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Factors Associated With Intent to Quit Smoking Among U.S. Adult Smokers

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This is to certify that the doctoral study by

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MS, California University of Pennsylvania, 2012

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Doctoral Study Submitted in Partial Fulfillment

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Doctor of Philosophy

Public Health

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Abstract

Smoking and tobacco use continue to be a public health issue for over 40 million Americans, which explains the appropriateness and abundance of smoking cessation programs throughout the United States. The purpose of this quantitative correlational study was to examine the associations between independent variables of marital status, advice from a medical clinician, and use of community smoking cessation resources and the dependent variable of intent to quit smoking, controlling for race, ethnicity, gender, and age. The theory of reasoned action was used to guide the study. Data from the National Adult Tobacco Survey (N = 12,357) were analyzed using binary and multiple logistic regression. Results indicated positive but weak associations between marital status ($\beta = -0.005$, $p = 0.018$); advice from a medical clinician ($\beta = 0.149$, $p < 0.001$); and use of community smoking cessation resources such as advertisements ($\beta = -0.041$, $p < 0.001$), group counseling or medical services ($\beta = -0.042$, $p < 0.001$), and awareness of telephonic quit lines ($\beta = -0.042$, $p < 0.001$). Results may encourage public health professionals, community health workers, and medical professionals to stay current with smoking cessation information, which may enhance public health practice in the area of smoking cessation.

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Dedication

I first want to dedicate this dissertation to my almighty God, the source of my strength. I rest heavily on the foundational scripture: “The Lord is my strength and my defense; he has become my salvation. He is my God, and I will praise him, my father’s God, and I will exalt him” (Exodus 15:2, New International Version).

I also want to dedicate this dissertation to my parents, Calvin and Norma; grandma, Helene; and Aunt Jackie who have all gone on to be with the Lord, yet all of them believed in me before I could ever believe in myself. Especially my mother, Norma, whose phrase, “You go, Pat,” will forever be written on my heart with any and every accomplishment.

I also dedicate this to my sister-cousin, Natasha, who holds me accountable for everything I do; my precious younger brothers, Spencer and Emmanuel, who are the best presents my mother ever gave me; my supportive second moms, Patricia and Marcia; my Kentucky State University family across departments; my Eastern Kentucky University Campus Recreation and Student Affairs family; and my church family, First Baptist Church Bracktown, along with a host of friends and family in the Washington, DC metropolitan area and in North Carolina and Kentucky, for God has truly blessed me with the gift of your presence. I have felt your prayers every step of the way. In highest gratitude, thank you.

Acknowledgments

First, I want to express my sincere gratitude to my chair, Dr. Richard Jimenez, who may have sensed my anxiety a mile away but has eased it every time. Thank you for your guidance with help toward my research, providing best practices, and providing a laugh every time we discussed the perils of higher education. Thank you. I also want to thank the Walden University Writing Center, whose leaders provided me with a job for a short period, not knowing how much it significantly improved how I provide scholarly content.

I also want to thank Dr. Manoj Sharma and Dr. Reggie Taylor, who guided this study's methodology. I also want to thank every faculty member I connected with at each of the Walden University residencies before the pandemic changed the approach to residences. Every faculty member there believed in me when I was a lost sheep in a vast field of research. I now have a newfound joy with research, thanks to your guidance.

I am grateful for my experience and time at Walden University and hope to continue contributing as a social change agent within my community.

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Section 1: Foundation of the Study and Literature Review

Smoking and tobacco use continue to be a public health issue for over 40 million Americans, which explains the appropriateness and abundance of smoking cessation programs throughout the United States individually as an added benefit among many primary health care organizations as preventative medicine, resulting from the Affordable Healthcare Act of 2010 (Baker et al., 2017). In the average smoking cessation program, behaviors, habits, and attitudes toward smoking are understood, and programs are created to encourage the smoker to consider a healthier alternative to smoking that counteract the undesirable behaviors, habits, and attitudes that encourage individuals to smoke. Most programs can lead an individual to quit smoking; however, researchers should consider the methods that lead an individual to consider stopping smoking.

Determining intent relies on a different set of behavioral cues in smoking cessation. *Intent* means purpose or making a plan to do something (Merriam-Webster, n.d.). The purpose of measuring a person's intent is to measure whether they are willing to participate in the activity, especially if it leads to improved health quality. Measuring a participant's intent to quit smoking is critical in the behavior change process that will lead to an improved quality of life (QoL) for the individual seeking to quit smoking (Aryanpur et al. ,2016). Presenting the opportunity to study a person's intent to quit smoking provides an opportunity to discover what factors, both positive and negative, play a role in deciding to stop smoking and improve their QoL. Additionally, there is a chance for public health professionals to find methods that aid a smoking cessation participant's attempt to quit smoking. Understanding the predictors of intent to quit

smoking may serve as one of those aids. The understanding of an intent to quit smoking is critical to the individual's health and pivotal in how public health organizations design community-based smoking cessation programs that improve the participants' chances of quitting and staying that way for the long term.

Although improving health outcomes and QoL was the anticipated impact of the current study, this study was needed to provide public health programming support on the importance of interpersonal relationships and understanding the dynamics of support a smoker has while making an attempt to quit. Future smoking cessation programs designed to support and promote interpersonal relationships offer positive social change implications. Improving and creating programs based on interpersonal relationships is critical in public health programming. The study's benefit toward a smoking cessation program would mean incorporating opportunities for interpersonal engagement between the smoking cessation's program participant and the public health or community health worker (CHW). Such an addition could offer CHWs professional training toward helping the smoking cessation program participant build supportive interpersonal relationships, particularly if the participants have no relational support. Additionally, a trained CHW could also provide tools that may help to improve current interpersonal relationships a program participant may have with their spouse or their clinical provider, or improve use of community smoking cessation resources.

Public health and health education organizations that offer smoking cessation programs would benefit from the professional development to help the participant make better choices for their health and to have a successful quit attempt stemming from an

intent to quit smoking. Such an approach would be similar to a health coach. In the current study, the importance of interpersonal relationships while a person has the intent to quit smoking was addressed by analyzing the role of a spouse, clinical medical provider, and use of resources found in community smoking cessation programs to determine a correlation with intent to quit smoking. Section 1 presents the research questions and hypotheses addressing whether spousal support (marital status), advice from a medical clinician, and community smoking cessation resources are associated with a person's intent to quit smoking. I also review relevant literature and explain the theoretical framework used to examine factors associated with a person's intent to quit smoking.

Problem Statement

Researchers around the world and in the United States sought to understand the intent to quit smoking using different variables such as seeking health information or diagnosed with a medical condition. Frith and Loprinzi (2018) studied the intent to quit smoking by measuring the adoption of an exercise routine. The results showed that younger smokers age 18–24 were indirectly impacted by having the intent to quit smoking when they adopted an exercise routine. Additional research was needed to clarify the relationship between adopting an exercise program and the intent to quit.

Aryanpur et al. (2016) studied patients residing in Tehran, Iran diagnosed with pulmonary tuberculosis by measuring the association of the diagnosis and additional factors such as occupation, motivation to quit, and smoking initiation age with an intent to quit. Characteristics of the participants (N = 1,127) provided insight about the smokers

of the study population. Most of the smokers were male (55.4%) and reported a smoking initiation age of 20 (20.15 ± 7.66; $p = 0.029$). Additionally, Aryanpur et al. reported a high correlation between marital status and intent to quit smoking using multiple regression analysis ($p = 0.001$; $OR = 4.2$; 95% CI: 2.29–7.72).

Upadhyay et al. (2019) analyzed those who sought health information for their intent to quit smoking while using the control variables of marital status, level of education, race, and employment status. Results showed that those seeking health information were 2.67 times more likely to have an intent to quit smoking; however, the study addressed health-seeking information only as an internet search and did not include seeking community resources such as a local health department or information from an employer's insurance benefits.

These studies provided some information regarding predictors of intent to quit smoking, notably marital status, advice from a medical clinician, and use of community smoking cessation resources. However, there were limited studies in the United States that described how marital status, advice from a medical clinician, and community resources for smoking cessation play a role in determining intent to quit smoking for U.S. adult smokers between the ages of 18 and 60. Additional research was needed in the public health discipline to understand the importance of close relationships and use of smoking cessation resources as deciding factors for an individual's health promotion and understanding the prevalence and occurrence of diseases and illnesses. The purpose of the current study was to examine the association between marital status, advice from a medical clinician, and use of community smoking cessation resources and intent to quit

smoking. Public health professionals may benefit from this study's results by providing professional training targeting supportive, interpersonal relationships and creating content to reach communities in need to shape people's attitude about the importance of smoking cessation to improve QoL.

Purpose of the Study

The purpose of this quantitative correlational study was to examine the relationship between the independent variables of marital status, advice from a medical clinician, and use of community smoking cessation resources and the dependent variable of intent to quit smoking. I examined correlations between the predictor and outcome variables by conducting a combination of descriptive analyses and binary and logistical regression using data obtained from the National Adult Tobacco Survey (NATS) from the Centers for Disease Control and Prevention (CDC) website. Additionally, I considered the confounding variables of race, ethnicity, gender, and age.

Research Questions and Hypotheses

There were three predictor variables in this quantitative correlational study: marital status, advice from a medical clinician, and use of community smoking cessation resources. *Marital status* was defined as a legal partnership between two individuals who identify each other as spouses. *Advice from a medical clinician* was defined as receiving information or direction from a clinical representative who received clinical training from an accredited institution in the profession as a medical doctor, nurse practitioner, registered nurse, or other qualifying clinical practitioner. Community smoking cessation resources were identified as tools found in locations with public access within a town or

city offering services that will aid in a person's attempt to quit smoking. Community smoking cessation resources included but were not limited to (a) smoking cessation telephonic quit lines, (b) mass media in the form of text messaging programs, (c) outreach programs throughout the community, or (c) pharmacological interventions. The outcome variable of intent to quit smoking was defined as having expressed interest or considering smoking cessation. Additionally, there were four confounding variables considered when assessing the correlation between the predictor and outcome variables: race, ethnicity, gender, and age. The following research questions (RQs) and hypotheses were used to guide the study:

RQ1: What is the association between marital status and intent to quit smoking among the United States adult population age 18 and 60, controlling the effects of race, ethnicity, gender, and age?

H_o1: There is no association between marital status and intent to quit smoking among the United States adult population age 18 and 60, controlling the effects of race, ethnicity, gender, and age.

H_a1: There is an association between marital status and intent to quit smoking among the United States adult population age 18 and 60, controlling the effects of race, ethnicity, gender, and age.

RQ2: What is the association between advice from a medical clinician and intent to quit smoking among the United States adult population age 18 and 60, controlling the effects of race, ethnicity, gender, and age?

H_o2: There is no association between advice from a medical clinician and intent to quit smoking among the United States adult population age 18 and 60, controlling the effects of race, ethnicity, gender, and age.

H_a2: There is an association between advice from a medical clinician and intent to quit smoking among the United States adult population age 18 and 60, controlling the effects of race, ethnicity, gender, and age.

RQ3: What is the association between use of community smoking cessation resources and intent to quit smoking among the United States adult population age 18 and 60, controlling the effects of race, ethnicity, gender and age?

H_o3: There is no association between use of community smoking cessation resources and intent to quit smoking among the United States adult population age 18 and 60, controlling the effects of race, ethnicity, gender, and age.

H_a3: There is an association between use of community smoking cessation resources and intent to quit smoking among the United States adult population age 18 and 60, controlling the effects of race, ethnicity, gender, and age.

RQ4: What is the association between marital status, advice from a medical clinician, and use of community smoking cessation resources, and intent to quit smoking among the United States adult population age 18 and 60, while controlling the effects of race, ethnicity, gender, and age?

H_o4: There is no association between marital status, advice from a medical clinician, and use of a community smoking cessation resources, and intent to quit

smoking among the United States adult population age 18 and 60, while controlling the effects of race, ethnicity, gender, and age.

H_a4: There is an association between marital status, advice from a medical clinician, and use of a community smoking cessation resources, and intent to quit smoking among the United States adult population age 18 and 60, while controlling the effects of race, ethnicity, gender, and age.

RQ5: To what extent does marital status, advice from a medical clinician, and community smoking cessation resources predict intent to quit smoking among United States adults age 18 and 60, while controlling the effects of race, ethnicity, gender, and age?

H_o5: Marital status, advice from a medical clinician, and community smoking cessation resources do not predict the intent to quit smoking among the United States adult population age 18 and 60, while controlling the effects of race, ethnicity, gender, and age.

H_a5: Marital status, advice from a medical clinician, and community smoking cessation resources predict the intent to quit smoking among the United States adult population age 18 and 60, while controlling the effects of race, ethnicity, gender, and age.

RQ6: What is the association between race, ethnicity, gender, and age and the intent to quit smoking among the United States adult population age 18 and 60?

Theoretical Foundation

Fisbein and Ajzen (date, as cited in Hahn & Popan, 2020) developed the theory of reasoned action (TRA) in the early 1980s as a social psychological model intended to understand how participants or patients are persuaded into doing an activity. Such understanding of the activity in question can be divided into two categories that include attitudes and subjective norms. Additionally, TRA helps to facilitate an understanding of harmful behaviors such as smoking or tobacco use. Using TRA for the current study helped me to understand a smoker's intent to quit smoking by understanding their attitudes, beliefs, and behavioral responses to subjective norms. I used TRA to help me understand and interpret the study findings by analyzing the correlation between the predictor and outcome variables. Understanding subjective norms is a critical aspect of TRA in the professional's role because it explains a participant's willingness or unwillingness to engage in a specific action or behavior (Dippel et al., 2017). Data from research in TRA's application provide an opportunity for the professional to understand the significance of such behaviors, design effective programming for the community, and practical training for public health or health education administrators (Dippel et al., 2017).

TRA's helped me understand the correlation between the predictor variables of marital status, advice from a medical clinician, and community smoking cessation resources, and the outcome variable of intention to quit smoking. Martinasek et al. (2017) conducted a similar study using TRA as a guide to examine the association between the personal behaviors and attitudes that predict a behavioral response or an intent to

participate in activities that endanger a person's health. Martinasek et al. analyzed a group of college students' intent to participate in waterpipe tobacco smoking (hookah) by analyzing the pathway (or associations) from the students' perspective to conduct the behavior, which included their attitudes toward waterpipe smoking as a subjective norm. Similarly, I used TRA to understand the level of influence of marital status, advice from a medical clinician, and community smoking cessation resources regarding how meaningful relationships impact attitudes toward the behavior and the subjective norms developed within interpersonal relationships. TRA was an ideal tool for understanding how meaningful relationships set subjective norms resulting in certain activities. The study provided an opportunity to fill the literature gap regarding the limited understanding of the impact of interpersonal relationships on a smoker's intentions to quit smoking.

Nature of the Study

The purpose of this quantitative correlational study was to examine the data for possible associations between three independent variables (marital status, advice from a medical clinician, and use of community smoking cessation resources) and one dependent variable (intent to quit smoking) while considering the control variables of race, ethnicity, gender and age. To determine an association between the three independent variables and the dependent variable, I conducted a bivariate and multivariate regression analysis using secondary data collected from the NATS for the years 2009–2010, pulled from the CDC office on smoking and health. The purpose of the NATS is to evaluate state and national

level tobacco control programs and to obtain an overview of tobacco use, including how and whether tobacco cessation is effectively promoted (CDC, 2018).

Literature Search Strategy

I reviewed peer-reviewed articles published in the years 2016–2021 located in the Walden University Library in EBSCO's primary database. In addition to the Walden University Library, I conducted research through SAGE Journals, *Journal of Health Communication*, and PubMed. Additionally, I used Google Scholar to obtain open access to peer-reviewed articles for 2016–2021. I created variations of search terms to facilitate an exhaustive search. The following search terms helped me to locate articles relevant to the study: *intent*, *intent to quit smoking*, *marital status intent to quit smoking*, *medical advice intent to quit smoking*, *community resources intent to quit smoking*, *race*, *ethnicity*, *gender*, *age intent to quit smoking*, and *theory of reasoned action intent to quit smoking*.

Literature Review Related to Key Variables and Constructs

Marital Status

Marital status plays a role in developing attitudes and behaviors that lead a person to develop habits that may impact their health. Marital status also plays a role in a person's success or failure to quit smoking. Oshio (2018) conducted a multivariable logistic regression and found that as marital status changes, so does a person's attempt to quit smoking (0.52; 95% CI: 0.29–0.92). This type of a study supports why social support plays a role in smoking cessation (Hai-De et al., 2018; Saravanan et al., 2019).

Oshio (2018) used a multivariable logistic regression model and binary variables. Marital status, employment status, and health behaviors were the predictor variables, and

smoking cessation was the outcome variable. The control variables were age and self-rated health status. Self-rated health status was measured as *very poor*, *poor*, *somewhat poor*, *somewhat good*, *good*, and *very good*. Results from the study sample (N = 33,422) indicated that male smokers who were divorced or widowed had a lower probability of smoking cessation (20.2%) compared to married male smokers (33.7%). Oshio highlighted that changes in marital status and job status play a role in a person's health behaviors. Additionally, Oshio highlighted notable changes among male smokers, but similar activities were not observed with female smokers. This change in activity may be due to sociocultural backgrounds; women who smoke are not a socially acceptable.

Upadhyay et al. (2019) used marital status as a control variable for determining individuals' adapting health-information seeking behaviors. Individuals have multiple reasons to seek information about their health via the internet; however, when a person decides to seek health information, there is an assumption that they are ready to take action regarding their health (Myrick & Willoughby, 2019). Examining the readiness of taking action by seeking health information, Upadhyay et al. used data from the United States National Cancer Institutes of Health Information National Trends Survey to conduct a logistic regression analysis between the predictor variable of health-information seeking and the outcome variable of intent to quit smoking in control of the specific variable of marital status. Marital status was broken down into three categories: (a) married and living together; (b) divorced, separated or widowed; (c) and single. Results of the sample study (N = 494) showed 63% of the sample demonstrated the intent to quit smoking. Marital status in the study was split evenly between married and living

together (40.82%), divorced, widowed, or separated (40.41%), with a small sample of the participants being single (18.76%). One strength of the study was Upadhyay et al.'s use of the health belief model to design mediator variables or variables used to explain a relationship between the independent and dependent variables. At the study's conclusion, Upadhyay et al. hypothesized constructs from health belief model would be the motivating factor for a person's intent to quit smoking; however, health-information seeking behaviors were the driving force in a person's intent.

Myrick and Willoughby (2019) highlighted the emotional factors toward seeking health information, which would explain the significance of spousal support during a quit attempt. Myrick and Willoughby highlighted the five emotions motivating health-information seeking behaviors: (a) anxiety, (b) hope, (c) anger, (d) sadness, and (e) happiness, all of which were tied to the well-being of an individual close to them. Not acknowledging the individual's emotional well-being is a potential weakness of the study by Upadhyay et al. (2019).

Ngo et al. (2018) reviewed the correlating factors associated with the act of quitting smoking. The purpose was to determine whether spousal support makes a difference in the intent to quit smoking and quitting smoking. Using data pulled from the survey provided at the participants' initiation of the quit line, Ngo et al. used two variables to measure quit attempts: history of smoking cessation and motivation to quit smoking. One noted error in the data analysis was the change in variable information. One of the variables mentioned was motivation to quit, yet the study's data analysis addressed an attempt to quit smoking, and the category was broken down into four

categories: (a) planning to quit in the coming years, (b) quitting confidence, (c) (where did you) receive support, and (d) reasons for smoking relapse. Although the study provided some insight into the factors influencing why a person would quit smoking, the study did not provide enough information describing the difference between motivation and attempt. Additionally, the study provided insight on the importance of spousal support during quit attempts in a rural setting of Vietnam ($N = 88$, 68.2%) compared to an urban setting in Vietnam ($N = 81$, 71.1%).

These studies were relevant to the current study to show the importance of a spouse's role in making healthier choices. In the current study, the healthier choice was smoking cessation. These studies suggest that spousal support may be positively correlated with intent to quit smoking, thereby providing information that interpersonal relationships may offer a positive opportunity to make better choices toward people's health (Nagawa et al., 2020).

Advice From a Medical Clinician

Medical clinicians play a vital role in a smoker's life; their professional training could motivate a person to decide to stop smoking, leading to reduced risks of chronic illnesses and diseases (Lucas et al., 2016). However, through an exhaustive search, studies showed the lack of medical clinicians' advice attributed to the lack of time in training toward understanding pharmacological methods used in smoking cessation or knowledge about community smoking cessation programs; additionally, there is a lack of time to treat a patient's interest in smoking cessation, which is a hurdle in a smoker's intent to quit (Caponnetto et al., 2017; Jradi et al., 2015).

Developing countries also struggle with smoking cessation for similar reasons including lack resources to support the intent to quit smoking or lack of participation in smoking cessation programs. In a cross-sectional study in Tehran, Iran, Aryanpur et al. (2016) analyzed a group of newly diagnosed pulmonary tuberculosis patients who identified themselves as smokers. Aryanpur et al. divided the sample into three groups: (a) tuberculosis treatment only, (b) tuberculosis treatment and a brief counseling session on smoking cessation, and (c) the control group. The study ($N = 210$) showed that the group receiving brief counseling and a tuberculosis intervention were 35 times more likely to become inactive smokers ($p = 0.001$, $OR = 35.26$. 95% CI = 13.77–90.32). The study showed the importance of a medical clinician's involvement in talking to patients about smoking cessation, especially in a recent medical diagnosis. However, to provide smoking cessation advice, a medical clinician must have accurate and current information that supports both intent to quit smoking and the act of quitting smoking (Aryanpur et al., 2016; De Silva et al., 2016; Nilan et al., 2018; Wang et al., 2017).

Keith et al. (2017) analyzed the effectiveness of smoking cessation and the type of training necessary to increase the odds of smoking cessation among smokers in the United States with chronic illness such as hypertension, human immunodeficiency virus infection, anxiety, depression, coronary heart disease, or any other chronic illness defined by the U.S. Department of Health and Human Services. The chronic illnesses were the independent variables measured against effective smoking cessation communication modalities. The study found that most of the sample ($n = 16,719$, 84.9%) reported using cigarettes (26.5%). Cigarette users reported a recent diagnosis of anxiety (42.2%),

depression (37.3%), and substance abuse (58%). Additionally, participants reported a screening provided by their medical clinician based on certain chronic illnesses, the noted ones being diabetes (92.7%; AOR [95% CI] = 1.82 [1.29, 258], $p = 0.01$) and hypertension (90.7%; AOR [95%CI] = 1.51 [1.2, 1.90], $p = 0.01$). Jradi et al. (2015) surveyed Lebanese medical students who lacked the knowledge about how to provide smoking cessation advice based on a medical diagnosis. Salgado et al. (2017) suggested the importance of students setting an example by not smoking; however, Salgado et al. found that from its sample population ($N = 1,659$, response rate 35.1%), 453 (27.3%) of the sample smoked and felt as if they could turn away patients who want to participate in a smoking cessation program.

Training on empathy and smoking cessation modalities including effective communication methods is critical in smoking cessation and intent to quit smoking. Lucas et al. (2016) recommended the importance of medical students knowing the necessary tools that aid in smoking cessation, which could support a patient who intends to quit smoking. Using a qualitative design, the purpose of this study was to analyze the University of Auckland medical students' ability to provide smoking cessation advice by practicing taped coaching sessions. Such a method is useful in providing information to a future patient who shows intent to quit. Like the United States Preventative Services Task Force 5A's of smoking cessation, Lucas et al. asked each student to use New Zealand's ABC approach (ask about smoking status, brief advice, and provide evidence-based cessation support) on tape during a mock interview with a 27-year-old participant. Although Lucas et al. recommended the importance of training on interviewing and

videotaping skills in smoking cessation, Caponnetto et al. (2017) also recommended a systematic approach to training medical professionals that would aid in smoking cessation and would benefit the patient in the long run.

Additionally, it is vital to consider the type of medical advice provided in a smoking cessation attempt. A randomized control trial was conducted by Li et al. (2018) to determine whether medical advice based on the use of risk communication was practical among cancer patients in Hong Kong. Risk communication, developed using the transtheoretical model's foundation, was used to help cancer patients determine and understand the risks associated with smoking during cancer treatment. Smoking may impede cancer treatment progress even if there are advances in science and medicine that consider a patient still involved in unhealthy practices, such as smoking. Li et al. referenced previous studies regarding the importance of a behavioral intervention toward smoking cessation during cancer treatment among neck cancer patients.

Through random selection, Li et al. (2018) sample ($N = 528$) was broken up into two groups: an intervention group, which had the nurse counselors for risk communication ($n = 268$), and the control group ($n = 260$). The two groups were compared using a chi-square test and *t* test for categorical and continuous variables. Logistic regression and multivariable logistic regression were used at the 6-month and 12-month checkpoint to determine participation and abstinence. Keeping in mind the transtheoretical model's foundational construct, the results showed that most of the participants from the control group and intervention group were in the precontemplation phase of smoking (72%, $n = 380$). There were no statistically significant differences

between the control group and the intervention group. Generalizability was a noted strength of the study because the sample consisted of a broad range of patients from all area hospitals in Hong Kong. However, the study's weakness was the lack of inquiry regarding whether the patient used any smoking cessation tools or resources before a medical diagnosis, or whether the participants used preventative care toward healthier habits, a critical aspect in yielding to the advice of a medical clinician.

In conclusion, the studies reviewed showed the importance of a medical clinician's advice; however, medical clinicians must know the type of resources to use to have a practical impact on their patient's decision to quit smoking. The reviewed studies showed that behavioral intervention is an essential tool to consider to encourage smoking cessation; however, such a tool is used when participants have a chronic illness diagnosis. The effectiveness of a medical clinician's advice could be explained through positive or negative associations found in the study's results.

Use of Community Smoking Cessation Resources

Community smoking cessation resources are defined as programs or tools available for individuals residing in a city or town, specifically in low socioeconomic communities, that will aid in smoking cessation (Brooks et al., 2018). Those services can include but are not limited to mass media such as a text message intervention or social support offered via cell phone or social media (Asayut et al., 2020; Hoeppner et al., 2017; Lautner et al. 2018), pharmacological intervention (Asayut et al. 2022; Capponnetto et al. 2017; Khan et al. 2012), exercise or physical activity intervention strategies (Aggarwal & Kumar, 2017; Frith & Loprinzi, 2018), and peer-to-peer intervention strategies (Apata et

al. 2019; Barnett et al. 2018; Lautner et al. 2018; Li et al. 2017; Selby et al. 2018; Thrul & Ramo, 2017; Zulkiply et al. 2020) in the form of advertisements (Davis et al. 2017) or the most common intervention of a smoking cessation quit lines (Nemeth et al. 2017).

However, one limitation is the lack of support or information offered to support an individual's intent to quit smoking. Girvalaki et al. (2020) stated there are barriers within some community smoking cessation programs, such as a lack of program knowledge among the providers and the community about the type of smoking cessation resources available or an inadequate perception of a current smoking cessation program. It is critical to developing community smoking cessation programs that will support a person's intent to quit smoking, which could be supported by developing systematic pathways and engaging cost-effective programs that support the community's needs, especially in cases of supporting subgroups in the community with the greatest need (Apata et al. 2019). There are a number of community smoking cessation resources, but what counts is the effectiveness of reaching into the community by filling the gaps found among community subgroups such as Black males or groups that are gender specific and providing effective programming to support smoking cessation (Apata et al. 2019; Lautner et al. 2018; Li et al. 2017). Such a community smoking cessation strategy can be as simple as providing brief advice for the participants of a community or being accessible as a smartphone application (Droomers et al. 2016; Lertsinudom et al. 2020; Zulkiply et al., 2020).

Wang et al. (2017) analyzed the impact of brief advice leading towards a smoking cessation intervention (n=416), active referrals toward smoking cessation and support

groups during the process (n=402), and a control group (no encouragement or coaching during follow-up) (n=408). The design of information had the intent to determine the importance and the level of engagement of community-based health workers who play a role in supporting a smoker's quit attempt within a community setting. For definition purposes, brief advice groups and active referral groups received coaching from student smoking cessation ambassadors throughout the study by utilizing an AWARD model to provide information about smoking cessation through monthly telephone calls. In the research study, AWARD is: (a) ask about smoking history; (b) warn about the risk using a handout; (c) advise to quit as soon as possible; (d) refer to services that aid in cessation attempts; and (e) do again. Active referrals additionally received clinical guidance within a smoking cessation clinic, which included sessions with a trained counselor. Student volunteers received a half-day training for providing the AWARD model towards smoking cessation.

Results from the study by way of logistic regression for measuring the intervention strategy's effectiveness between the groups showed that the active referral group had the best method in keeping a smoker from returning to smoking compared to the brief advice group (18.9% versus 8.9%, p=0.001) and the control group (18.9% versus 14.0%, p=0.001). The researchers' strength in this study identified the importance of forming a supportive, continuous relationship (through trained counselors and student smoking cessation community ambassadors) during a quit attempt. This could mean a more straightforward approach towards providing similar community support towards one's intent to quit. The study's identified weakness was in the methods used to recruit

the study participants. The researchers selected study participants based on if they smoked near the smoking cessation clinic. Such weaknesses may present selection bias, meaning those selected to participate in the study may not have represented a "true" community.

The previous study's lack of representation of a true community plays a role in supporting one's intention to quit smoking. Droomers et al. (2016) explored an association between intent to quit smoking and educational background among Chinese male smokers in select cities of Shanghai, Nanning, and Mudanjiang. Droomers et al. identified Chinese men for the study due to having higher smoking rates than Chinese women (52.8% versus 2.4%). Recruiting occurred within local workplaces that had a high percentage of male employees. A similar recruiting process occurred for male retirees of select communities in the identified cities. To seek an association between the educational differences that determine one's intent to quit smoking and the measure of attitudes, social norms, and self-efficacy that determine one's intent to quit smoking, the researchers utilized a multivariate logistic regression analysis. Droomers et al. divided education into four categories, : (a) primary school through junior high school; (b) high school through technical school; (c) junior college; and (d) college graduate or higher. The study results show that most of the study participants (N=3,676) are averaged at 40 years old and older and married (73.5%; N=2,695). This was a significant finding towards understanding the impact relationships have on one's intent to quit smoking.

Additionally, the data did not show any groups with educational disparities between months one (p=0.623) and six (p=0.153). Intention to quit smoking among

Chinese males was among participants who achieved higher education levels and had the least negative attitude toward smoking cessation (33.8%, p=0.001). The study results presented information about the importance of providing smoking cessation programs that engage an educated community. Engagement is a critical factor in smoking cessation and in one's intent to quit smoking; however, similar to the previous study's weakness, this does not necessarily represent a "true" community in need.

Community smoking cessation resources must offer the potential to be engaging for the community. Engagement is critical in early adopters or teens in smoking and reaching parts of the community who have the greatest need (Saw et al. 2018). As previously mentioned, most medical students or medical providers had no time to address the community's needs due to the lack of knowledge (Jradi et al. 2015; Salgado et al. 2017). The importance of creating community-based programs or tools, such as a therapeutic exercise (Aggarwal & Kumar, 2017) that may offer relief for an anxious or overwhelmed community member who may be struggling with starting the smoking cessation process. Additionally, communities would benefit from community resources such as a smartphone application that promotes smoking cessation through pharmaceutical tools and guidance. Such resources are affordable (Apata et al., 2019; Lertsinudom et al. 2020; Zulkiply et al. 2020) and offer a systematic method for reaching different community subgroups towards success (Lautner et al. 2018; Li et al. 2017). Such studies find meaning among the importance of a professional's engagement from a smoking cessation program (Asayut et al. 2022; Lautner et al. 2018; Lertsinudom et al. 2020; Zulkiply et al. 2020).

Race, Ethnicity, Gender, and Age

Additional studies must be conducted in order to understand the impact race, ethnicity, gender, and age has on an individual's intent to quit smoking. Researchers may have some trouble in measuring intent in some subcategories, specifically with race and ethnicity (Athamneh et al., 2017); however, understanding intent among certain genders and age groups appears to be easier to calculate when it comes to analyzing smoking patterns that may lead towards one intent to quit smoking. Scheuermann et al. (2019) examined racial/ethnicity differences in intent to quit smoking, past quit attempts, perceived health risk reduction, and tobacco use and history. The researchers distributed a survey to African American, Latino, and White participants. Additionally, perceived health risks for tobacco use was broken up into three categories that included: (a) nondaily smokers, (b) light to moderate smokers, and (c) heavy smokers. Questions about intent included: "What describes your intention to stop smoking?" and "Will you quit in the next 30 days?"

To analyze the racial/ethnic differences, the researchers first conducted an analysis of variance and *t*-tests followed by a chi-squared test to seek a correlation between the subcategories and intention to quit smoking, perceived health risk, and tobacco use and history. Results of the study show men are more likely to have the intent to quit smoking as opposed to women (OR=0.67, 95% CI= 0.48, .93, p=0.016; African American n=794, Latino n=786, Whites n=796). Results among the groups were broken down by nondaily smokers, light daily smokers, and moderate to heavy smokers. While there were no statistically significant differences in race/ethnicity among the light daily

smokers and moderate to heavy smokers, there were differences among the nondaily smokers. African Americans (59.6%) and Latinos (54%) were likely to take action towards reducing risk associated with tobacco use than Whites (45%) (p=0.001). African Americans (15%) were more likely to have a quit attempt and more than likely to have made a quit attempt within the last 30 days (87. 1 days). Latinos were also more than likely to have a higher intent to quit (7.8%, p=0.004) than White (8.5%, p=0.009). Both Latino and White smokers have shorter quit attempts than African American smokers (77.4 days and 58.6 days).

The study variables in Scheuermann et al. (2019) study differed from this study; however, the variables provided by the researchers are highly beneficial towards the understanding race/ethnic barriers present toward the intent to quit smoking. One noted weakness of the study was that to seek a relationship or association between the variables, the research findings would have identified an association between tobacco use, perceived health risk, and intent to quit smoking, by using a statistical test for association. A strength of the study is that it provides future insight towards the importance of finding an appropriate statistical analysis to measure the strength racial/ethnical subgroups towards measuring intent. Additionally, more information must be sought out to understand why more races/ethnicities have a higher prevalence of maintaining the habit of smoking (Davis et al. 2017); for researchers, what should be done to help certain subgroups adopt attitudes and behaviors that lead them towards a successful quit attempt?

Studies Using Similar Methods

A few articles are highlighted as a result of an exhaustive search of both older and recent studies, similar to this study's methodology utilizing secondary data. Ngo et al. (2018) utilized data from a QUITLINE service from a respiratory center in Bach Mai, Vietnam. While the variables were slightly different in the researchers' study, such as smoking history, socioeconomic status, and cigarette use, the researchers also used intent to quit smoking (motivation to quit) as a variable to find associations between the variables. After a Chi-square test and U-tests were conducted to compare the demographic data between groups, a multivariate logistic regression analysis was used to identify the association with intent to quit smoking (motivation to quit smoking) or have the confidence to quit smoking, controlling for the demographic data found in the study. The study's researchers were successful by having the ability to determine if the motivation to quit and quitting confidence variables different among groups who reside in rural locations or urban locations. Additionally, the researchers were able to find, with a quit attempt, spousal support is vital for couples who reside in rural locations (*n*=88, 68.2 %) and urban locations (*n*=81, 71.1%) towards having the motivation to quit.

Droomers et al. (2016) utilized a multivariate logistic regression analysis to find an association between educational attainment levels and intent to quit smoking. Additionally found in intent to quit smoking, using a similar theoretical model of theory of planned behavior (TPB), a theory sometimes paired with TRA, to understand attitudes, subjective norms, and self-efficacy towards intent to quit smoking. The study showed from the sample of completed cases (*n*=3,676) that in the three cities y (i.e., Shanghai,

Nanning, and Mudanjiang) compared in the study, there was no statistical significance with intent to quit smoking. However, when compared against educational attainment levels, those with the highest level of education have an ideal outlook (least negative) on smoking cessation (33.8%, p <0.001) and have the highest subjective norm towards smoking cessation (36.1%; p <0.001). Such a study successfully utilized the theoretical construct of TPB, similar to TRA, to provide a foundation to find an association between education levels and intent to quit smoking by seeking associations between attitudes, subjective norms, and self-efficacy. Such a study provides a guide toward finding an association by seeking a correlation between attitudes, subjective norms, and the influence of interpersonal relationships and education level that lead to an intent to quit smoking.

Definitions

Advice from a medical clinician: Direction provided by a clinically trained representative that will provide guidance for their patient; this can be done by face-to-face, handouts, group sessions, or by teleconferencing (Costello, 2019; Halvaei et al., 2020; Ma et al., 2018).

Community health workers: Trained professionals who provide health-related tools and services for smaller populations of a city; most often time services are provided for underserved populations (Barnett et al., 2018; Jeet et al., 2017; Scott et al., 2018).

Community smoking cessation resources: A method of encouragement and intervention, used within a smaller populations inside of a larger city or town, which

provides educational, pharmacological, physical, and psychological services that encourages the smaller population to no longer use a cigarette (Zulkiply et al., 2020).

Intent to quit: A psychological decision that will lead an individual towards stopping an activity or a behavior (Haque, 2018; Narimani et al., 2019; Rittschof & Fortunato, 2016).

Marital status: A relational status either legally attained by two individuals or a attained by a single individual (Willoughby et al., 2015).

Multiple regression model: A statistical model used to examine a relationship between two or more independent/predictor variables and one dependent/outcome variable (Pallant, 2020).

Social norms: An attitude or environment that is built around groups of people who will make an individual standout or fit in (Farrow et al., 2017).

Theory of planned behavior: A social psychological concept created by Fishbein and Ajzen that explains how attitude and norms shape intention or perception (Conner, 2020).

Theory of reasoned action: A social psychological concept, created by Fishbein and Ajzen that explains how attitudes impact behavior (Otieno et al., 2016).

Assumptions

The assumption was that interpersonal relationships are essential to one having the intent to quit smoking is an assumption within the study that cannot be proven to be true. Such an assumption was necessary to position the reader to understand the potential significance of having interpersonal relationships in the form of spousal support, medical

advice, or within the community, supporting one who intends to quit smoking. Hai-De et al. (2018) highlighted that social support among family and friends offers an opportunity for one to develop an intent to quit smoking. However, additional studies, such as the one I conducted, are necessary to determine the strength of such relationships and intention to quit smoking.

Assumptions are necessary for the context of the study for it allows the reader to understand the importance of interpersonal relationships and the level of influence it has on an individual who smokes. Parashar et al. (2017), using a mixed methods approach, studied 172 male construction workers in Delhi, India, through a face-to-face interview method by using a questionnaire. A Chi-square test determined associations between nicotine dependence to sociodemographic variables. Results show 90.6% of the construction workers from the study reported themselves as smokers (156 out of 172). The study found that intention to quit was higher among those within the age range of 18–45 (68%) and among those who were residing with multiple family members (83%). When the researchers wanted to explore the most common reasons to quit smoking, one of the top reasons to quit was family pressure (19.3%) alongside the dual response of health concerns and family pressure (13.6%). In conclusion, the assumption was that one who intends to quit smoking finds that interpersonal relationships are essential in a supportive manner, but the amount of pressure those interpersonal relationships place on one who intends to quit smoking is central.

Scope and Delimitations

There must be additional information that looks into a smoker's social norms, attitudes, and behavior. Social norms, attitudes, and behaviors will often influence a smoker to continue smoking or seeking out the necessary information leading to smoking cessation. While I did not address such information directly, the information was needed to understand the association between the independent and dependent variables. There must be continued studies to understand those factors, design programs that support an individual looking for information about smoking cessation, the training to provide information about the different modalities of smoking cessation confidently, and understand the significance of spousal support during one's decision to quit smoking.

There were boundaries in the study sample that had to be identified. The targeted population was adults between the ages of 18 and60, an individual who smokes a cigarette and must be identified as a married United States citizen. Those in the excluded populations were those who vape, chew/dip, smoke cigars, or use any other form of tobacco; under 18 or over 60 years of age; non-United States citizens; and identified as unmarried-divorced, widowed, or never married. Another exclusion to this study that was not new to the concept of smoking cessation is the use of the trans-theoretical model (TTM; de Freitas et al., 2020). Most smoking cessation research studies utilize the TTM to understand an individual's motivation to quit smoking. In this study, I presented the theoretical model of TRA to lay the foundation in the analysis of the association between the independent and dependent variables. I aimed to examine intent and not the actual act of quitting smoking. In doing so, to examine intent, I presented to understand social

norms, behaviors, and attitudes, which possibly push an individual to have an intent to quit smoking. Furthermore, I was not be able to establish cause and effect with my analysis but examined the relationships between the variables and test for possible predictor variables for the outcome.

Significance

This study may help advance the knowledge of a CHWs or public health practitioner's understanding of an individual who intends to quit smoking. The problem the study was uncovering is the lack of information found about the association of spousal support, medical advice, and the use of community smoking cessation resources offers for an individual who has the intent to quit smoking. With the study's goal of seeking an association between the variables, the potential contribution of discovering the association will allow CHWs and public health practitioners who manage smoking cessation programs, design programs with a heavy emphasis on analyzing the outside relationships an individual has that supports one's intent to quit. Additionally, CHWs, spouses, and medical clinicians have a pivotal role in the life of an individual who intends to quit smoking, assuming the individual does not have any social support. From seeking an association, the study results provide the necessary information to help create the support an individual may need to support an intent, which includes the understanding of their norms, attitudes, and beliefs about smoking. Support can come in the form of the addition of group therapy services, effective coaching techniques, or even as simple as learning words of encouragement that support an individual who intends to quit smoking.

Summary and Conclusion

In this quantitative correlational study, I aimed to fill the literal gap if the intention to quit smoking correlates with one's marital status, use of medical advice from a medical clinician, and use of community smoking cessation resources, among the United States adult population, between the ages of 18 and60. The use of TRA will guide the exploration of the associations between the variables, considering the behaviors, attitudes, and social norms that predict one's intent to quit smoking. In order to determine a statistical correlation, I used secondary data from the NATS between the years of 2009–2010 to conduct bivariate and multivariate regression analyses.

There is an abundance of public health based smoking cessation programs that use a program design to encourage individuals to stay in a smoking cessation program. Such formats are but are not limited to; pharmacological intervention, group counseling sessions, mass media methods such as a text message program, and the most common, a community-based smoking cessation telephonic quitline. However, intent to quit smoking needs additional information within the discipline of public health to understand what predicts an individual's intent to quit smoking, which may lead to the decision to move forward in a smoking cessation attempt. Additionally, what is not known is that when an individual is intentional about something, they have a plan in place that will lead to the eventual act of doing something.

In the present study, I attempted to address the gap in the correlation between the independent variables of marital status, advice from a medical clinician, and use of community smoking cessation resources, with the dependent variable of intent to quit

smoking. Knowledge of the correlation offers an expansion in public health expertise by showing practitioners the importance interpersonal relationships or social support has on one intending to quit smoking. Public health practitioners will have an increased understanding of how attitudes, norms, and behaviors are shaped from those connections, and how public health practitioners should consider mimicking those roles to encourage smoking cessation through means of coaching or teaching strategies that offer social support, similarly found in interpersonal relationships. In order to provide coaching and teaching strategies that will effectively help those who intend to quit smoking, the study must include a detailed statistical analysis that analyzes the correlation between the variables of this study. Section 2 of this study will continue by providing detailed information about each of the study's variables and the methodological process to fill this study's literary gap.

Section 2: Research Design and Data Collection

The purpose of this study was to examine the association between the independent variables of marital status, advice from a medical clinician, and community smoking cessation resources and the dependent variable of intent to quit smoking, controlling for race, ethnicity, gender, and age among the sample population. Descriptive analysis included the data collected from U.S. adult citizens between the ages of 18 and 60 residing in all 50 states including the District of Columbia. Inferential analysis addressed secondary data collected from the 2009–2010 NATS, and I used variables selected for the current study to determine whether the variables had an association through bivariate and multivariate analyses. Section 2 includes a description of the methodological approaches in a step-by-step format, including a description of the population, sampling procedures, recruitment and participation, instrumentation and operationalization, and data analysis plan. A description of the threats to validity and ethical procedures conclude this section.

Research Design and Rationale

The 2009–2010 NATS involved the use of a randomized survey approach to obtain a general description of the U.S. population's attitudes and behaviors toward smoking. Further analysis of the participants' behaviors and attitudes could have been time-consuming due to the original sample's size (N = 118,581). Therefore, a quantitative correlational design offered the best fit for the current study. The CDC used a phone survey to collect data, so a quantitative correlational design presented an opportunity to examine relationships among the variables through bivariate and multivariate analyses (see Creswell & Creswell, 2018; Queirós et al., 2017).

Methodology

Population

For this study, the target population (N = 12,367) included all participants who participated in the 2009–2010 NATS. I determined the final study sample size using a post hoc power analysis once I cleaned and prepared data for analysis. Data for the original study were collected through noninstitutionalized landline phone numbers and cell phone numbers in all 50 states including the District of Columbia. Participants were between the ages of 18 and 60 years, which was verified at the start of the original study. Survey participants reported having had at least one puff of a cigarette in their lifetime, being in very good health, and residing within the United States including the District of Columbia.

Sample Size Procedures

A random sampling procedure provides an opportunity to equally use all data from a sample and is ideal for large sample sizes such as the original and present study (see Queirós et al., 2017). I used a random sampling procedure to obtain information about the sample population for the present study. First, I included all 118,581 cases from the original study. Cases from the original study were all responses from the telephone survey, which included demographic information, educational background, and questions about tobacco use. For the present study, I cleaned and recoded the data. Then I dropped cases with missing data, leaving me with a total sample size of 12,357.

After preparing the data, I conducted a post hoc power analysis using G*Power software 3.1.9.7. I used the formula for power for logistic regression post hoc analysis

Pr(Y=1| X=1) H_0 with X representing the three independent variables (possible predictor variables) and Y representing binary dependent variable (G*Power Manual, 2021). In the use of the formula in the G*Power software, I strove to have an odds ratio to achieve a moderate effect of 3.5 with alpha set at 0.05 and beta set to .8. Minimum sample size did not need to be sought due to the large sample size of the present study (12,357), which presented a high power and increased the probability of the correct rejection of the null hypothesis.

Recruitment, Participation, and Data Collection Procedures

The Office on Smoking and Health (OSH, 2011) through Inner City Fund (ICF) Marco used a method to create telephone numbers known as a hundreds block. The process of generating the hundreds block of noninstitutionalized landline phone numbers included grouping phone numbers with the same area code and the same first two digits of the prefix, then generating the rest of the phone numbers by using the number 00–99. Cell phone numbers involved a similar process but were identified as the thousands block. An additional tool, known as the Telecordia Local Exchange Routing Guide, aided in providing cell phone numbers for the original study. Once the numbers were generated, all numbers were placed into subgroups known as strata. Each stratum was identified in three groups: (a) landline, (b) cell phone, and (c) not listed/nonpublic. Each stratum was prescreened to identify the numbers associated with a business or an institution, and those numbers were excluded from the study. Once the numbers were prescreened, correspondence letters were mailed to the address associated with the numbers. Each correspondence letter included contact information about the organization

and background information about the study and its purpose. The correspondence letter was written in both English and Spanish (OSH, 2011).

During the number screening process, training was provided for the interviewers about the study's parameters of informed consent, question presentation, what to do when callers refused to participate, what to do if the caller was not 18 years of age or older, and what to do when a caller hung up. The interviewer read participants a statement about informed consent before the start of the interview. Interviewers ended the call by providing the participants with an incentive for their time and monetary compensation for participating in the survey. The survey timing was 15–20 minutes per phone call (OSH, 2011).

Present Study

For my study, I extracted 2009–2010 NATS survey data from an archived CDC website of OSH with the original data coded within Statistical Analysis System (SAS), transferred the data to Microsoft Excel, and then uploaded the data to the Statistical Package for the Social Sciences (SPSS). I used R program for data manipulation. The reason for the selection of SPSS was its ease of use in providing descriptive details about variables used in the study, and display of analysis details such as the strength of the relationship among the study variables (see Wagner, 2020). Anonymity and informed consent were confirmed within the original study from both CDC and the publisher of the study, ICF Macro, at the time of publication, November 11, 2011; at the time of the present study, no permission was needed to use the data from the original study. Data for

the present study were pulled from an open-access website archived and managed by CDC.

Data for this study were collected by using all of the survey responses from the original survey. In the data set of the original survey, some responses had large amounts of missing data at 50% or greater. There are a few factors that could explain the missing data in the 2009–2010 NATS data set. Although telephone surveys remain ideal in the efforts to collect data for large sample sizes, sometimes telephone survey participants are not willing to participate, leading to a survey ending early (hanging up) or inaccurately answering multiple survey questions (OSH, 2011).

Additionally, high levels of missing data may result from censoring other survey responses when combined with different survey responses necessary for establishing the operationalization of a variable found in the survey. Due to the level of missing data in the original survey, some responses needed to be excluded from use in the current study of association. Another factor I considered was reviewing questions from the original survey that had low responses like Questions 7 and 9; Question 7 represented those who responded to the survey question as “I do not know/unsure,” while Question 9 represented “Refused.” I noted those responses as low and excluded them due to the low number of responses to those questions from the original survey. For this study, there was no debriefing procedure, exit protocol, or follow-up interview questions. No permission from the developer (ICF Macro) was necessary concerning instrumentation or use of the codebook.

Instrumentation and Operationalization

Initially conducted by CDC, NATS was a survey to describe the U.S. population's behavior and attitudes toward smoking based on age, gender, and race/ethnicity, compared to the cost of tobacco prevention programs. The 130-question survey was conducted between October 20, 2009, and February 28, 2010. During this time frame, questions were developed by tobacco cessation stakeholders who were established through a partnership within CDC's National Tobacco Control Program for the purpose of creating tobacco cessation-related programs that reduce tobacco-related diseases and deaths (OSH, 2011).

To obtain the information by way of a telephone survey, the survey was designed as a stratified sample, which was broken down into three groups or strata: (a)listed landline stratum, (b)not-listed landline stratum, and (c) cell phone lines stratum. Each state was given a number of landline and cell phone numbers to complete; there were 1,863 landlines were, and cell phone numbers were based on a portion of the state's population. Sample efficiency was secured by oversampling by using a sampling ratio of listed to not-listed landlines at 1.5 to 1. Some states were allowed to add more numbers to increase sample size, reduce bias, and increase trustworthiness of the data.

Variables

There were three independent categorical variables used for the current study to determine an association with the dependent variable. The one dependent categorical variable I used in the current was intent to quit smoking. I used (a) marital status, (b) advice from a medical clinician, and (c) use of community smoking cessation resources

as the study's independent variables to test an association with the dependent variable. Race, ethnicity, gender, and age were the study's confounder variables that were used to determine the level of influence between the independent variables and dependent variable.

To obtain a clear determination of an association between the variables, I excluded certain question response numbers to take action toward reducing threats to validity. Question 7 responses "I don't know or unsure" and Question 9 responses "Refused" were excluded from the data set. This helped with the prevention of outliers for the low responses to the two questions. Also, during the cleaning process, some variables appeared to clearly define the independent variables of the current study, however, there appeared to be missing responses at or greater than 50%. Although some variables appeared to be sound in definition, they did not have enough data and were excluded during the data cleaning process.

Dependent Variable

The dependent variable (intent to quit smoking) was best captured by the NATS question "Do you want to quit smoking for good?" Although the original study did not include a direct statement about intent to quit, the survey question from the original study served as an implied statement that a participant expressed an intent to quit. The dependent variable of intent to quit smoking was pulled from NATS 2009–2010 codebook identified as Survey Question 53 (QTWANT) and appeared in the interview as "Do you want to quit smoking for good?" The original information from the NATS 2009–2010 codebook provided four responses to the question: 1 = yes, 2 = no, 7 = don't

know or not sure, and 9 = refused. Responses 7 and 9 were excluded due to the low number of responses. The exclusion of those two responses turned the dependent variable into a dichotomous variable.

Independent Variables

The three independent variables used in this study were marital status, advice from a medical clinician, and community smoking cessation resources. The three independent variables were tested in this study to determine whether they had an association with intent to quit smoking. The first independent variable (marital status) referred to the legal marital status of the participants in the study. The second independent variable (advice from a medical clinician) represented whether the participant had obtained medical advice or guidance from a clinical practitioner. The third independent variable (use of community smoking cessation resources) included but was not limited to mass communication modalities such as text messaging or emails, newspaper or magazine advertisements, televisions ads, or advertisements found at public locations such as bus stops or buildings with public access.

Marital status was represented by Question 96, marital status, coded as MARITAL2, verifying the marital status of 1 = married, 2 = living with a partner, 3 = divorced, 4 = widowed, 5 = separated, and 6 = single, never married, and not living with a partner. Question responses 77 (don't know or not sure), 99 (refused), and 96 (other [specify]) were excluded due to the inadequate responses to the survey question. Advice from a medical clinician was represented by Question 59 worded as "In the past 12 months, did any doctor, dentist, nurse, or other health professional advise you to quit

smoking cigarettes or using any other tobacco products?" This was coded as HCWADVISE2. Similar to the dependent variable, the responses were 1 = yes, 2 = no, 7 = don't know or not sure, and 9 = refused. Question responses 7 and 9 were excluded due to the inadequate number of responses to the original survey question.

The final three questions used to represent the independent variable of use community smoking cessation resources were Question 44 "Are you aware of any telephone quitline services that are available to help you quit using tobacco?" which was coded as QTLINEAWRT; Question 45 "Are you aware of any individual or group counseling services, other than quitlines, that are available to help you quit smoking cigarettes?" which was coded as QTASSTAWR; and Question 47 "Have you ever seen or heard the slogan become an EX in an ad?" which was coded as QTEXADS. Question responses were 1 = yes, 2 = no, 7 = don't know or not sure, and 9 = refused. Responses 7 and 9 were excluded due to the inadequate number of responses to the original survey question. Each of the questions representing the independent variable of community smoking cessation resources was run individually during the analysis process.

Confounder Variables

The race and ethnicity variable was combined to represent both, coded as RACEETHNIC_R. RACEETHINIC_R was broken down into six categories; 1 = White only, non-Hispanic; 2 = Black only, non-Hispanic; 3 = Asian only, non-Hispanic; 4 = other non-Hispanic; 5 = Hispanic; and 9 = unknown. GENDER was coded as IMP_GENDER and was broken down into five categories: 1 = male, 2 = female, 77 = don't know or not sure, 96 = other (specify), and 99 = refused. Question responses 77, 96,

and 99 were excluded due to the inadequate number of responses. Age was coded as IMP_AGE_CAT and was broken down into six categories grouping 18–65 years into groups by 10 years. Table 1 provides a summary of variable definitions and coding.

Table 1

Definitions and Coding of Each Variable

Variable name	Measure	Use	Definition	Response coding
QTWANT	Categorical	Dependent	"Do you want to quit smoking for good?"	#1- Yes; #2-No
MARITAL2	Categorical	Independent variable		#1-Married; #2-Living with a partner; #3-Divorced; #4-Widowed; #5-Separated; #6-single, never married and not living with a partner
HCWADVISE2	Categorical	Independent variable	"In the past 12 months, did any doctor, dentist, nurse or other health professional advise you to quit smoking cigarettes or using any other tobacco products?"	#1- Yes; #2-No
QTLINEAWRT	Categorical	Independent variable	"Are you aware of any telephone quitline services that are available to help you quit using tobacco?"	#1- Yes; #2-No
QTASSTAWR	Categorical	Independent variable	"Are you aware of any individual or group counseling services, other than quitlines, that are available to help you quit smoking cigarettes?"	#1- Yes; #2-No
QTEXADS	Categorical	Independent variable	"Have you ever seen or heard the slogan become and EX in an ad? EX is spelled E-X?"	#1- Yes; #2-No
RACEETHNIC_R	Categorical	Confounder		#1-White only, Non-Hispanic; #2-Black only, Non-Hispanic; #3-Asian only, Non-Hispanic; #4-Other, Non-Hispanic; #5-Hispanic
IMP_GENDER	Categorical	Confounder		#1-Male; #2-Female
IMP_AGE_CAT	Categorical	Confounder		18-24; 25-34; 35-44; 45-54; 55-64; 65+

Data Analysis Plan

For this study's data analyses, I used the most recent version, 27 of SPSS to analyze the data. The preparation of the data was necessary to ensure the trustworthiness of the data aided me in making inferences about intent to quit smoking. Such a process also helps to reduce outliers potentially found during data analyses.

Data Preparation

I found the original data from the CDC website computed in SAS format and imported it into SPSS to analyze the data and meet the requirements set forth by Walden University after the essential review elements of *R* were completed first. First, I downloaded the most recent version of SPSS onto my laptop for use. Next, I downloaded the SAS file from CDC's website by selecting the 2009-2010 dataset for use.

While using R, the imported SAS file was converted into a Microsoft Excel file. Next, I selected the columns to be used and code the columns as appropriate according to the contents of Table 1. I ran a missingness analysis and looked at all of the missingness data using a plot. I determined a threshold for the missingness percentage, in which that percentage was 50% or greater. I then removed any columns above that threshold and tested complete cases against missing cases.

Raw data were previous recoded by CDC to replace missing values found within the survey responses (OSH, 2011). This process is known as imputation. CDC also used a process known as poststratification to limit survey weights to the survey's sample population, ensuring the sample's true representation of the population. Variables such as RACEETHINIC_R, IMP_AGE_CAT, and IMP_GENDER fell into the category of

imputation of poststratification variables, conducted by CDC. No additional imputation or poststratification was conducted on the data for this current study of association. The raw data were converted into CSV(R) and converted into SPSS.

Upon discovering that there were no differences between having complete cases and missing cases, complete cases bring more power; therefore, missing cases were not used. I hard coded any recodes from the codebook. “No” was recoded to “0”, as “yes” was recoded to “1.” I also removed the columns that contained the following responses: (a) #7 or #77 Don’t know or Not Sure, (b) #9 or #99 unknown or refused. Finally, once I checked all tables to ensure the issue of missingness were addressed and ensured all recoded data were correct, I exported the data into a Microsoft Excel file to be exported into SPSS.

Once the data were converted into SPSS, for the current study of association, I conducted data cleaning of the missing data. For survey responses with missingness at 50% or greater, I reviewed each survey response question against the defined use of the independent variables used for this study. If missingness was at 50% or greater among certain survey responses, then specific survey response were not included within the defined use of the independent variable to avoid censoring the other survey responses.

Next, the selected survey questions were pulled from the data for the selected variables of the study: QTWANT, IMP_AGE_CAT, IMP_GENDER, RACEETHNIC_R, MARITAL2, QTEXADS, QTASSTAWR, QTLINEAWRT, and HCWADVISE2. Table 1 detailed each of the coded variables aligned with each of the variable’s definitions for this current study. QTWANT, QTEXADS, QTASSTAWR, QTLINEAWRT, and

HCWADVISE2 were recoded by omitting question responses 7, 9, 77, and 99 turning the variables into a dichotomy. Question responses 7, 9, 77, and 99 represented “don’t know/not sure”, “refused,” and no response, respectively.

Research Questions and Hypotheses

RQ1: What is the association between marital status and intent to quit smoking among the United States adult population age 18 and 60, controlling the effects of race, ethnicity, gender, and age?

H_o1: There is no association between marital status and intent to quit smoking among the United States adult population age 18 and 60, controlling the effects of race, ethnicity, gender, and age?

H_a1: There is an association between marital status and intent to quit smoking among the United States adult population age 18 and 60, controlling the effects of race, ethnicity, gender, and age.

RQ2: What is the association between advice from a medical clinician and intent to quit smoking among the United States adult population age 18 and 60, controlling the effects of race, ethnicity, gender, and age?

H_o2: There is no association between advice from a medical clinician and intent to quit smoking among the United States adult population age 18 and60, controlling the effects of race, ethnicity, gender, and age.

H_a2: There is an association between advice from a medical clinician and intent to quit smoking among the United States adult population age 18 and 60, controlling he effects of race, ethnicity, gender, and age.

RQ3: What is the association between use of community smoking cessation resources and intent to quit smoking among the United States adult population age 18 and60, controlling the effects of race, ethnicity, gender, and age?

H_o3: There is no association between use of community smoking cessation resources and intent to quit smoking among the United States adult population age 18 and 60, controlling the effects of race, ethnicity, gender and age.

H_a3: There is an association between use of community smoking cessation resources and intent to quit smoking among the United States adult population age 18 and 60, controlling the effects of race, ethnicity, gender, and age.

RQ4: What is the association between marital status, advice from a medical clinician, and use of community smoking cessation resources, and intent to quit smoking among the United States adult population age 18 and60, while controlling the effects of race, ethnicity, gender, and age?

H_o4: There is no association between marital status, advice from a medical clinician, and use of community smoking cessation resources, and intent to quit smoking among the United States adult population age 18 and 60, while controlling the effects of race, ethnicity, gender, and age.

H_a4: There is an association between marital status, advice from a medical clinician, and use of community smoking cessation resources, and intent to quit smoking among the United States adult population age 18 and 60, while controlling the effects of race, ethnicity, gender, and age.

RQ5: To what extent do marital status, advice from a medical clinician, and community smoking cessation resources predict intent to quit smoking among United States adults between the ages of 18 and 60, while controlling the effects of race, ethnicity, gender, and age?

H_o5: Marital status, advice from a medical clinician, and community smoking cessation resources do not predict the intent to quit smoking among the United States adult population age 18 and 60, while controlling the effects of race, ethnicity, gender, and age.

H_a5: Marital status, advice from a medical clinician, and community smoking cessation resources predict the intent to quit smoking among the United States adult population age 18 and60, while controlling the effects of race, ethnicity, gender, and age.

RQ6: To what extent does race, ethnicity, gender, and age predict the intent to quit smoking controlling for the United States adult population age 18 and60?

To test the current study's hypotheses, in consideration of categorical variables, I used a chi-squared test of independence to help determine any relationship between the categorical variables from the hypotheses of this study. The results from the Chi-squared test for independence help determine if I should reject or fail to reject the null hypotheses, contingent on the significance of the values resulting from the test (see Pallant, 2016). I utilized two types of analyses in SPSS to determine an association between the categorical variables. To study the associations between each independent variable and dependent variable in consideration of the confounder variables, I utilized cross-

tabulation tables to help analyze the association between the variables, seeking differences among variables. Additionally, cross-tabulation allowed use of categorical variables for this study of association (see Pallant, 2016). The use of logistic regression was not only ideal for categorical variables but was also be used to determine predictability among the variables, all while controlling for the effects of the confounder variables (see Pallant, 2016). It is also important to note the inclusion of confounder variables to determine a cause-effect relationship among the variables when analyzing the data for associations (Creswell & Creswell, 2018). Table 2 displays each research question, the data's source, level of measure, and method of analysis for this current study.

Table 2

Data Analysis Matrix

Research Question	Concept	Data Source	Level Of Measurement	Analysis
1	To Determine If Legal Marital Status Have A Relationship With An Individual's Intent To Quit Smoking.	NATS 2009-2010 Survey, Question #96, #53	Ordinal	Descriptive Statistics; Chi-Squared; Bivariate Logistic Regression
2	To Determine If The Advice Giving By A Medical Provider Has A Relationship With A Participant's Intent To Quit Smoking.	NATS 2009-2010 Survey, Question #59, #53	Ordinal	Descriptive Statistics; Chi-Squared; Bivariate Logistic Regression
3	To Determine If Public And/Or Local Resources Are Connected To A Participant's Intent To Quit Smoking.	NATS 2009-2010 Survey, Question #44, #45,#47, #53	Ordinal	Descriptive Statistics; Chi-Squared; Bivariate Logistic Regression
4	To Determine If A Legal Marital Status, Advice From A Medical Provider, And If Local/Public Resources Are Connected To A Participants Intent To Quit Smoking.	NATS 2009-2010 Survey, Question #96, #59, #44	Ordinal	Descriptive Statistics; Chi-Squared; Bivariate Logistic Regression
5	To What Degree Does Marital Status, Advice From A Medical Provider, And Use Local/Public Smoking Cessation Resources	NATS 2009-2010 Survey, Questions #44, #45, #47, #53	Ordinal	Descriptive Statistics; Chi-Squared; Bivariate Logistic Regression
6	To Determine The Connection Between Race, Ethnicity, Gender, Age, And Intent To	NATS 2009-2010 Survey, Question #53	Race/Ethnicity-Nominal Gender-Nominal Age-Ratio	Descriptive Statistics; Chi-Squared; Multivariate Logistic Regression

Descriptive Statistics

The purpose of providing descriptive statistics for this study was to report critical characteristics of the sample population. The variables responsible for providing demographic data about the sample population from the study are IMP_AGE_CAT,

IMP_GENDER, RACEETHNIC_R, and MARITAL2. Table 4 provides a display of the description of each variable selected for this study. I used chi-squared for independence for bivariate analysis to determine a relationship among the three independent categorical variables and the dependent categorical variable identified for this study (see Pallant, 2016). I demonstrated the relationship of the variables in SPSS using chi-squared for independence by using cross-tabulation tables and a plot for each the independent variables and the four confounder variables of this study.

Inferential Statistics

Assumption Testing

A multicollinearity test was conducted to determine if there was a relationship among the independent variables. The variance inflation factor, or VIF, served as a guide to determine if there was a relationship among the independent variables of this study and of there was a violation of the multicollinearity assumption (see Pallant, 2016).

Multivariate Analysis

The second analysis was through the use of a multiple logistic regression. Such an analysis is necessary to determine, which of the independent variables is most likely to have the most predictor influence on the dependent variable. Prior to running the multiple logistic regression, I also ran a univariate analysis to obtain a description of the variables, an additional step in the descriptive statistics process. Three assumptions were made about this model. The dependent variable should be measured on a dichotomous scale was the first assumption. A dichotomous scale is two responses presented as “yes” and “no.” The second assumption was there were one or more independent variables that can

either be continuous or categorical. The third assumption was that observations should be independent, and the dependent variables needed to have mutually exclusive and exhaustive categories.

I also included crosstabulation calculated from the chi-squared for independence. First, I ran a univariate analysis to describe each of the variables of the current study. The results of the univariate analysis were displayed on a frequency chart. For the logistic regression, I recoded all variables to accommodate the function to run a regression, then binary logistic, in SPSS (see Pallant, 2016). I recoded the dependent variables as (a) yes-1 and (b) no-2. I proceeded to recode the independent variables as (a) QUITASST: yes-1 and no-0; (b) QUITLINE: yes-1 and no-0; (c) EXAD: yes-1 and no-0; and (d) ADVISE: yes1 and no-0. MARTITAL2 was recoded as: (a) married-0; (b) living with partner-1; (c) divorced-2; (d) widowed-3; (e) separated-4; and (f) single, not living with an individual, never married-5.

In continuation of recoding the variables, I recoded the confounder variables as: (a) White, non-Hispanic-0; (b) Black, non-Hispanic-1; (c) Asian, non-Hispanic-2; (d) other, non-Hispanic-3; and (e) Hispanic-4, all as race/ethnicity. For age, I recoded them as: (a) 18–24 as 0; (b) 25–34 as 1; (c) 35–44 as 2; (d) 45–54 as 3; (e) 55–64 as 4; and (f) 65 and older as 5. For gender, I recoded: (a) female as 0 and (b) male as 1.

Once I selected the variables to add into SPSS to run a regression, I reviewed each of the six research questions to enter into the regression function by selecting the categorical dependent variable with one of the independent variables from the research question, including the confounder variables. The function was completed as follows:

- RQ1: MARITAL2, QTWANT, RACEETHNIC_R, IMP_GENDER, IMP_AGE_CAT.
- RQ2: HCWADVISE2, QTWANT, RACEETHNIC_R, IMP_GENDER, IMP_AGE_CAT.
- RQ3: QTASSTAWR, QTLINEAWRT, QTEXAD, QTWANT, RACEETHNIC_R, IMP_GENDER, IMP_AGE_CAT.
- RQ4 AND RQ5: MARITAL2, HCWADVISE2, QTASSTAWR, QTWANT, RACEETHNIC_R, IMP_GENDER, IMP_AGE_CAT
- RQ6: QTWANT, RACEETHNIC_R, IMP_GENDER, IMP_AGE_CAT

Threats to Validity

To ensure reliability, it was essential to highlight threats to validity that may impact the study's results. Ensuring reliability also ensures the ability for future researchers to duplicate the study if need be. Therefore, an important part of ensuring the reliability of the variables that used for this current study, was to work to either minimize or eliminate such threats. Threats to internal validity jeopardize a researcher's ability to make an inference about the data provided from the study (see Creswell & Creswell, 2018). In this study, instrumentation, and testing presented a threat to internal validity. During the original study, within the months of the original study's timeframe (2009–2010), telephone book directories were utilized to determine phone number eligibility for use towards the telephone survey-meaning if a generated phone number was a public listing, non-listed, part of a business or institutionalized number. In this study, there was no concern for a threat to internal validity because the use of telephone book directories

has almost become an obsolete tool. Testing was another threat to internal validity. For instance, participants from the original study may have become aware of each of the survey questions, which generated a no-response or possible repeated responses to multiple survey questions, thus eliminating some responses due to missingness. Like instrumentation, testing threatens trustworthiness, potentially creating an issue with reliability with the data obtained from the previous study to make inferences within the current study.

Another type of threat to the study was external validity. A threat to external validity may result in the researcher making an incorrect inference about their study's sample (Creswell & Creswell, 2018). In this study, the specificity of variables presented a threat to external validity. During the cleaning process of responses from the survey of the original study, response variables were presented as a chance to define the predictor variables for this current study. However, those numbers were reduced due to the high levels of missingness. This particular threat to external validity was connected to the threat of internal validity of testing, contributing to the amount of missing information or the number of responses to question numbers 7 or 9.

A third threat is construct validity. Construct validity is considered when researchers want to ensure what is being measured is doing what it is set out to do. In this study, it was essential to ensure that intent to quit smoking is being measured (see Creswell & Creswell, 2018). For the study conducted by CDC, the purpose of the survey was to obtain a description of the United States population and general feelings about smoking. While a general description of the United States population was achieved, one

potential threat to the study was the level of missing information, a similar threat to external validity. To avoid construct validity, variables within the study were to be clearly defined and aligned with the study's research questions.

Ethical Procedures

The archived data from the original NATS 2009-2010 study is available by an open access website from the CDC's divisional Office of Smoking and Health. I needed no permission to access the data for this study. Research approval for the original study was obtained internally within CDC under its own review board to protect human subjects. I did not have access to the original study's telephone numbers, participant addresses, and no other access to the demographic and background information (i.e., state, race/ethnicity, or marital status) other than the responses provided from the previous study. In the original and this study, medical information was not be provided.

Anonymity and informed consent were secured for the original study. On a recorded line, trained interviewers were provided an informed consent script at the start of each interview that must be read before any questions were asked. In consideration of analyzing data among adults, one of the questions asked in scripts was if the person answering the phone was 18 years of age or older. If yes, the interviewer continued with the survey by asking questions that omitted names, addresses, or other identifiable personal information. If the person was not 18 years or older, the interviewer was trained to ask for someone who resided in the household who was 18 years of age or older.

Informed consent was not be needed for the current study of association, as the data collected did not any identifiable personal information because it is considered

secondary data. Access to data from the current study was stored and saved on a personal computer. Data from the original study are managed through both CDC and ICF Marco. I submitted an application for permission to analyze the data to the Walden University's Institutional Review Board (IRB). I did not access or analyze the data without written approval by Walden University's IRB.

Summary

In summary, the focus of Section 2 was to highlight the methodological approach and research design for my current study of association using CDC 2009–2010 NATS secondary dataset. Additionally, Section 2 outlined information about the study's sample size and its information for determining if the sample size was ideal for consideration in determining association, including demographic details about the sample population. Section 2 included information about statistical design, data collection and preparation, and information about the eight variables, independent, dependent, and confounder variables that I used in this current study. In conclusion, Section 2 also discussed threats to validity and ethical considerations for the current study. I present the findings in Section 3.

Section 3: Results and Findings

This study's purpose was to examine the relationship between the independent variables of marital status, advice from a medical clinician, and use of community smoking cessation resources and the dependent variable of intent to quit smoking while considering four confounder variables: race, ethnicity, age, and gender. In this section, I outline the linear regression models used to examine the association between the variables in this study, which would aid in answering six research questions I conclude this section with results and summaries of each regression model.

RQ1: What is the association between marital status and intent to quit smoking among the United States adult population age 18 and 60, controlling the effects of race, ethnicity, gender, and age?

RQ2: What is the association between advice from a medical clinician and intent to quit smoking among the United States adult population age 18 and60, controlling the effects of race, ethnicity, gender, and age?

RQ3: What is the association between the use of community smoking cessation resources and intent to quit smoking among the United States adult population age 18 and60, controlling the effects of race, ethnicity, gender, and age?

RQ4: What is the association between marital status, advice from a medical clinician, and use of community smoking cessation resources and intent to quit smoking among the United States adult population age 18 and60, controlling the effects of race, ethnicity, gender, and age?

RQ5: To what extent does marital status, advice from a medical clinician, and use of community smoking cessation resources predict intent to quit smoking among the United States adult population age 18 and 60 controlling the effects of race, ethnicity, gender, and age?

RQ6: What is the association between race, ethnicity, gender, and age and the intent to quit smoking?

Data Collection of Secondary Data Set

For the current study, I used the 2009–2010 NATS from the CDC's archived website, the OSH. Survey data from the original study were collected from October 20, 2009, to February 28, 2010. The time frame for secondary data analysis was April 2022 to September 2022. There were no discrepancies with the data set found during preparation of data for analyses. The findings from the data set of the current study provided insight into the general thoughts about smoking cessation from the survey population because I cleaned the data from no, low, or repeated responses from the original data set. The current study's findings apply to the representation of smoking cessation from the original data set.

This data set was the appropriate because it provided the best representation of each variable compared to the other data sets found on the CDC's OSH website. I exported the data from SAS to SPSS Version 27. The data set had missing data; however, I excluded these data after the data treatment process. Once the data treatment process was completed, sample size minimums were adequate to ensure the study's validity.

A minimum sample size did not need to be calculated due to the large sample size (N = 12,357). Most of the respondents identified as age 45–54 (n = 3,186), female (n = 7,293), and White, non-Hispanic (n = 9,814). With this consideration, the study results were generalizable, reliable, and valid. Fundamental univariate analyses are represented in Tables 3–7.

Results

The final data set from the 2009–2010 NATS survey included all responses from U.S. citizens residing in all 50 United States including Washington, DC between the ages of 18 and 60. The time frame of the original data collection was October 2009 to February 2010. Data were collected by means of telephonic survey conducted among noninstitutionalized and cell phone numbers.

Descriptive Statistics

I provided a descriptive table for each confounder variable. First, I divided IMP_AGE_CAT into six categories: (0) 18–24, 7.4%; (1) 25–34, 15.2%; (2) 35–44, 16%; (3) 45–54, 25.8%; (4) 55–64, 21.3%; and (6) 65+, 14.4%. In each category was the number of participants who responded (frequency) to the survey in that age group as well as the percentage of observations within the categories included in the sample. IMP_GENDER was another categorical variable listed in two categories of (0) female, 59% and (1) male, 41%, with the frequency and percentage of each category included in the sample. Finally, RACEETHNIC_2 was broken down into five categories: (0) White, non-Hispanic, 59%; (1) Black, non-Hispanic, 41%; (2) Asian, non-Hispanic, 0.9%; (3)

Other, non-Hispanic, 6.8%; and (4) Hispanic, 4%, with frequencies and percentages for each category. The confounder variables are listed in Table 3.

Table 3

*Confounder Variables: Age, Gender, and Race/Ethnicity (*N = *12,357)*

Variable name	Category	Frequency	Percentage	Valid percentage	Cumulative percentage
IMP_AGE_CAT					
	18–24 (0)	916	7.4	7.4	7.4
	25–34 (1)	1,877	15.2	15.2	22.6
	35–44 (2)	1,974	16	16	38.6
	45–54 (3)	3,186	25.8	25.8	64.4
	55–64 (4)	2,627	21.3	21.3	85.6
	65+ (5)	1,777	14.4	14.4	100
IMP_GENDER					
	Female (0)	7,293	59	59	59
	Male (1)	5,064	41	41	100
RACEETHNIC_2					
	White only, non-Hispanic (0)	9,814	59	59	59
	Black only, non-Hispanic (1)	1,107	41	41	100
	Asian only, non-Hispanic (2)	107	0.9	0.9	89.2
	Other only, non-Hispanic (3)	840	6.8	6.8	96
	Hispanic (4)	489	4	4	100

MARITAL2, a categorical variable, was divided into six categories: (0) married, 40%; (1) living with partner, 9.9%; (2) divorced, 17.6%; (3) widowed, 8.8%; (4) separated, 3.8%; and (5) single, never married, not living with partner, 20%. Each category provided a frequency or the number of respondents in the category, and a percentage of the observed, represented in Table 4.

Table 4

Independent Variable 1: Marital Status (MARITAL2 of Sample, N = *12,357)*

Variable	Category	Frequency	Percentage	Valid percentage	Cumulative percentage
MARITAL2					
	Married (0)	4,933	39.9	39.9	39.9
	Living with partner (1)	1,220	9.9	9.9	49.8
	Divorced (2)	2,172	17.6	17.6	67.4
	Widowed (3)	1,092	8.8	8.8	76.2
	Separated (4)	471	3.8	3.8	80
	Single, never married, not living with partner (5)	2,469	20	20	100

Advice from a medical clinician or HCWADVISE2, the second independent variable, was broken down into two categories: (0) no, 34% or (1) yes, 66%. Frequencies and percentages of the categories observed in the sample are displayed in Table 5.

Table 5

*Independent Variable 2: Advice From HCWADVISE2 a Medical Clinician (*N = *12,357)*

Variable	Response	Frequency	Percentage	Valid percentage	Cumulative percentage
HCWADVISE2					
	No (0)	4,196	34	34	34
	Yes (1)	8,161	66	66	100

The third independent variable, the use of community smoking cessation resources, was described as QTEXAD (Have you ever seen or heard the slogan become and EX in an ad? EX is spelled E-X?), QTASSTAWR (Are you aware of any individual or group counseling services, other than quitlines, that are available to help you quit smoking cigarettes?) and QTLINEAWRT (Are you aware of any telephone quitline services that are available to help you quit using tobacco?). Responses were divided into

two groups: (0) no or (1) yes. For QTEXAD, the percentage of observations in the two categories was (0) no, 76.4%, and (1) yes, 23.6%. For QTASSTAWR, the percentage of observations in the categories was (0) no, 45%, and (1) yes, 55%. For QTLINEAWRT, the percentage of observations in the categories was (0) no, 40%, and (1) yes, 61%. Frequencies and percentages are displayed in Table 6.

Table 6

*Independent Variable 3: Use of Community Smoking Cessation Resources (*N = *12,357)*

Variable	Response	Frequency	Percentage	Valid percentage	Cumulative percentage
QTEXAD					
	No (0)	9,443	76.4	76.4	76.4
	Yes (1)	2,914	23.6	23.6	100
QTASSTAWR					
	No (0)	5,555	45	45	45
	Yes (1)	6,802	55	55	100
QTLINEAWRT					
	No (0)	4,884	39.5	39.5	39.5
	Yes (1)	7,473	60.5	60.5	100

Additionally, I created a dummy variable representing the differences between a survey participant being partnered (married, single, living with an individual) represented as one and not partnered (separated, widowed, divorced, and single, not living with an individual) represented as 0. Table 7 presents the descriptive nature of the dummy variable created.

Table 7

*Dummy Variable: MARRIED_PARTNER (*N = *12,357)*

Variable	Category	Frequency	Percentage	Valid percentage	Cumulative percentage
Name/response					
	No partnership (0)	4,955	40.1	40.1	40.1
	Partnership (1)	7,402	59.9	59.9	100
	Total	12,357	100	100	

The dependent variable, intent to quit smoking or QTWANT, was presented as a dichotomous categorical variable to secure a met assumption in a linear regression analysis. Observed percentages for each of the responses were (0) no, 33% and (1) yes 67%. Frequencies and percentages of the observed categories are displayed in Table 8.

Table 8

Dependent Variable: Intent to Quit Smoking (QTWANT, N = *12,357)*

Variable	Responses	Frequency	Percentage	Valid percentage	Cumulative percentage
QTWANT					
	No (0)	4,061	32.9	32.9	32.9
	Yes (1)	8,296	67.1	67.1	100

Assumption Testing

I performed a regression analysis to determine whether multicollinearity was a problem among the variables IMP_AGE_CAT, IMP_GENDER, and RACEETHNIC_2. The variance inflation factor (VIF) is the indicator in determining whether multicollinearity exists. Output results showed each variable with a VIF of 1. The results in Table 9 show no correlation among the variables (see Pallant, 2016).

Table 9

Results to Determine Multicollinearity Between Variables

Coefficient model	Variable	Collinearity statistics	
		Tolerance	VIF
1	IMP_AGE_CAT	0.986	1.014
	IMP_GENDER	0.998	1.002
	RACEETHNIC_2	0.987	1.014

Note. Dependent variable: QTWANT.

Hypotheses Testing and Data Analysis

RQ1: What is the association between marital status and intent to quit smoking among the United States adult population age 18–60, controlling the effects of race, ethnicity, gender, and age?

H_o1: There is no association between marital status and intent to quit smoking among the United States adult population age 18–60, controlling the effects of race, ethnicity, gender, and age?

H_a1: There is an association between marital status and intent to quit smoking among the United States adult population age 18–60, controlling the effects of race, ethnicity, gender, and age.

I performed a chi-square test for independence to determine an association between the variables. The test indicated no association between the variable of marital status (MARITAL2) and intent to quit smoking (QTWANT), $X^2(1, N = 12{,}357) = 36.95$, $p = 0.001$, phi = 0.055, and I rejected thenull hypothesis for RQ1. The chi-square test for independence formula used in SPSS was $x^2=\sum(O_i-E_i)/E_i$.

In the continuation of the analysis of the degree of association between the independent variable of marital status, ($N = 12{,}357$) = 0.021, $p = 0.018$, and intent to quit

smoking, the model summary output in Table 10 displays a weak association in which marital status explains 0% of the variation of the dependent variable of intent to quit smoking. However, adding confounders increased the association, forming a positive relationship (race/ethnicity 2.7%, gender 5.1%, age 5.6%), which provided a significant variation of the dependent variable. Even though associations were weak, there was a positive relationship between marital status and intent to quit smoking, considering the participant's age and gender change. The nature of the relationship was described in the regression equation Y = b0 + b1X1i + b2X2i + b3X3i, +b4X4i, where Y = QTWANT, X1i represented the value MARITAL2, X2i represented the value RACEETHNIC_2, X3i represented the value IMP_GENDER, and X4i represented the value IMP_AGE_CAT. Table 11 presents the coefficients for MARITAL2 in addition to the confounders.

Table 10

Model Summary for RQ1

Model	*R*	*R* square	Adjusted *R* square	Std. error of the estimate
1	0.021[a]	0	0	0.47
2	0.027[b]	0.001	0.001	0.47
3	0.051[c]	0.003	0.002	0.469
4	0.056[d]	0.003	0.003	0.469

Note. Predictor: (Constant), MARITAL2.

Table 11

Coefficients for RQ1

Model		Unstandardized coefficients		Standardized coefficients			95% confidence interval for B	
		B	Std. error	Beta	*t*	Sig.	Lower bound	Upper bound
1	(Constant)	0.686	0.008		90.634	<0.001	0.671	0.701
	MARITAL2	-0.005	0.002	-0.021	-2.361	0.018	-0.009	-0.001
2	(Constant)	0.676	0.009		73.376	<0.001	0.658	0.694
	MARITAL2	-0.006	0.002	-0.023	-2.524	0.012	-0.01	-0.001
	RACEETHNIC_2	0.008	0.004	0.017	1.936	0.053	0	0.015
3	(Constant)	0.691	0.01		70.924	0.000	.672	0.71
	MARITAL2	-0.005	0.002	-0.022	-2.385	0.017	-0.01	-0.001
	RACEETHNIC_2	0.008	0.004	0.018	2.047	0.041	0	0.016
	IMP_GENDER	-0.041	0.009	-0.042	-4.721	<0.001	-0.057	-0.024
4	(Constant)	0.724	0.016		45.690	<0.001	0.693	0.755
	MARITAL2	-0.006	0.002	-0.024	-2.689	0.007	-0.01	-0.002
	RACEETHNIC_2	0.007	0.004	0.016	1.765	0.078	-0.001	0.015
	IMP_GENDER	-0.041	0.009	-0.043	-4.790	<0.001	-0.058	-0.024
	IMP_AGE_CAT	-0.008	0.003	-0.024	-2.648	0.008	-0.013	-0.002

Note. Dependent Variable: QTWANT.

Similar to the regression analysis of the other variables, association was analyzed as the independent dummy variable of MARRIED_PARTNERED, which explained 0% of the variation in the dependent variable of QTWANT. The nature of the relations was described in the regression equation Y = QTWANT, with alpha as the constant and Beta representing the independent dummy variable MARRIED_PARTNERED. Table 12 provides the model summary. Table 13 represents the coefficients for MARRIED_PARTNER.

Table 12

Model Summary for Dummy Variable MARRIED_PARTNER

Model	*R*	*R* square	Adjusted *R* square	Std. error of the estimate
1	0.006[a]	0.0	0	0.47

[a] Predictor: (Constant), MARRIED_PARTNER**.**

Table 13

Coefficients for Dummy Variable MARRIED_PARTNER

Model		Unstandardized coefficients		Standardized coefficients			95% confidence interval for B	
		B	Std. Error	*t*	Beta	Sig.	Lower bound	Upper bound
1	(Constant)	0.675	0.007		101.16	<0.001	0.662	0.688
	MARRIED_PARTNER	-0.006	0.009	-0.006	-0.719	0.472	-0.023	0.011

Note. Dependent Variable: QTWANT.

RQ2: What is the association between advice from a medical clinician and intent to quit smoking among the United States adult population age 18–60, controlling the effects of race, ethnicity, gender, and age?

H_o2: There is no association between advice from a medical clinician and intent to quit smoking among the United States adult population age 18–60, controlling the effects of race, ethnicity, gender, and age.

H_a2: There is an association between advice from a medical clinician and intent to quit smoking among the United States adult population age 18–60, controlling he effects of race, ethnicity, gender, and age.

I performed a chi-squared test for independence to determine association between the variables. The test indicated no significance between the variables of HCWADVISE2 and QTWANT, X^2= (1, N=12,357) = 280.36, p<0.001, phi=15.1, therefore I rejected the null hypothesis for RQ2. The chi-squared test for independence formula utilized in SPSS was $x^2=\sum(O_i-E_i)/E_i$.

In the continuation of the analysis of the degree of association between the independent variable of HCWADVISE2, (N=12,357) =0.151, p<0.001, and QTWANT,

the output for Table 14 shows a weak association in which HCWADVISE2 explained 2.3% of the variance of the dependent variable QTWANT. However, adding confounders changed the association, forming a position relationship between HCWADVISE2, RACEETHNIC_2, IMP_GENDER, and IMP_AGE_CAT, adjusting the association by 0.001 or 0.1%. The nature of the relationship is described in the regression equation: $Y = b0 + b_1X1_i + b_2X2_i + b_3X3_i, + b_4X4_i$, whereas Y= QTWANT, X1i represented the value HCWADVISE2, $X2_i$ represented the value RACEETHNIC_2, $X3_i$ represented the value IMP_GENDER, and $X4_i$ represented the value of IMP_AGE_CAT.

Table 14

Model Summary for RQ2

Model	*R*	*R* square	Adjusted *R* square	Std. error of the estimate
1	0.151[a]	0.023	0.023	0.464
2	0.152[b]	0.023	0.023	0.464
3	0.157[c]	0.025	0.024	0.464
4	0.16[d]	0.026	0.025	0.464

a. Predictor: (Constant), HCWADVISE2
b. Predictors: (Constant), HCWADVISE2, RACEETHNIC_2
c. Predictors: (Constant), HCWADVISE2, RACEETHNIC_2, IMP_GENDER
d. Predictors: (Constant), HCWADVISE2, RACEETHNIC_2, IMP_GENDER, IMP_AGE_CAT
Note. Dependent variable: QTWANT.

Table 15 represented the coefficients table for HCWADVISE2 in addition to the confounders.

Table 15

Coefficients for RQ2

Model		Unstandardized coefficients		Standardized coefficients			95% confidence interval for B	
		B	Std. error	Beta	*t*	Sig.	Lower bound	Upper bound
1	(Constant)	0.573	0.007		79.882	<0.001	0.559	0.587
	HCWADVISE2	0.149	0.009	0.151	16.936	<0.001	0.132	0.167
2	(Constant)	0.56	0.009		60.546	<0.001	0.542	0.578
	HCWADVISE2	0.15	0.009	0.151	16.98	<0.001	0.133	0.167
3	(Constant)	0.576	0.01		58.303	<0.001	0.556	0.595
	HCWADVISE2	0.149	0.009	0.15	16.887	<0.001	0.132	0.166
	RACEETHNIC_2	0.009	0.004	0.02	2.224	0.026	0.001	0.016
	IMP_GENDER	-0.038	0.008	-0.04	-4.46	<0.001	-0.055	-0.021
4	(Constant)	0.618	0.015		41.556	<0.001	0.589	0.647
	HCWADVISE2	0.152	0.009	0.153	17.154	<0.001	0.134	0.169
	RACEETHNIC_2	0.007	0.004	0.016	1.789	0.074	-0.001	0.015
	IMP_GENDER	-0.039	0.008	-0.041	-4.567	<0.001	-0.055	-0.022
	IMP_AGE_CAT	-0.011	0.003	-0.034	-3.791	<0.001	-0.016	-0.005

RQ3: What is the association between use of community smoking cessation resources and intent to quit smoking among the United States adult population age 18–60, controlling the effects of race, ethnicity, gender, and age?

H_o3: There is no association between use of community smoking cessation resources and intent to quit smoking among the United States adult population age 18–60, controlling the effects of race, ethnicity, gender, and age.

H_a3: There is an association between use of community smoking cessation resources and intent to quit smoking among the United States adult population age 18–60, controlling the effects of race, ethnicity, gender, and age.

I performed a chi-squared test for independence for the categorical variable, use of community smoking cessation resources, broken down and named as QTEXAD (Have

you ever seen or heard the slogan become and EX in an ad? EX is spelled E-X), QTASSTAWR (Are you aware of any individual or group counseling services, other than quit lines, that are available to help you quit smoking cigarettes?) and QTLINEAWRT (Are you aware of any telephone quit line services that are available to help you quit using tobacco?). I used the three variables with QTWANT, to determine an association. While QTASSTWR showed no association with QTWANT (X^2= [1, n=12,357] =83.67, p<0.001, phi=0.082), QTEXAD (X^2= [1, n=12,357] =0.565, p=0.452, phi=0.007) and QTLINEAWRT (X^2=[1,n=12,357]=0.501, p=0.479, phi=0.006) is above the p value of p <0.005, showing an association. In the consideration of the majority or categories showing an association, I failed to reject the null hypothesis for RQ3. The following chi-squared test for independence used in SPSS was $x^2=\sum(O_i-E_i)/E_i$.

QTEXAD

As outlined as a community smoking cessation resource, QTEXAD or "Have you ever seen or heard the slogan become and EX in an ad? EX is spelled E-X," (N=12,357) =0.007, p=0.452 presented a very weak association with QTWANT, (N=12,357), as the variance for the dependent variable is 0%; however, the addition of confounders had a positive influence on the variance (race/ethnicity-0%, gender-0.2%, and age-0.3%). However, associations remained weak. The nature of the relationship is described in the regression equation: $Y= b0 + b_1X1_i + b_2X2_i + b_3X3_i, + b_4X4_i$, whereas Y= QTWANT, and X1i represented the value of QTEXAD, $X2_i$ represented the value of RACEETHNIC_2, $X3_i$ represented the value IMP_GENDER, and X4i represented the value

IMP_AGE_CAT. Tables 16 and 17 present the model summary and coefficients of the variables aforementioned.

Table 16

Model Summary for RQ3: QTEXAD

Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate
1	0.007[a]	0	0	0.47
2	0.017[b]	0	0	0.47
3	0.046[c]	0.002	0.002	0.469
4	0.051[d]	0.003	0.002	0.469

a. Predictor: (Constant), QTEXAD
b. Predictors: (Constant), QTEXAD, RACEETHNIC_2
c. Predictors: (Constant), QTEXAD, RACEETHNIC_2, IMP_GENDER
d. Predictors: (Constant), QTEXAD, RACEETHNIC_2, IMP_GENDER, IMP_AGE_CAT
Note. Dependent Variable: QTWANT.

Table 17

Coefficients for RQ3: QTEXAD

		Unstandardized coefficients		Standardized coefficients			95% confidence interval for B	
Model		B	Std. error	Beta	*t*	Sig.	Lower bound	Upper bound
1	(Constant)	0.67	0.005		138.518	<0.001	0.66	0.679
	QTEXAD	0.007	0.01	0.007	0.751	0.452	-0.012	0.027
2	(Constant)	0.660	0.008		87.120	<0.001	0.645	0.674
	QTEXAD	0.008	0.01	0.007	0.777	0.437	-0.012	0.027
	RACEETHNIC_2	0.007	0.004	0.016	1.729	0.084	-0.001	0.015
3	(Constant)	0.676	0.008		81.664	<0.001	0.659	0.692
	QTEXAD	0.008	0.01	0.007	0.809	0.419	-0.011	0.028
	RACEETHNIC_2	0.007	0.004	0.017	1.856	0.064	0.000	0.015
	IMP_GENDER	-0.041	0.009	-0.043	-4.798	<0.001	-0.058	-0.024
	IMP_AGE_CAT	-0.007	0.003	-0.021	-2.264	0.024	-0.012	-0.001

Note. Dependent variable: QTWANT.

QTASSTAWR

QTASSTAWR or "Are you aware of any individual or group counseling services, other than quit lines, that are available to help you quit smoking cigarettes?" was another aspect of a community smoking cessation resource, which presented a weak association with QTWANT, (N=12,357) = 0.082, p<0.001, with the variance of the independent variable of 0.7%. Like the previous models, weak associations were present, yet as RACEETHNIC_2, IMP_GENDER, and IMP_AGE_CAT were added into the model, the variance does change positively. The nature of the relationship was described in the regression equation: Y= b0 + b1X1$_i$ +b_2X_2i+b_3X3_i, +b_4X4_i, whereas Y= QTWANT, and X1$_i$ represented the value of QTASSTAWR, X2$_i$ represented the value of RACEETHNIC_2, X3$_i$ represented the value of IMP_GENDER, and X4$_i$ represented the

value IMP_AGE_CAT. Output results are displayed in Table 18 and 19, which show each variable's association.

Table 18

Model Summary for RQ3: QTASSTAWR

Model	*R*	*R* square	Adjusted *R* square	Std. error of the estimate
1	0.082[a]	0.007	0.007	0.468
2	0.083[b]	0.007	0.007	0.468
3	0.095[c]	0.009	0.009	0.468
4	0.097[d]	0.009	0.009	0.468

a. Predictor: (Constant), QTASSTAWR
b. Predictors: (Constant), QTASSTAWR, RACEETHNIC_2
c. Predictors: (Constant), QTASSTAWR, RACEETHNIC_2, IMP_GENDER
d. Predictors: (Constant), QTASSTAWR, RACEETHNIC_2, IMP_GENDER, IMP_AGE_CAT
Note. Dependent Variable: QTWANT

Table 19

Coefficients for RQ3: QTASSTWAR

Model		Unstandardized coefficients		Standardized coefficients			95% confidence interval for B	
		B	Std. error	Beta	*t*	Sig.	Lower bound	Upper bound
1	(Constant)	0.714	0.006		113.69	<0.001	0.702	0.726
	QTASSTAWR	-0.078	0.008	-0.082	-9.178	<0.001	-0.094	-0.061
2	(Constant)	0.707	0.009		81.19	<0.001	0.69	0.724
	QTASSTAWR	-0.077	0.008	-0.082	-9.1	<0.001	-0.094	-0.061
	RACEETHNIC_2	0.005	0.004	0.011	1.243	0.214	-0.003	0.013
3	(Constant)	0.725	0.009		77.269	<0.001	0.706	0.743
	QTASSTAWR	-0.078	0.008	-0.083	-9.261	<0.001	-0.095	-0.062
	RACEETHNIC_2	0.005	0.004	0.012	1.369	0.171	-0.002	0.013
	IMP_GENDER	-0.044	0.009	-0.046	-5.091	<0.001	-0.06	-0.027
4	(Constant)	0.749	0.015		50.318	<0.001	0.72	0.778
	QTASSTAWR	-0.078	0.008	-0.083	-9.206	<0.001	-0.095	-0.061
	RACEETHNIC_2	0.004	0.004	0.01	1.124	0.261	-0.003	0.012
	IMP_GENDER	-0.044	0.009	-0.046	-5.151	<0.001	-0.061	-0.027
	IMP_AGE_CAT	-0.006	0.003	-0.019	-2.115	0.034	-0.012	0

Note. Dependent Variable: QTWANT.

QTLINEAWRT

QTLINEAWRT or "Are you aware of any telephone quit line services to help you quit using tobacco?" was the third aspect of use of community smoking cessation resources. Upon analysis, QTLINEAWRT also presented a weak association, (N=12,357) =0.006, p=0.479. Measure of association adjusted positively in the inclusion of the confounder variables RACEETHNIC_2, IMP_GENDER, and IMP_AGE_CAT. The nature of the relationship was described in the regression equation: Y= b0 + b1X1i

+b2X2i+b3X3i*,* $+b_4X4_i$, whereas Y= QTWANT, $X1_i$ represented the value QTLINEAWRT, $X2_i$ represented the value RACEETHNIC_2, $X3_i$ represented the value IMP_GENDER, and $X4_i$ represented the value IMP_AGE_CAT. Output results are displayed in Table 20 and 21, which show each variable's association.

Table 20

Model Summary for RQ3: QTLINEAWRT

Model	*R*	*R* square	Adjusted *R* square	Std. error of the estimate
1	0.006[a]	0	0	0.47
2	0.016[b]	0	0	0.47
3	0.046[c]	0.002	0.002	0.469
4	0.051[d]	0.003	0.002	0.469

a. Predictor: (Constant), QTLINEAWRT
b. Predictors: (Constant), QTLINEAWRT, RACEETHNIC_2
c. Predictors: (Constant), QTLINEAWRT, RACEETHNIC_2, IMP_GENDER
d. Predictors: (Constant), QTLINEAWRT, RACEETHNIC_2, IMP_GENDER, IMP_AGE_CAT
Note. Dependent Variable: QTWANT.

Table 21

Coefficients for RQ3: QTLINEAWRT

Model		Unstandardized coefficients		Standardized coefficients			95% confidence interval for B	
		B	Std. error	Beta	*t*	Sig.	Lower bound	Upper bound
1	(Constant)	0.675	0.007		100.431	<0.001	0.662	0.688
	QTLINEAWRT	-0.006	0.009	-0.006	-0.708	0.479	-0.023	0.011
2	(Constant)	0.665	0.009		73.831	<0.001	0.647	0.683
	QTLINEAWRT	-0.006	0.009	-0.006	-0.643	0.52	-0.023	0.011
	RACEETHNIC_2	0.007	0.004	0.015	1.692	0.091	-0.001	0.014
3	(Constant)	0.681	0.01		70.722	<0.001	0.663	0.7
	QTLINEAWRT	-0.006	0.009	-0.006	-0.714	.0475	-0.023	0.011
	RACEETHNIC_2	0.007	0.004	0.016	1.815	0.069	-0.001	0.015
	IMP_GENDER	-0.041	0.009	-0.043	-4.803	<0.001	-0.058	-0.024
4	(Constant)	0.711	0.015		45.847	<0.001	0.68	0.741
	QTLINEAWRT	-0.008	0.009	-0.008	-0.881	0.379	-0.025	0.009
	RACEETHNIC_2	0.006	0.004	0.014	1.526	0.0127	-0.002	0.014
	IMP_GENDER	-0.042	0.009	-0.044	-4.876	<0.001	-0.059	-0.025
	IMP_AGE_CAT	-0.007	0.003	-0.022	-2.394	0.017	-0.013	-0.001

Note. Dependent Variable: QTWANT.

RQ4: What is the association between marital status, advice from a medical clinician, and use of community smoking cessation resources, and intent to quit smoking among the United States adult population age 18and 60, while controlling the effects of race, ethnicity, gender, and age?

H_o4: There is no association between marital status, advice from a medical clinician, and use of community smoking cessation resources, and intent to quit smoking among the United States adult population age 18 and 60, while controlling the effects of race, ethnicity, gender, and age.

H_a4: There is an association between marital status, advice from a medical clinician, and use of community smoking cessation resources, and intent to quit

smoking among the United States adult population age 18 and 60, while controlling the effects of race, ethnicity, gender, and age.

I performed a bivariate regression analysis to determine the degree of association with the dependent variable of QTWANT with the independent variables of MARITAL2, HCADVICE2, QTEXAD, QTASSTAWR, and QTLINEAWRT in the consideration of RACEETHINC_2, IMP_GENDER, and IMP_AGE_CAT. MARTIAL2 presented a weak association; however, as factors such as HCADVICE2, and utilization of community smoking cessation resources (QTEXAD, QTASSTAWR, QTLINEAWRT), in the consideration of the confounders, association grows to 18.8%, and was statistically significant ($p<.001$). The nature of the relationship was described in the regression equation: $Y= b0 +b1X1i +b2X2i+b3X3i, +b4X4i,+b5X5i+b6X6i+b7X7i+b8X8i,$ whereas $Y=$ QTWANT, X1i represented the value MARITAL2, X2i represented the value HCWADVISE2, X3i represented the value QTEXAD, X4i represented the value QTASSTAWR, X5i represented the value QTLINEAWRT, X6i represented the value RACEETHNIC_2, X7i represented the value IMP_GENDER, and X8i represented the value IMP_AGE_CAT. Output is listed in Tables 22 and 23.

Table 22

Model Summary RQ4

Model	*R*	*R* square	Adjusted *R* square	Std. error of the estimate
1	0.021[a]	0	0	0.47
2	0.151[b]	0.023	0.023	0.464
3	0.151[c]	0.023	0.023	0.464
4	0.178[d]	0.032	0.031	0.462
5	0.18[e]	0.032	0.032	0.462
6	0.181[f]	0.033	0.032	0.462
7	0.185[g]	0.034	0.034	0.462
8	0.188[h]	0.035	0.035	0.462

a. Predictor: (Constant), MARITAL2
b. Predictors: (Constant), MARITAL2, HCWADVISE2
c. Predictors: (Constant), MARITAL2, HCWADVISE2, QTEXAD
d. Predictors: (Constant), MARITAL2, HCWADVISE2, QTEXAD, QTASSTAWR
e. Predictors: (Constant), MARITAL2, HCWADVISE2, QTEXAD, QTASSTAWR, QTLINEAWRT
f. Predictors: (Constant), MARITAL2, HCWADVISE2, QTEXAD, QTASSTAWR, QTLINEAWRT, RACEETHNIC_2
g. Predictors: (Constant), MARITAL2, HCWADVISE2, QTEXAD, QTASSTAWR, QTLINEAWRT, RACEETHNIC_2, IMP_GENDER
h. Predictors: (Constant), MARITAL2, HCWADVISE2, QTEXAD, QTASSTAWR, QTLINEAWRT, RACEETHNIC_2, IMP_GENDER, IMP_AGE_CAT
Note. Dependent variable: QTWANT

Table 23

Coefficients for RQ4

Model		Unstandardized coefficients		Standardized coefficients			95% confidence interval for B	
		B	Std. error	Beta	*t*	Sig.	Lower bound	Upper bound
1	(Constant)	0.686	0.008		90.634	<0.001	0.671	0.701
	MARITAL2	-0.005	0.002	-0.021	-2.361	0.018	-0.009	-0.001
2	(Constant)	0.583	0.01		60.253	0.000	0.564	0.602
	MARITAL2	-0.003	0.002	-0.014	-1.581	0.114	-0.008	0.001
	HCWADVISE2	0.149	0.009	0.15	16.842	<0.001	0.131	0.166
3	(Constant)	0.583	0.01		58.816	<0.001	0.564	0.602
	MARITAL2	-0.003	0.002	-0.014	-1.581	0.114	-0.008	0.001
	HCWADVISE2	0.149	0.009	0.15	16.826	<0.001	0.131	0.166
	QTEXAD	5.090E-6	0.01	0	0.001	1	-0.019	0.019
4	(Constant)	0.629	0.011		58.368	<0.001	0.608	0.65
	MARITAL2	-0.005	0.002	-0.019	-2.133	0.033	-0.009	0
	HCWADVISE2	0.155	0.009	0.156	17.544	<0.001	0.137	0.172
	QTEXAD	0.011	0.01	0.01	1.127	0.26	-0.008	0.03
	QTASSTAWR	-0.09	0.008	-0.095	-10.668	<0.001	-0.107	-0.073
5	(Constant)	0.62	0.011		54.776	<0.001	0.598	0.643
	MARITAL2	-0.004	0.002	-0.018	-2.03	0.042	-0.009	0
	HCWADVISE2	0.154	0.009	0.155	17.461	<0.001	0.137	0.171
	QTEXAD	0.008	0.01	0.007	0.83	0.406	-0.011	0.028
	QTASSTAWR	-0.099	0.009	-0.105	-10.811	<0.001	-0.117	-0.081
	QTLINEAWRT	0.024	0.009	0.025	2.564	0.01	0.006	0.043
6	(Constant)	0.61	0.013		48.382	<0.001	0.586	0.635
	MARITAL2	-0.005	0.002	-0.019	-2.178	0.029	-0.009	0
	HCWADVISE2	0.154	0.009	0.155	17.486	<0.001	0.137	0.172
	QTEXAD	0.008	0.01	0.008	0.842	0.4	-0.011	0.028
	QTASSTAWR	-0.099	0.009	-0.105	-10.738	<0.001	-0.117	-0.081
	QTLINEAWRT	0.024	0.009	0.025	2.588	0.01	0.006	0.043
	RACEETHNIC_2	0.007	0.004	0.016	1.817	0.069	-0.001	0.015
7	(Constant)	0.626	0.013		47.985	<0.001	0.601	0.652
	MARITAL2	-0.004	0.002	-0.018	-2.049	0.04	-0.009	0
	HCWADVISE2	0.153	0.009	0.155	17.403	<0.001	0.136	0.171
	QTEXAD	0.009	0.01	0.008	0.894	0.371	-0.011	0.028
	QTASSTAWR	-0.1	0.009	-0.106	-10.865	<0.001	-0.118	-0.082
	QTLINEAWRT	0.024	0.009	0.025	2.582	0.01	0.006	0.043
	RACEETHNIC_2	0.007	0.004	0.017	1.921	0.055	0.0	0.015
	IMP_GENDER	-0.04	0.008	-0.042	-4.735	<0.001	-0.057	-0.023
8	(Constant)	0.671	0.018		37.254	<0.001	0.635	0.706
	MARITAL2	-0.005	0.002	-0.022	-2.472	0.013	-0.01	-0.001
	HCWADVISE2	0.156	0.009	0.157	17.652	<0.001	0.139	0.173
	QTEXAD	0.005	0.01	0.005	0.508	0.611	-0.014	0.025
	QTLINEAWRT	0.021	0.009	0.022	2.272	0.023	0.003	0.04
	RACEETHNIC_2	0.006	0.004	0.014	1.541	0.123	-0.002	0.014
	IMP_GENDER	-0.041	0.008	-0.043	-4.82	<0.001	-0.057	-0.024
	IMP_AGE_CAT	-0.01	0.003	-0.032	-3.565	<0.001	-0.016	-0.005

Note. Dependent variable: QTWANT.

RQ5: To what extent do marital status, advice from a medical clinician, and community smoking cessation resources predict intent to quit smoking among United States adults between the ages of 18 and60, while controlling the effects of race, ethnicity, gender, and age?

H_o5: Marital status, advice from a medical clinician, and community smoking cessation resources do not predict the intent to quit smoking among the United States adult population age 18 and60, while controlling the effects of race, ethnicity, gender, and age.

H_a5: Marital status, advice from a medical clinician, and community smoking cessation resources predict the intent to quit smoking among the United States adult population age 18 and 60, while controlling the effects of race, ethnicity, gender, and age.

I performed a multiple logistic regression to determine if MARITAL2, HCADVISE2, QTEXAD, QTASSTAWR, and QTLINEAWRT predict an QTWANT, in the consideration of RACEETHNIC_2, IMP_GENDER, and IMP_AGE_CAT. The complete model with all independent variables was statistically significant, X^2 (8, N=12,357) =460.1, p<0.001. The model provided an explanation of the variance of the dependent variables between 3.7% (Cox and Snell Square) to 5.1% (Nagelkerke *R* Square), and correctly classified 67% of cases. Table 24 shows those who identified as White Non-Hispanic (exβ- 102.7%), widowers (117.5%), single, never married and not living with anyone (123%), and responded yes to the awareness of telephonic quitlines (159%) are the greatest variables in predicting intent to quit smoking. The formula used

to determine the prediction between the variables was listed as p=exp

$(a+b_1x_1+b_2x_2+b_3x_3+b_4x_4+b_5x_5+b_6x_6+b_7x_7+b_8x_8)$ /1+exp

$(a+b_1x_1+b_2x_2+b_3x_3+b_4x_4+b_5x_5+b_6x_6+b_7x_7+b_8x_8)$.

Table 24

Multiple Logistic Regression for RQ5

								95% confidence interval for EXP(B)	
		B	SE	Wald	*df*	Sig.	Exp(*B*)	Lower	Upper
Step 1[a]	MARITAL2			29.429	5	<.001			
	MARITAL2(1)	0.103	0.055	3.452	1	0.063	1.109	0.994	1.236
	MARITAL2(2)	0.089	0.077	1.346	1	0.246	1.093	0.941	1.270
	MARITAL2(3)	0.161	0.068	5.644	1	0.018	1.175	1.029	1.341
	MARITAL2(4)	-0.220	0.086	6.531	1	0.011	.803	0.678	0.95
	MARITAL2(5)	0.207	0.113	3.346	1	0.067	1.23	0.985	1.534
	QTEXAD(1)	-0.023	0.047	.247	1	0.619	0.977	0.891	1.071
	QTASSTAWR(1)	0.464	0.044	111.544	1	<0.001	1.59	1.459	1.733
	QTLINEAWRT(1)	-0.102	0.045	5.204	1	0.023	0.903	0.828	0.986
	HCWADVISE2(1)	-0.698	0.041	295.177	1	<0.001	0.497	0.459	0.539
	RACEETHNIC_2	0.026	0.019	2.007	1	0.157	1.027	0.99	1.065
	IMP_GENDER	-0.207	0.040	26.695	1	<0.001	0.813	0.751	0.879
	IMP_AGE_CAT	-0.034	0.015	4.901	1	0.027	0.967	0.938	0.996
	Constant	0.937	0.082	129.545	1	<0.001	2.551		

Note. Variable(s) entered on step 1: MARITAL2, QTEXAD, QTASSTAWR, QTLINEAWRT, HCWADVISE2, RACEETHNIC_2, IMP_GENDER, IMP_AGE_CAT.

Additionally, I performed a multiple logistic regression to determine if HCADVISE2, QTLINEAWRT, QTEXAD, QTASSTAWR, MARRIED_PARTNERED, predict QTWANT, in the consideration of RACEETHNIC_2, IMP_GENDER, and IMP_AGE_CAT. Similar to the previous model, the independent variables was statistically significant. The model provided an explanation of the variance of the dependent variable between 5.1% (Cox and Snell Square) and 7.1% (Nagelkerke R Squared) correctly identified 67.1% of the cases. Table 25 shows that upon the inclusion of the dummy variable MARRIED_PARTNERED, displayed no statistical variance for

the dependent variable QTWANT, and presents a very weak association. The formula used to determine the prediction between the variables was listed as p=exp $(a+b_1x_1+b_2x_2+b_3x_3+b_4x_4+b_5x_5+b_6x_6+b_7x_7+b_8x_8)$ /1+exp $(a+b_1x_1+b_2x_2+b_3x_3+b_4x_4+b_5x_5+b_6x_6+b_7x_7+b_8x_8)$

Table 25

Multiple Logistic Regression for Dummy Variable MARRIED_PARTNERED

								95% confidence for EXP(B)	
		B	S.E.	Wald	*df*	Sig.	EXP(*B*)	Lower	Upper
Step 1[a]	QTEXAD(1)	-0.04	0.05	0.57	1	0.450	0.965	0.879	1.1
	QTASSTAWR(1)	0.45	0.04	104.34	1	<0.001	1.57	1.44	1.72
	QTLINEAWRT(1)	-0.10	0.05	5.06	1	0.025	0.9	0.83	0.99
	HCWADVISE2(1)	-0.68	0.04	271.27	1	<0.001	0.51	0.47	0.552
	MARRIED_PARTNER(1)	0.03	0.04	0.49	1	0.485	1.03	0.95	1.12
	IMP_AGE_CAT			166.05	5	<0.001			
	IMP_AGE_CAT(1)	0.03	0.09	0.16	1	0.692	1.04	.874	1.23
	IMP_AGE_CAT(2)	0.58	0.07	63.18	1	<0.001	1.78	1.55	2.05
	IMP_AGE_CAT(3)	0.67	0.07	85.47	1	<0.001	1.95	1.69	2.24
	IMP_AGE_CAT(4)	0.64	0.06	99.74	1	<0.001	1.9	1.67	2.15
	IMP_AGE_CAT(5)	0.49	0.07	55.67	1	<0.001	1.63	1.43	1.85
	IMP_GENDER(1)	0.18	0.04	19.75	1	<0.001	1.2	1.11	1.29
	RACEETHNIC_2			53.74	4	<0.001			
	RACEETHNIC_2(1)	-0.08	0.1	0.67	1	0.415	0.92	0.75	1.12
	RACEETHNIC_2(2)	0.49	0.12	15.19	1	<0.001	1.62	1.273	2.07
	RACEETHNIC_2(3)	0.07	0.23	0.09	1	0.77	1.07	0.68	1.69
	RACEETHNIC_2(4)	-0.09	0.12	0.53	1	0.47	0.91	0.72	1.17
	Constant	0.29	0.13	5.47	1	0.02	1.34		

Note. Variable(s) entered on step 1: QTEXAD, QTASSTAWR, QTLINEAWRT, HCWADVISE2, MARRIED_PARTNER, IMP_AGE_CAT, IMP_GENDER, RACEETHNIC_2.

RQ6: To what extent does race, ethnicity, gender, and age predict the intent to quit smoking controlling for the United States adult population age 18 and60?

I performed a multiple regression analysis for QTWANT, IMP_AGE_CAT, IMP_GENDER, and RACEETHNIC_2, F (3,12,353) =*10.46, p*<0.001, R2=0.003, which

suggest this model is a good fit. Table 26 shows the only statistically significant variable in predicting intent to quit smoking is IMP_GENDER.

Table 26

Coefficients for QTWANT, IMP_AGE_GENDER, and RACEETHNIC_2

Model		Unstandardized coefficients		Standardized coefficients			95% confidence interval for B	
		B	Std. error	Beta	*t*	Sig.	Lower bound	Upper bound
1	(Constant)	0.705	0.014		49.841	<0.001	0.677	0.733
	IMP_AGE_CAT	-0.007	0.003	-0.021	-2.338	0.019	-0.012	-0.001
	IMP_GENDER	-0.042	0.009	-0.044	-4.861	<0.001	-0.059	-0.025
	RACEETHNIC_2	0.006	0.004	0.014	1.568	0.117	-0.002	0.014

Note. Dependent Variable: QTWANT.

Summary

In Section 3, I provided univariate descriptives of each categorical variable. Before running univariate descriptives, I ensured I cleaned and recoded the variables of this study. Each descriptive table contains the frequencies and percentages of each variable. I also conducted a test to determine multicollinearity. By providing both a descriptives table and a multicollinearity test, this process aided in ensuring assumptions were met prior to running a multiple regression analysis.

As for hypothesis testing and data analyses, I started with RQ1 and RQ2, as I rejected the null hypotheses for RQ1 and RQ2. RQ1 and RQ2 presented weak associations to the dependent variable, intent to quit smoking, as variances for both RQs were low until confounders were added into the model. When confounders were added, variances upon the dependent variable did change; however, the change in variance remained low. I failed to reject the hypothesis for RQ3, for the independent variables do

show some association with each other. To minimize reoccurring information, I did not conduct a chi-squared test for independence for RQ4, RQ5, and RQ6. Similar to RQ1 and RQ2, RQ3 did have a weak association, represented as a low variance among the dependent variable. RQ4 called for a different analysis as the impact the independent and confounder variables have on the study's dependent variable was measured. White Non-Hispanic, widowers or single, not living with anyone, who was fully aware of a telephonic quit line, were the most significant predictors of intent to quit smoking. RQ5 was a measurement to determine the linear relationship between the confounder variables and the study's dependent variable. Results show statistical significance of a linear relationship among the variable of gender only.

Section 4 will contain a review and interpretation of key findings, a discussion of how the theoretical framework assisted in interpretation of findings, the study's limitations, professional application, recommendations for further research and the potential positive social change impact of the study.

Section 4: Application to Professional Practice and Implications for Social Change

I examined secondary data from the NATS to determine possible associations between the independent variables of marital status, advice from a medical clinician, and use of community smoking cessation resources and the dependent variable of intent to quit smoking. Resources and information are abundant regarding the negative health implications of smoking and where to obtain such resources, yet there are 40 million Americans who still smoke cigarettes (Baker et al., 2017). Interventions from previous studies, such as the adoption of physical activity or obtaining information about the adoption of smoking cessation around upper respiratory disease diagnosis, present an impact on the act of smoking cessation (Aggarwal & Kumar, 2017; Frith & Loprinzi, 2018). I focused on a participants' intent to quit to quit smoking, defined as planning to do something (Merriam-Webster, n.d.). The findings from this study indicated that marital status was the primary predictor of an individual having an intent to quit smoking (β 5.41; $p < 0.001$). The other two variables, advice from a medical clinician (β = 0.497; $p < 0.001$) and the use of community smoking cessation (β = 1.590; $p < 0.001$), were associated with the dependent variable; however, the associations were weak. In this section, I outline the key findings from each predictor, address limitations, and provide recommendations for future studies. Additionally, I address implications for professional practice and positive social change, concluding this study.

Interpretation of Key Findings

Marital Status

During the data analysis, I noticed that 39.9% of the survey participants identified themselves as married. Next, I examined an association between the variable of marital status and intent to quit smoking and conducted a chi-square test for independence. Results showed there were associations between the variables, $X^2(1, N = 12{,}357) = 36.95$, $p < 0.001$, phi = 0.055, and I rejected the null hypothesis for RQ1. Although there was an association between marital status and intent to quit smoking, the association was weak ($\beta = -0.005$, $p = 0.018$). As reported in the literature, changes in marital status played a role in an individual participating in a smoking cessation program (Oshio, 2018).

The current study's purpose was to examine an association with a person's intent to quit smoking, which by definition indicates an individual having a plan to stop smoking. An active role in pursuing a marital status change could result in an active approach toward smoking cessation, such as joining a smoking cessation quit line or adopting a pharmacological method that aids in smoking cessation (Lertsinudom et al., 2020; Nemeth et al., 2017). If only a plan or intent to quit smoking is present, current marital status with no plan to change a marital status has little impact on an individual's intent to quit smoking, establishing the theory that changing a person's marital status determines whether an individual will have an intent to quit smoking (Hai-De et al., 2018). The addition of the confounders race/ethnicity ($\beta = 0.008$, $p = 0.053$), gender ($\beta = 0.041$, $p < 0.001$), and age ($\beta = 0.008$, $p = 0.008$) presented weak associations; however

gender showed a statistically significant change in the variance of the dependent variable intent to quit smoking. When I created a dummy variable MARRIED_PARTNER, both regression analyses showed a weak association between the variables, which indicated that being in any partnership, married or single and living with an individual, had no influence on a participant's intent to quit. The variable MARRIED_PARTNER was defined as the survey participant identifying themselves as legally married, by ceremony or by common law, or being in a domestic partnership in which two people share a home.

According to the TRA, attitudes influence behavior (Nagawa et al., 2020); therefore, if one spouse's attitude toward smoking is positive or negative, the other spouse may be motivated to comply with that attitude. A healthier attitude toward adopting smoking cessation could lead to behavior intended to make healthier choices, especially if one spouse is not a smoker (Dippel et al., 2017). However, the same could be said if one spouse is a smoker and has no motivation or intent to quit smoking. One could infer that spousal support (or lack thereof), influence, or motivation (or lack thereof) are integral to intent to quit smoking. However, the current data analysis did not provide enough statistical evidence to support an assumption, and did not provide a detailed explanation as to why the female spouse appeared to have the intent to quit smoking. Further previous research did not identify any issues with the gender of the spouse. Additional studies need to be conducted to seek an explanation and highlight any issues between genders in a partnership/marriage.

Advice From a Medical Clinician

The advice from a medical clinician could be beneficial only if the medical clinician is equipped to provide information necessary for their patient who expresses an intent to quit smoking (Jradi et al., 2015; Lucas et al., 2016). RQ2 addressed possible associations between advice from a medical clinician and intent to quit smoking. In the original survey, 66% of the participants answered "yes," confirming that participants in the last 12 months were advised by a doctor, dentist, nurse, or other health professional to quit smoking cigarettes or use any other tobacco products. In comparison, 34% of the participants answered "no."

After I rejected the null hypothesis for RQ2, I ran a bivariate regression analysis to seek the strength of the association between the variables of advice from a medical clinician and intent to quit smoking. Results from the analysis showed associations were still weak; however, the association between the variables of advice from a medical clinician and intent to quit smoking was statistically significant ($\beta = 0.149$, $p < 0.001$). There were also statistically significant changes in the variance of the variable, intent to quit smoking, at the addition of the confounders of age ($\beta = 0.011$, $p < 0.001$) and gender ($\beta = 0.039$, $p < 0.001$). The association of race/ethnicity was not statistically significant ($\beta = 0.007$, $p = 0.074$) as there was little impact on the variance of intent to quit smoking.

Previous studies showed the benefits of providing information about using pharmacological aids toward smoking cessation. Salgado et al. (2017) found that although medical students who smoked had a negative outlook on tobacco use, they

failed to follow their own advice toward smoking cessation. Additionally, Costello (2019) reported that patients needed to obtain health information through brochures providing advice about smoking cessation but did not receive any information. Caponnetto et al. (2017) recommended training for medical providers to distribute health information and provide medical advice regarding smoking cessation upon the patient's request.

In the current study, weak associations between the variables may have been present due to a medical clinician's lack of information, lack of knowledge about the tools to aid in an intent to quit smoking, or lack of time to address smoking cessation, which would lead to poor motivation for an intentional behavior change. The data analysis showed an association; therefore, advice from a medical clinician is still relevant, possibly due to the motivation to comply with subjective norms of adopting healthier habits and an attitude of disease prevention (see Hahn & Popan, 2020). The current study's findings support Hahn and Popan's (2020) analysis of a participant's lack of motivation to stop smoking if not provided with supportive tools, advice, or health information.

A medical clinician's respect in the community could explain why an association was still present between the intent to quit smoking and a medical clinician's advice. However, data analysis from the current study did not provide a detailed explanation of subjective norms, disease diagnosis, or information as to why upon the addition of the confounders of gender and age the variance of the dependent variable changed.

Additional analysis is needed to help medical clinicians provide advice that is more inclusive of the needs of all genders and all age groups.

Use of Community Smoking Cessation Resources

There are several tools used for smoking cessation. However, the most common tools used in smoking cessation are mass media in the form of advertisements, social support offered as text messages or social media groups, peer-to-peer interventions, or smoking cessation quit lines (Apata et al., 2019; Asayut et al., 2022; Barnett et al., 2018; Hoeppner et al., 2017; Lautner et al., 2018; Li et al., 2017; Nemeth et al., 2017; Thrul & Ramo, 2017; Zulkiply et al., 2020). The tools included in the data analysis for the current study were QTEXAD (Have you ever seen or heard the slogan become and EX in an ad? EX is spelled E-X), QTASSTAWR (Are you aware of any individual or group counseling services, other than quitlines, that are available to help you quit smoking cigarettes?), and QTLINEAWRT (Are you aware of any telephone quitline services to help you quit using tobacco?). Each tool had response options in two categories: yes and no.

Most survey participants (76.4%) responded “no” to seeing or hearing the slogan become an EX in an ad, represented as the variable to QTEXAD, which showed no change in variance to the dependent variable intent to quit smoking. As confounders were added, variation to the dependent variable indicated minimal change. Gender presented a statistically significant change in variance ($\beta = -0.041$, $p < 0.001$). Many survey participants (55%) responded “yes” to QTASSTAWR, with weak associations between the variables and slight variance in the dependent variable. However, statistically significant changes occurred once gender was added ($\beta = -0.044$, $p < 0.001$). Finally,

60.5% of the survey participants responded “yes” to QTLINEAWRT; consistent with the trend of weak associations, there was little change in the variance until gender was added, indicating a statistically significant change in variance in the dependent variable ($\beta = -0.042$, $p < 0.001$). After I ran a chi-square test for independence, two of the three community smoking cessation resource tools presented a failure to reject the null hypothesis.

According to the results from the bivariate regression analysis, participants acknowledged having an awareness of community smoking cessation programs or smoking cessation quit lines; however, results indicated little to no variance in the dependent variable, showing little impact on an individual having an intent to quit smoking upon having awareness of the community smoking cessation resources. The data analysis also presented gaps between genders as the data analysis showed more changes among females than males in the variance of intent to quit smoking (see Apata et al.,2019; Lautner et al., 2018; Li et al., 2017). Awareness of such a gap may indicate nongovernment organizations’, public health organizations’, or local health departments’ lack of an attempt to provide enough information or relevant information for males to consider intent to quit smoking. However, data analysis did not provide the details to explain how a community is shaped and what a community is aware of regarding the importance of adopting healthier beliefs and attitudes. An organization’s awareness of creating resources and tools to encourage the adoption of healthy attitudes is critical toward the contribution of creating a social norm. However, equality among the genders

must be addressed outside of the current study (see Apata et al., 2019; Girvalaki et al., 2020).

Logistic Regression Between the Variables

In my determination of the level of impact the independent variables had on the dependent variable, the only variables with statistically significant odds of having an impact on intent to quit smoking were the awareness of community smoking cessation resources such as group support or counseling (QTASSTAWR; *OR* = 1.59, 95% CI 0.459–0.539, $p < 0.001$) and advice from a medical clinician (*OR* = 1.59, 95% CI 1.49–1.733, $p < 0.001$). Although the data analysis did not provide any evidence as to why impact is minimal between the other variables, minimal changes among the variance on the dependent variable support a medical clinician's possible lack of providing effective tools to assist an individual's intent to quit smoking (see Caponnetto et al., 2017; Jradi et al., 2015). Awareness of group counseling or support groups highlights the importance and impact of using community smoking cessation resources that aid in adopting healthy attitudes as a social norm, especially in the case of disease avoidance, leading to an intent to quit smoking (Jradi et al., 2015; Salgado et al., 2017).

Multivariate Analysis Between Race, Ethnicity, Gender, and Age

In Section 3 of this study, Table 24 showed the impact the confounding variables had on intent to quit smoking. The demographic factors are crucial to understanding who in the survey sample population had an intent to quit smoking when studied alongside the independent variables. Females ($\beta = -0.042$, $p < 0.001$) presented the most statistically significant group, representing 59% of the sample. Race and ethnicity variables were

essential to this study's sample; however, variance in intent to quit smoking did not show significant changes.

Limitations of the Study

There were limitations in this study that should be addressed. Using secondary data for analysis helps to conserve time during a study but can present issues. To answer the research questions in a study with a large sample, a convenience sampling style may be best, which includes a portion of the population. In the current study, the inclusion criteria were individuals with landlines or cell phones who were over 18 years of age and residing in the United States including the District of Columbia. However, pulling data from a specific population may threaten the external validity of a study. One way to protect external validity is by describing each of the relevant variables of the study, thereby ensuring research questions are answered and serve as the best representation of a population.

Recommendations

I studied variables related to smoking cessation, including marital status, advice from a medical clinician, and use of community smoking cessation resources, and how these variables impact an individual's intent to quit smoking. The variables related to smoking cessation showed weak associations with intent to quit smoking. One recommendation for future research is to consider a mixed-methods approach that could provide a descriptive narrative explanation from the participants that would explain the weaknesses among the variables. Gagne et al. (2019) used a mixed-methods approach when studying smoking cessation among patients with chronic obstructive pulmonary

disease. The qualitative aspect addressed patients taking classes that included smoking cessation advice, inhalation techniques, and interventions for treating chronic obstructive pulmonary disease. Data collection for the qualitative analysis was conducted through individual telephone interviews. Results showed that QoL improved as patients were involved in the self-management aspect of smoking cessation. Although time-consuming and costly, future research would benefit from knowing the details not found in a quantitative analysis alone. A mixed-methods approach could clarify the meaning of weak associations among variables by conducting telephone interviews with the participants to provide detailed reasons for weak associations.

Implications for Professional Practice and Social Change

Based on this study's findings, one recommendation for public health professionals who work in smoking cessation interventions would be to create an intervention method that includes providing accurate and up-to-date information, such as handouts, about smoking cessation, which may benefit the community and help medical clinicians distribute accurate information to their patients expressing an intent to quit smoking. To ensure accurate information for any literature distribution, public health or CHWs who work in smoking cessation intervention programs should create the content and information, ensuring accuracy. Research studies such as these would assist greatly in obtaining the information needed to address inaccurate information.

The best intervention method based on this current study's findings appears to be an intervention led by a medical clinician. However, public health professionals and CHWs would establish the foundation by creating up-to-date information and literature

from the data of studies similar to this current one. Public health professionals or CHWs could also create a professional training program that provides medical clinicians, often short on time between patients, with information about all modalities of smoking cessation to give their patients expressing having an intent to quit smoking. Doing so would address the time constraints medical clinicians may feel. Also, public health professionals would need to ensure that materials for smoking cessation are current and relevant according to the data found in research studies. Regular review of data and implementation according to what current research studies present in their findings would enhance public health practice in the area of smoking cessation.

Conclusion

The results from the current study provided insight into an intent to quit smoking and what or who has the most significant impact on one's intent or plan to quit smoking. From the study, negative spousal attitudes toward smoking were significantly associated with a stated intent to quit smoking. Additionally, advice from a medical clinician had a statistically significant relationship with intent to quit smoking. The study also provided insight into the weak associations between intent to quit smoking and the awareness of smoking cessation quit lines and smoking cessation advertisements. Finally, in consideration of the confounder variables of this study, there were weak associations with all three confounder variables; however, gender did not have as much of a weak association with intent to quit smoking. A similar analysis was done between participants in a or not in a domestic partnership to determine an association with intent to quit

smoking, in which there was a weak association between the study variable's intent to quit smoking and domestic partnership.

The study results have taught me the importance of a medical clinician's influence and how one plans to follow through with a plan of action toward healthy choices. I learned from the current study that the greater the authority due to one's professional training, the greater the association with the intent to quit smoking. However, even with an association, the associations were weak. Acknowledging the presence of weak associations among the study variables provided insight into the importance of professional development training for the stakeholders who manage smoking cessation programming. The study displayed the importance of continuous professional growth critical to aiding others in the community towards helping develop healthier social norms in a community.

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Appendix: Permission to Use Dataset

Hi Patrese,

Thank you for contacting the Centers for Disease Control and Prevention regarding the National Adult Tobacco Survey (NATS). Yes, data posted to CDC.gov regarding NATS surveys are available for public use.

Sincerely,

Office on Smoking and Health
National Center for Chronic Disease Prevention and Health Promotion
Centers for Disease Control and Prevention

From: Patrese Nesbitt <patrese.nesbitt@waldenu.edu>
Sent: Saturday, September 25, 2021 11:58 AM
To: OSH Issues Management (CDC) oshim@cdc.gov
Subject: Use of NATS dataset/data dictionary for dissertation

To Whom it May Concern.

Good Morning. My name is Patrese Nesbitt, and I am a current student with Walden University, looking to use one of your surveys as part of my study. My study is to seek associations between intent to quit smoking and marital status, use of community smoking cessation resources, and advice from a medical clinician. I am seeking permission to use the data set from 2009-2010; even though it is public access, I want to ensure I have full approval to use.

Please let me know if additional information is needed. Thank you!

Sincerely,

Patrese A. Nesbitt, M.S.
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Walden ID: A00643475