- Since risk perceptions play a role in future tobacco product use choices, it is critical that adult smokers have access to truthful and accurate information about relative risk to make an informed choice.

Limitations

- Cross-sectional surveys do not allow observation of risk perception changes over time.
- This study assessed outcome measures after a single-exposure to promotional materials. It is unclear how repeated exposures or other external factors under “real world” conditions might influence risk perceptions.

Conclusion

E-vapor products have the potential to play an important role in tobacco harm reduction particularly if smokers have accurate information about the relative risk of different tobacco products. Currently, not all smokers have the accurate relative risk information that may be needed to transition to less risky products.

References & Notes

- Draft guidance for ENDS PMTA, page 36, lines 1424-1425.
- Romer D & Jamieson P. (2001) Do adolescents appreciate the risks of smoking? Evidence from a national survey. Journal of Adolescent Health, 29, 12-21.
- Song A et al. (2009) Perceptions of smoking-related risks and benefits as predictors of adolescent smoking initiation. American Journal of Public Health, 99, 487-492.
- Majeed BA et al. (2017). Changing perceptions of harm of e-cigarettes among US adults, 2012-2015. American Journal of Preventative Medicine, 52, 331-338.
- USDHHS, Wave 1, 2013-2014.

This poster may be accessed at www.altria.com/ALCS-Science