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Personal Health Habits of PAs and the Effect These Habits Have on Preventive Health Counseling Practices

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PERSONAL HEALTH HABITS OF PAS AND THE EFFECT THESE HABITS HAVE

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ABSTRACT

Chronic disease is the leading cause of morbidity and mortality in the United States. The burden of chronic disease can be largely prevented by following a healthy lifestyle. Individuals often receive their knowledge about preventive health recommendations from their primary care provider, and healthcare providers are more likely to counsel patients about the healthful behaviors they themselves practice.

This study utilized a survey distributed to the Wisconsin Academy of Physician Assistants to assess the personal health habits of physician assistants and the effect personal health has on preventive health counseling practices. A personal health score and counseling score were calculated for each participant based on survey responses. Better adherence to preventive health guidelines and more frequent counseling about these guidelines correlated with higher scores. Participants with a personal health score of nine or greater were labeled healthy. Participants were separated into four practice categories based on their specialty's expected counseling practices.

Data analysis showed all participants followed guidelines for tobacco use, blood pressure monitoring, and immunizations, while guidelines for dietary and exercise habits were poorly followed. Healthy participants adhered to alcohol use, body mass index, vegetable intake, strength training, and physical activity guidelines significantly better than unhealthy participants. Personal health score was found to be independent of practice category, and there was no significant difference in the counseling practices of healthy versus unhealthy participants. No correlation was found between personal health score and counseling score. This study was limited due to sample size, and further research is needed on the effect personal health has on preventive health counseling.

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Introduction

Benjamin Franklin once stated the following:

There are few things which are appreciated more in their absence and less in their

presence than health. When we have it, we take it for granted, giving little care to

its preservation. When we do not have it, there is precious little we would not do

to get it back (as cited in Knight, 2004, p. 1).

Chronic disease is a burden many people face, and they often do not realize the

devastating effects of a chronic disease until they are diagnosed with it. Over 40% of the

United States (U.S.) population is plagued with chronic disease (National Health Council

[NHC], 2014). Among the top chronic conditions are "heart disease, stroke, type 2

diabetes, obesity, respiratory disease, and arthritis" (Centers for Disease Control and

Prevention [CDC], 2016d, para. 1). By 2020, an estimated 157 million Americans will

have chronic disease, 81 million of which will have more than one of these conditions

(NHC, 2014). The majority of these conditions are preventable, and placing more of an

emphasis on preventive medicine could save individuals and the U.S. from the current

chronic disease crisis.

Physician assistants (PAs) and other healthcare providers (HCPs) are designated

leaders in preventive health promotion, but some HCPs do not practice healthy lifestyles

themselves. Not practicing healthy habits could negatively impact their counseling

practices and their credibility. If HCPs are personally exhibiting the advice they offer

their patients, the general population may take their advice more seriously and in turn

reap the benefits of preventive medicine (Frank, Breyan, & Elon, 2000a).

This study aimed to determine how many PAs are practicing preventive health measures in their personal lives. This study was also designed to determine how PAs' personal lifestyles affect their preventive health discussions with patients. This introduction outlines the background, problem statement, purpose, significance of the problem, research questions, and limitations of the study.

Background

The prevalence of chronic disease has increased in recent years. As of 2012, nearly half of all American adults had one or more chronic disease, and one out of every four adults had two or more chronic diseases (CDC, 2016d). "Heart disease, stroke, type 2 diabetes, obesity, respiratory disease, and arthritis" are among the most common chronic diseases (CDC, 2016d, para. 1), and they are also considered some of the most preventable conditions (CDC, 2016d).

Chronic disease, namely heart disease, is the leading cause of death in adults today (Heron & Anderson, 2016). Seven of the top ten leading causes of death in 2010 were due to chronic conditions (CDC, 2016d). Heart disease and cancer combined accounted for almost half of all deaths (CDC, 2016d). Chronic conditions not only cause mortality, but they are also a leading cause of disability and activity limitation. According to the Centers for Disease Control and Prevention (CDC) (2016d), diabetes is the number one cause of kidney failure, non-injury lower-limb amputations, and new blindness in adults.

Not only is this problem resulting in increased mortality and disability, but chronic disease is also costing the nation financially. The U.S. spends more than any other country annually on chronic disease (Centers for Disease Control and Prevention

[CDC], 2009). Of all healthcare spending in 2010, 86% was spent on chronic conditions (Gerteis et al., 2014). The total cost of heart disease, stroke, and cancer care in 2010 was estimated to be $472.4 billion dollars (CDC, 2016d). Approximately two thirds of that amount was spent on heart disease and stroke alone (CDC, 2016d). Furthermore, in 2012, the CDC (2016d) reported an estimated $245 billion dollars spent on diagnosed diabetes.

According to Gerteis et al. (2014), the number of chronic conditions a person has also increases U.S. healthcare expenditures. Of all healthcare spending in 2010, 71% was spent on persons with two or more chronic conditions (Gerteis et al., 2014). Nearly half of that percentage was spent on persons with five or more chronic conditions (Gerteis et al., 2014). When looking at the spending per capita, Gerteis et al. (2014) found that a person with one chronic condition costs the nation 2.5 times more compared to those without chronic conditions, and a person with five or more chronic conditions costs the nation 13.5 times more than those without.

The mortality, disability, and cost associated with chronic disease can be prevented with relatively simple changes to one's lifestyle. Healthy diet, exercise, avoiding tobacco use, and limiting alcohol consumption are four behaviors that can greatly reduce a person's risk of developing a chronic condition (CDC, 2016d). These lifestyle changes could improve a person's overall health, prevent chronic disease, and help revert the current crisis in the U.S. In fact, according to the World Health Organization, "if the major risk factors for chronic conditions were eliminated, 80% of heart disease, stroke, and type 2 diabetes would be prevented and 40% of cancer cases would be prevented" (as cited in CDC, 2009, p. 5).

Healthcare providers are at the forefront of the battle with chronic disease and its prevention. According to Abramson, Stein, Schaufele, Frates, and Rogan (2000), a majority of Americans name their physician as their primary source of healthy lifestyle information. By following preventive health guidelines, such as those released by the U.S. Preventive Services Task Force (USPSTF), HCPs can accurately recommend preventive services to their patients.

Another way HCPs can help improve chronic disease outcomes is by being role models for their patients (Frank et al., 2000a). According to Frank et al. (2000a), patients are more likely to take preventive health advice seriously from an HCP who discloses his or her personal health habits than one who does not disclose this information. Therefore, by actively practicing a healthy lifestyle and discussing their personal experiences with patients, HCPs may be able to significantly impact the chronic disease crisis.

Problem Statement

Chronic disease is now the number one cause of death in the U.S., and the nation spends billions of dollars each year treating preventable diseases. To decrease the death toll and expenditures, more emphasis needs to be placed on preventive medicine. HCPs are at the forefront of this transition. However, some HCPs do not act as role models for their patients, which can make it difficult for patients to fully trust their advice. In order to be more reliable advocates for prevention, HCPs may need to adjust their personal lifestyle. If patients view their HCPs as role models, they may be more inclined to take preventive health seriously and improve the current health crisis.

Purpose

The purpose of this study was to determine what percentage of PAs practice

preventive health habits in their personal lives. The study specifically focused on diet, physical activity, body mass index (BMI), blood pressure monitoring, tobacco use, alcohol use, and immunizations. Another purpose of the study was to determine how personal lifestyle affects a PA's preventive health discussions with patients.

Significance of the Problem

This study has significance for both HCPs and patients. Healthcare providers could gain further insight about preventive health and its importance through this study. Additionally, they could adopt a healthier lifestyle themselves, thus decreasing their risk of chronic disease. Healthcare providers could also find more confidence in their preventive health counseling abilities.

Healthcare providers improving their personal lifestyle and bettering their preventive health promotion could greatly benefit patients as well. If patients see their HCP as a role model, they may find the HCP more reliable and trustworthy. Patients may also be more inclined to adopt a healthier lifestyle. This increased trust could transform the patient-HCP relationship and in turn improve the health of the entire nation.

Research Questions

The research questions addressed by this study are as follows:

1. To what degree do PAs follow preventive health guidelines in their personal lives?

2. What impact, if any, does a PA's personal lifestyle have on preventive health discussions with patients?

Definitions of Terms

The key terms used for the purpose of the study are defined below.

Chronic disease: "A disease lasting three months or longer" (NHC, 2014, p. 1).

Counseling score: Score calculated by totaling participants' counseling practices regarding preventive health.

Healthcare provider (HCP): Individual who practices medicine. An HCP may be a physician assistant (PA), nurse practitioner (NP), medical doctor (MD), or doctor of osteopathic medicine (DO).

Obesity: Body mass index (BMI) greater than or equal to 30 kg/m^2 (U.S. Preventive Services Task Force [USPSTF], 2014).

Personal health score: Score calculated by totaling participants' compliance with preventive health recommendations in their personal lives.

Prevention: "Actions aimed at eradicating, eliminating, or minimizing the impact of disease and disability" (Porta, 2014, p. 224).

Satisfactory health score: Personal health score of nine or greater

Conclusion

Half of American adults have one or more chronic disease. Chronic conditions including heart disease, stroke, and respiratory disease are among the top causes of death today. Not only are these conditions life threatening, but they also constitute the majority of the nation's healthcare spending. Much of the morbidity, mortality, and cost associated with chronic disease is preventable. With the use of screening practices and counseling on risk factors such as obesity and tobacco use, HCPs can identify problems and implement solutions before chronic conditions develop.

Healthcare providers serve as health role models for their patients. If HCPs themselves do not practice healthy lifestyles, they may not counsel patients to the full extent of their capabilities. This study assessed PAs' personal health, specifically

focusing on dietary habits, exercise habits, BMI, blood pressure monitoring, tobacco use, alcohol consumption, and immunization status. The above information was used to determine if PAs' personal health influences preventive health discussions with patients.

Chapter 2: Literature Review

Introduction

Chronic disease impacts millions of Americans and can be reduced with preventive measures. The benefits of preventive health are expansive and include improvement in overall health, quality of life, and prosperity (Centers for Disease Control and Prevention [CDC], 2014). Healthcare providers (HCPs) acknowledge the importance of preventive services and are in a special position to serve as role models for their patients (Frank, Breyan, & Elon, 2000a). However, various factors may influence the delivery of these preventive services. This chapter will begin with an overview of the United States (U.S.) healthcare system, will then outline current recommendations and guidelines concerning healthy lifestyle and preventive services, and lastly will identify factors influencing the delivery of preventive services.

The United States Healthcare System

"Everyone—government, businesses, educators, healthcare institutions, communities and every single American—has a role in creating a healthier nation" (CDC, 2014, para. 1). In its essence, the U.S. healthcare system is about providing products and services to a consumer (Sadeghi, Barzi, Mikhail, & Shabot, 2013). The government ultimately oversees regulation of the healthcare system. The U.S. Department of Health and Human Services (HHS), Centers for Medicare and Medicaid Services (CMS), Food and Drug Administration (FDA), and Centers for Disease Control and Prevention (CDC) play a major role in executing and ensuring compliance with the laws governing our healthcare system (Sadeghi et al., 2013).

In March of 2010, the U.S. healthcare system was greatly impacted when

President Barack Obama signed the Patient Protection and Affordable Care Act (PPACA) into law (Assistant Secretary for Public Affairs, 2015). In short, the purpose of this law was to ensure Americans have access to quality healthcare. This law encompasses nine titles, each addressing an important issue of reform (Democratic Policy and Communications Committee [DPCC], 2009). The fourth title, called "Prevention of Chronic Disease and Improving Public Health" (DPCC, 2009, p. 6), addresses the importance of recognizing the impact of chronic disease and implementing measures to reduce its incidence (DPCC, 2009). There are four initiatives in this title that address specific issues of chronic disease, including "modernizing disease prevention and public health systems" (DPCC, 2009, p. 6), "increasing access to clinical preventive services" (DPCC, 2009, p. 6), "creating healthier communities" (DPCC, 2009, p. 7), and "support for prevention and public health innovation" (DPCC, 2009, p. 7).

The U.S. Preventive Services Task Force

With an increase in access to preventive services due to the PPACA, HCPs must be aware of appropriate preventive services for specific patient populations. An encompassing list of recommendations for preventive services is produced by the U.S. Preventive Services Task Force (USPSTF) based on evidence-based medicine and research (U.S. Preventive Services Task Force [USPSTF], 2014). Insurers must cover preventive services for adults rated "A" or "B" in the current recommendations, meaning that the evidence supports these services and the benefits exceed the harms (USPSTF, 2014). In fact, under the PPACA, 15 of these recommendations must be covered by insurance without cost sharing (USPSTF, 2014). These recommendations are discussed below.

Screening for abdominal aortic aneurysm. This is a grade B recommendation for men age 65 to 75 who have ever smoked, regardless of how much or how long. The USPSTF recommends that this population be screened once with ultrasonography (USPSTF, 2014).

Screening for alcohol misuse. This is a grade B recommendation for all adults. Providers should "screen for alcohol misuse and provide brief behavioral counseling interventions to persons engaged in risky or hazardous drinking" (USPSTF, 2014, p. 8).

Aspirin for the prevention of cardiovascular disease. This is a grade A recommendation for men age 45 to 79 and women age 55 to 79. Aspirin use is recommended when the benefit of preventing cardiovascular disease outweighs the risk of gastrointestinal bleeding (USPSTF, 2014).

Screening for high blood pressure. This is a grade A recommendation that affects the adult general population. All persons with unknown hypertension should be screened for high blood pressure (USPSTF, 2014). Patients with blood pressure <120/80 mm Hg should be screened every 2 years, while those with systolic blood pressure 120-139 mm Hg or diastolic blood pressure 80-90 mm Hg should be screened every year (USPSTF, 2014). Hypertension is diagnosed when the systolic blood pressure is 140 mm Hg or higher or diastolic blood pressure is 90 mm Hg or higher for two or more measurements (USPSTF, 2014).

Screening for lipid disorders in adults. This is a grade A recommendation for men age 35 and older, as well as women age 45 and older who are at risk for coronary artery disease. Patients should be screened for lipid disorders by measuring serum lipid levels (USPSTF, 2014).

Screening for colorectal cancer. Adults age 50 to 75 should be screened for colorectal cancer with high sensitivity fecal occult blood testing (FOBT), sigmoidoscopy, or colonoscopy. This is a grade A recommendation (USPSTF, 2014).

Screening for depression in adults. Screening for depression is recommended for non-pregnant adults age 18 or older when appropriate support is available for depression management and treatment. This is a grade B recommendation (USPSTF, 2014). Screening of depression may include the utilization of simple screening questions or full screening instruments (USPSTF, 2014). A common instrument HCPs use for depression screening is the Patient Health Questionnaire (U.S. Preventive Services Task Force [USPSTF], 2016).

Screening for type 2 diabetes mellitus in adults. All adults with sustained blood pressure greater than 135/80 mm Hg should be screened for type 2 diabetes mellitus. Screening tests include fasting plasma glucose, 2-hour post-load plasma glucose, or hemoglobin A1c. This is a grade B recommendation (USPSTF, 2014).

Screening for HIV. The populations that should be screened for HIV include adolescents and adults age 15 to 65, younger adolescents or adults at increased risk, and pregnant women. This is a grade A recommendation (USPSTF, 2014).

Screening for and management of obesity in adults. All adults should be screened for obesity. Patients with a body mass index (BMI) of 30 kg/m^2 or higher should be "offered or referred to intensive, multicomponent behavioral interventions" (USPSTF, 2014, p. 49). This is a grade B recommendation (USPSTF, 2014).

Prevention of sexually transmitted infections. All sexually active adolescents should be offered high-intensity counseling. This is a grade B recommendation

(USPSTF, 2014).

Prevention of tobacco use and tobacco-caused disease. Adults age 18 or older should be asked about tobacco use. It is recommended that tobacco cessation interventions be provided to those who use tobacco products. This is a grade A recommendation (USPSTF, 2014).

Additional Preventive Health Guidelines

Screening tools are useful in the prevention of chronic disease, but primary prevention also encompasses actions that an individual can take to improve their health and wellbeing. These actions include regular physical activity, a healthful diet, avoidance of alcohol, and immunization updates. National agencies other than the USPSTF have put forth recommendations for physical activity, diet, alcohol use, and immunizations, which are discussed below.

Physical activity. Physical activity can help prevent heart disease and stroke (American Heart Association [AHA], 2016). The American Heart Association (AHA) (2016) defines physical activity as, "anything that makes you move your body and burn calories" (para. 3). According to the U.S. Department of Agriculture (USDA) (2015), adults should partake in 75 minutes of vigorous physical activity or 150 minutes of moderate physical activity per week. Running, jogging, swimming, and basketball are examples of vigorous exercise; brisk walking, gardening, and dancing are examples of moderate exercise (USDA, 2015). In addition to aerobic exercise, the USDA (2015) recommends adults perform strength training twice per week.

Diet. Another component of preventive health that can help reduce chronic disease risk is diet (U.S. Department of Health and Human Services and U.S. Department

of Agriculture [HHS and USDA], 2015). According to the HHS and USDA (2015),

"about half of all American adults have one or more preventable, diet-related chronic

diseases, including cardiovascular disease, type 2 diabetes, and obesity" (p. xi). In order

to help prevent these conditions, the USDA (2017) recommends a balanced diet based on

gender and age. Specific recommendations for each food group are outlined in table 1.

In addition to these general guidelines, the USDA (2017) recommends that at least fifty

percent of daily grain intake be in the form of whole grains.

Table 1

USDA Dietary Recommendations (USDA, 2017)

Food Group	Gender	Age	Recommendation
Fruits	Women	19-30	2 cups
		31-50	2 cups
		51+	1.5 cups
	Men	19-30	2 cups
		31-50	2 cups
		51+	2 cups
Vegetables	Women	19-30	2.5 cups
		31-50	2.5 cups
		51+	2 cups
	Men	19-30	3 cups
		31-50	3 cups
		51+	2.5 cups
Grains	Women	19-30	6 ounces
		31-50	6 ounces
		51+	5 ounces
	Men	19-30	8 ounces
		31-50	7 ounces
		51+	6 ounces
Protein	Women	19-30	5.5 ounces
		31-50	5 ounces
		51+	5 ounces
	Men	19-30	6.5 ounces
		31-50	6 ounces
		51+	5.5 ounces
Dairy	Women	19-30	3 cups
		31-50	3 cups
		51+	3 cups
	Men	19-30	3 cups
		31-50	3 cups
		51+	3 cups

Alcohol use. Many people die from alcohol-related incidents each year. In 2010,

nearly 88,000 deaths were attributed to excessive alcohol consumption (Centers for

Disease Control and Prevention [CDC], 2016c). According to the HHS and USDA

(2015), alcohol consumption should be limited to one drink daily for women and two

drinks daily for men. The CDC (2016c) defines one drink as 12 ounces of beer, 8 ounces

of malt liquor, 5 ounces of wine, or 1.5 ounces of 80-proof hard liquor.

Immunizations. A number of organizations, including the Advisory Committee

on Immunization Practices and the American College of Physicians, collaborate to alter

and approve a new immunization schedule each year (Centers for Disease Control and

Prevention [CDC], 2016a). Table 2 displays the current vaccination recommendations

for adults over the age of 19 (Centers for Disease Control and Prevention [CDC], 2016b).

Table 2

CDC Adult Immunization Recommendations (CDC, 2016b)

Vaccine	19-21 years	22-26 years	27-59 years	60-64 years	≥ 65 years
Influenza [1]	1 dose annually				
Td/Tdap [2]	Substitute Tdap for Td once, then Td booster every 10 years				
MMR [3]	1 or 2 doses depending on indication				
VAR [4]	2 doses				
HZV [5]				1 dose	
HPV Female [6]	3 doses				
HPV Male [6]	3 doses				
PCV13 [7]					1 dose
PPSV23 [7]	1 or 2 doses depending on indication				1 dose
HepA [8]	2 or 3 doses depending on indication				
HepB [9]	3 doses				
MenACWY/MPSV4 [10]	1 or more doses depending on indication				
MenB [10]	2 or 3 doses depending on vaccine				
Hib [11]	1 or 3 doses depending on indication				

■ Recommended for adults who meet the age requirement, lack documentation of vaccination, or lack evidence of past infection

■ Recommended for adults with additional medical conditions or other indications

□ No recommendation

Healthcare Providers' Impact on Preventive Health

Americans gather much of their information about preventive health from their

HCP (Lobelo & Garcia de Quevedo, 2014). In fact, "as many as 80% of the population

rely on physicians for recommendations on physical activity" (Abramson, Stein,

Schaufele, Frates, & Rogan, 2000). There are a number of factors that contribute to

HCPs' preventive health counseling practices. According to Frank, Rothenberg, Lewis,

and Belodoff (2000b), "variables such as personal health behaviors, attempts to change

personal health, age, specialty, training as a subspecialist, and attitudes toward counseling

may be correlated with likelihood to counsel patients about prevention" (p. 1). Abramson

et al. (2000) surveyed primary care physicians about their personal exercise habits and

their counseling practices regarding physical activity. They found that physicians who

regularly exercised themselves were more likely to promote physical activity to their

patients. Additionally, this study found a positive correlation between the amount of time

physicians spent counseling their patients about physical activity and the patients'

adherence to these recommendations (Abramson et al., 2000). Similarly, Paterson et al.

(2016) found that providers who were vaccinated were more likely to counsel patients

about the importance of vaccines.

In another study that looked at exercise, Lobelo and Garcia de Quevedo (2014)

conducted a review of 47 articles assessing HCPs' physical activity habits, physical

activity discussions with patients, and the association between the two. They found that

physicians were more likely to follow physical activity guidelines than non-physician

medical professionals, such as nurses. (Lobelo & Garcia de Quevedo, 2014). The

researchers also identified factors that increased counseling rates, which included being a

female HCP, being in a primary care specialty, and being over 35 years old (Lobelo & Garcia de Quevedo, 2014). Of the 24 articles addressing the correlation between HCPs' physical activity levels and their counseling practices, 19 found a positive correlation. Lobelo and Garcia de Quevedo (2014) also found that intensity and regularity of counseling increased with increasing physical activity level of the HCP. Lastly, the researchers found that HCPs in specialty practice were more likely to counsel about physical activity if they themselves were physically active (Lobelo & Garcia de Quevedo, 2014).

Other studies have also supported the idea that personal health habits impact an HCP's patient counseling practices. Frank et al. (2000b) studied various aspects of preventive health, such as blood pressure screening and alcohol consumption, and factors that affected a physician's preventive health counseling practices. The researchers found that personally partaking in a certain preventive health recommendation increased a physician's likelihood to counsel his or her patients on that specific recommendation (Frank et al., 2000b). In a separate study, Frank (2004) found that "practicing a healthful behavior oneself was the most consistent and powerful predictor of physicians counseling [about that behavior]" (p. 637).

Though there has been found to be a positive correlation between personal health habits and counseling practices, HCPs are not necessarily following recommended guidelines themselves. A study conducted by Malachi (2015) investigated physician assistants' (PAs') personal health and its impact on counseling. She found that only 42% of PAs followed a healthy diet, and only 58.9% followed exercise recommendations (Malachi, 2015). In another study, less than half of physician participants were

considered to have a healthy weight (Hung, Keenan, & Fang, 2013).

In contrast to BMI, diet, and exercise guidelines, PAs are more compliant with alcohol and tobacco use guidelines. Malachi's 2015 study showed 90.8% of PAs consumed less than five drinks weekly and 86% had never smoked. Less than one percent of participants were using tobacco at the time her study was completed (Malachi, 2015). Malachi (2015) concluded that PAs may not be counseling about habits they are not consistently practicing in their personal lives, especially those regarding diet and exercise.

Healthcare providers' promotion of preventive health motivates patients. Frank et al. (2000a) conducted a study in which researchers showed two different educational videos to two different groups of participants. The first video showed a physician providing recommendations about diet and exercise. In the second video, the physician provided the same educational information and then disclosed her own personal health practices; she was also wearing a bike helmet and had an apple in the second video (Frank et al., 2000a). This study found that the patients who viewed the second video interpreted the physician as "healthier, somewhat more believable and more motivating" (Frank et al., 2000a, p. 1).

Barriers to Preventive Care

Even though the importance of preventive health is widely recognized, implementation rates of preventive services are low (Kottke, Brekke, & Solberg, 1993). In a study about delivery rates of preventive services, Kottke, Solberg, Brekke, Cabrera, and Marquez (1997) found that patients who were not up-to-date on a preventive service were offered the service less than 30% of the time. Studies have explored the potential

barriers to the delivery of preventive care, and Burack (1989) states that both physician and patient factors may have an influence.

According to Burack (1989), lack of time and insufficient reimbursement are two common barriers to preventive medicine. In accordance with this finding, Cornuz, Ghali, Carlantonio, Pecoud, and Paccaud (2000) also found that 41% of physicians cited lack of time as an important barrier to care. While lack of time is often cited as a barrier, it was not until a study was published by Yarnall, Pollak, Østybe, Krause, and Michener (2003) that the amount of time required for preventive services was quantified. In their study, the researchers used recommendations rated "A" or "B" by the USPSTF, the frequency these recommendations should be offered, the average time it would take to complete these services, and eligible populations for these services in order to determine their result. According to Yarnall et al. (2003), it would take 7.4 hours of an HCP's day to fulfill all of the USPSTF's recommendations.

Cornuz et al. (2000) offers other reasons for low preventive health delivery rates from HCPs to patients, including lack of evidence that the service is beneficial, unclear practice guidelines, and lack of training. Of the three, lack of training of the HCP on the preventive service was the least cited barrier (Cornuz et al., 2000). Questions of efficiency and conflicting recommendations are also barriers for HCPs according to Burack (1989), which may be due to national agencies having differing guidelines (Yarnall et al., 2003).

Burack takes into consideration barriers to preventive medicine from the patient's perspective as well. According to Burack (1989), the patient must have a willingness and ability to alter their behavior once it has been recommended by the HCP. Barriers to this

include cost, inconvenience, and insufficient motivation (Burack, 1989). In addition, the feedback HCPs receive from patients after a preventive service has been recommended may influence rates of delivery. Kottke et al. (1993) observed that preventive services do not always provide positive feedback. For example, "a lung cancer that does not develop does not provide feedback; patients who complain of being harassed because a physician advises them to quit smoking do" (Kottke et al., 1993, p. 788).

Conclusion

The importance of prevention is widely supported, and as discussed, a variety of factors can influence the delivery of preventive services. Much of the research about HCPs' personal health and counseling practices focuses on physicians and nurses; there is little research about PAs specifically. As a valuable member of the healthcare team, PAs' habits should be studied as well, which has prompted this study. The following chapter explains the methodology of the study.

Chapter 3: Methodology

Introduction

The majority of Americans receive information about preventive health from their healthcare providers (HCPs), but HCPS are not necessarily practicing healthful behaviors in their own lives. This can impact both their preventive health counseling to patients and patients' receptiveness to their advice. The methods discussed in this chapter were used to answer the following research questions:

1. To what degree do PAs follow preventive health guidelines in their personal lives?

2. What impact, if any, does a PA's personal lifestyle have on preventive health discussions with patients?

This chapter outlines the methods used to conduct this study. The sections discussed in this chapter include the following: study design, population, experimental procedures, data collection, data analysis, and limitations and delimitations.

Study Design

This study was a cross-sectional, quantitative study utilizing a survey distributed to members of the Wisconsin Academy of Physician Assistants (WAPA) via a bimonthly e-newsletter. It was a cross-sectional study because a specific population was examined at one point in time. Additionally, it was a quantitative study, as numerical data was collected for statistical analysis. The study focused on physician assistants (PAs) because there is a lack of research regarding PAs and preventive health practices, and the WAPA population represents a subset of PAs.

Population

The study surveyed PAs who are members of the Wisconsin Academy of

Physician Assistants (WAPA). The study focused on PAs because there is a lack of

research regarding PAs and preventive health practices. This specific organization was

selected because it is a local group of PAs with a personal connection to the research

chair. Permission to survey this population was obtained and can be referenced in

Appendix A. Physician assistants who participated in the study had practiced medicine

within five years of survey distribution. This ensured participants were up-to-date on

preventive medicine guidelines. Study participants were of any gender, age, or practice

specialty. Similarly, members of the organization who were a student, physician,

registered nurse, or other allied health professional were not eligible to participate in the

study.

Experimental Procedures

Prior to survey distribution and data collection, Bethel University IRB approval

was obtained (Appendix H). Following approval, a link to the survey and informed

consent was distributed to the WAPA communication chair for placement in their

bimonthly e-newsletter, which is distributed electronically to its members by e-mail. A

short paragraph, referenced in Appendix B, explaining the study was included with the

link to the survey. The paragraph and link were featured in the June 2017 e-newsletter.

If a member decided to participate, he or she clicked on the link and was directed to the

informed consent page (Appendix C). After reading the provided information and

making an informed decision to participate, the member selected "Yes I consent. Please

direct me to the survey" to access the survey.

The participant was then directed to Qualtrics to complete the survey, which is

referenced in Appendix D. Responses were collected through Qualtrics and later

exported to Microsoft Excel for data analysis. Data was collected over the course of

eight weeks, beginning in June 2017. The responses, while being collected and analyzed,

were stored on password-protected computers owned by the researchers. Upon

completion of the study, the data was transferred to an external storage device and placed

in the possession of Bethel University's Physician Assistant Program research

coordinator. The device will be locked in the program office for a minimum of five

years, per the securing protocol.

Data Collection

A survey created through Qualtrics was distributed to WAPA members via the

WAPA bimonthly e-newsletter. Clicking the link in the e-newsletter first directed

participants to an informed consent page (Appendix C). The informed consent page

stated that participation in the study had minimal associated risks and that participation

could be discontinued at any time without repercussions from WAPA or Bethel

University. It also explained that no identifiable information would be obtained through

the study, which ensured participant confidentiality. By clicking "Yes I consent. Please

direct me to the survey" on the informed consent page, the participant agreed that he or

she had read the provided information and gave consent to participate in the study.

The survey (Appendix D) included questions about demographics, personal health

habits, and preventive health counseling practices. Multiple choice questions formulated

based on organization guidelines were used to inquire about personal health habits. A

Likert scale was used to inquire about whether participants counsel patients about each

preventive health habit "never," "sometimes," "about half the time," "most of the time,"

or "always." The survey consisted of 22 questions in total and took respondents

approximately 5 minutes to complete. An expert panel consisting of PA faculty from Bethel University's PA program reviewed the survey prior to its distribution, which ensured readability. All changes suggested by the expert panel were incorporated into the survey. Survey questions were developed based on established literature, specifically a peer-reviewed and validated questionnaire published by Yeazel, Lindstrom-Bremer, and Center (2006). Modified questions from their questionnaire, called the Preventive Medicine Attitudes and Activities Questionnaire (PMAAQ), were included in this study's survey with Yeazel's permission. Yeazel's permission and survey can be referenced in Appendix E and F, respectively. Though modeled after the PMAAQ, this study utilized a novel survey, so reliability and validity were unable to be determined.

Data Analysis

The responses received from the survey were compiled and transferred to Microsoft Excel for data analysis. Based on WAPA membership numbers, a sample size of n=50 was anticipated. Participants' body mass index (BMI) was calculated based on their height and weight with the equation BMI = (weight in kilograms)/(height in meters)^2. A scoring matrix, referenced in Appendix G, was used to determine a personal health score for each respondent. For each survey question regarding personal health, participants were assigned a score of zero or one. Receiving a zero meant the participant did not meet the guideline for that particular health habit; a one meant they met the guideline. For those recommendations that differ based on age and gender, participants' demographic information was used to determine their score. The scores for all personal health habits were then totaled for each participant, and a higher overall score correlated to a healthier lifestyle. The maximum score for this portion of the survey was 11.

Similarly, a counseling score was determined for each participant. Preventive health counseling practices were scored based on participants' responses to the counseling habit Likert scale, with a response of "never" receiving a score of zero and a response of "always" receiving a score of four. Scores for each item were then totaled to calculate each participant's counseling score. A higher counseling score correlated to more frequent counseling about the U.S. Preventive Services Task Force (USPSTF), U.S. Department of Health and Human Services (HHS), U.S. Department of Agriculture (USDA), and Centers for Disease Control and Prevention (CDC) guidelines outlined in the literature review. The maximum score for this portion of the survey was 28.

A personal health score of 9 or greater was defined as the satisfactory health score and deemed participants as healthy; participants with a personal health score less than 9 were deemed unhealthy for the purposes of this study. Physician assistants' personal health habits were then compared based on their status of healthy or unhealthy. Independent *t* tests were utilized to determine which health guidelines healthy participants followed more closely than unhealthy participants.

Participants were also separated into four practice categories for data analysis. These categories were based on practice specialty, with specialties expected to have similar counseling practices grouped together. The four categories were as follows: primary care, internal medicine and other, emergency medicine and urgent care, and surgery. A chi-square test was utilized to determine whether personal health score was dependent on practice category. A series of independent *t* tests was also used to determine the relationship between health status and preventive health counseling practices. In addition, a Pearson correlation coefficient was calculated to assess whether

a correlation existed between personal health scores and counseling scores of study participants.

Limitations and Delimitations

There were a few anticipated limitations and delimitations of this study. Only a portion of the recommended preventive health measures were included in the study. Physical activity, diet, blood pressure monitoring, obesity screening, tobacco use, alcohol use, and immunizations were selected because these services are recommended for all adults, regardless of specific age, gender, or risk factors. Likewise, PAs were chosen for the study over other HCPs because there exists a need for research regarding PAs and preventive health practices.

There was also potential for bias in this study, such as response bias. The PAs who responded to the survey may be particularly interested in preventive medicine, and they may therefore practice preventive health in their own lives more commonly than PAs who are not interested in the topic. Likewise, the study focused on Wisconsin PAs, so this sample was not necessarily representative of other states or the nation as a whole.

Conclusion

The methodology of the study enabled investigation of the previously listed research questions. This study utilized a survey distributed to WAPA members following Bethel University IRB approval. Survey questions were developed based on reviewed literature, especially a validated survey published by Yeazel, Lindstrom-Bremer, and Center (2006). Survey responses remained confidential and secure. A scoring matrix was used to determine a personal health score for each participant, and a counseling score was also calculated for each participant. Participants were separated into groups based on

health status and based on practice specialty to facilitate data analysis. Data analysis was

completed using two series of independent *t* tests, a chi-square test, and a regression

analysis. The next two chapters will present and discuss the results of the data analysis.

Chapter 4: Results

Introduction

The survey and data analysis for this study were designed to determine how compliant physician assistants (PAs) are with preventive health recommendations and how their own health affects their preventive health counseling practices. The previous chapters have focused on the implications of chronic disease, certain measures that can be taken to prevent chronic disease, and the methodology used to answer the aforementioned research questions. This chapter will outline the results obtained from the survey referenced in Appendix D.

Demographics

Of the 493 Wisconsin Academy of Physician Assistants (WAPA) members who opened the e-newsletter containing the survey link, 40 members participated in the study, for a response rate of 8.1%. Five responses were excluded from data analysis due to failure to meet eligibility criteria or incomplete responses to one or more questions. Of the 35 survey responses included in analysis, 77.1% of respondents were female and 22.9% were male. The majority of responses were from individuals 50 years of age or younger at 62.9%, while 37.1% of participants were 51 years of age or older. Currently practicing PAs comprised 97.1% of responses, and only 1 of 35 was not currently practicing but had practiced within the past five years. Responses were received from PAs practicing in numerous specialties including primary care (28.6%), internal medicine subspecialties (22.9%), emergency medicine (11.4%), urgent care (2.9%), surgical subspecialties (14.3%), and other (20%). Participants selecting "other" listed ENT/allergy, gastroenterology, hospital medicine, oncology, and occupational medicine

as their practice specialties (Table 3). Zero study participants selected general surgery as

their practice specialty. Figure 1 provides a visualization of the practice specialties of

study participants.

Table 3

Demographic Data of Study Participants

Characteristic	N	Percent
Gender		
Male	8	22.9
Female	27	77.1
Age		
Less than or equal to 50 years	22	62.9
51 years or older	13	37.1
Practice status		
Currently practicing	34	97.1
Practiced within the past 5 years	1	2.9
Practice specialty		
Primary care	10	28.6
Internal medicine subspecialties	8	22.9
Emergency medicine	4	11.4
Urgent care	1	2.9
Surgical subspecialties	5	14.3
Other	7	20.0
Practice category		
Primary care	10	28.6
Internal medicine and other	15	42.9
Emergency medicine and urgent care	5	14.3
Surgery	5	14.3
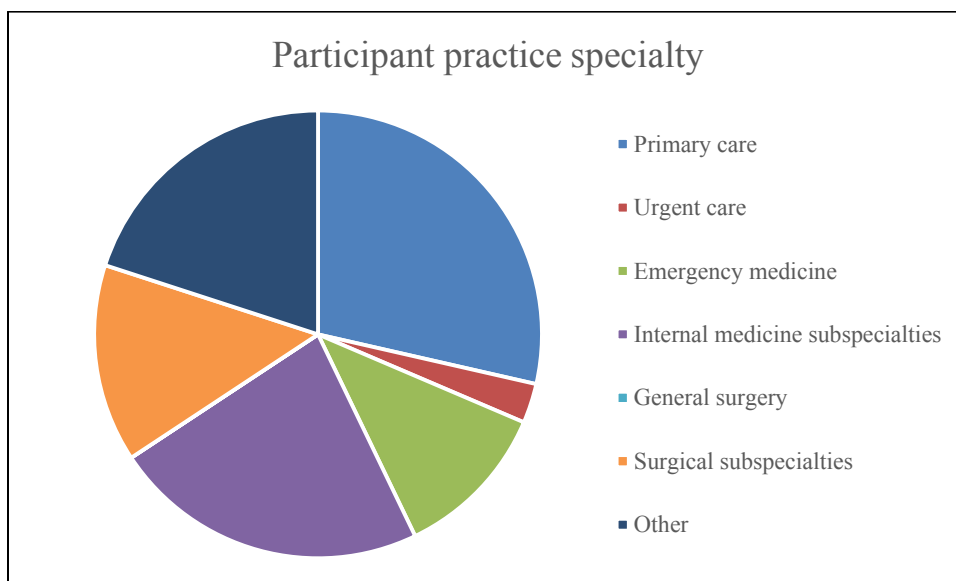
Figure 1. Participant Practice Specialty. This figure displays the medical practice specialties of study participants.

Analysis of Participants' Personal Health Habits

In this study, participants were asked how often they adhere to certain health guidelines, and they were assigned a personal health score based on their responses. The higher a participant's personal health score, the more he or she was in compliance with preventive health guidelines. The maximum possible personal health score was 11. A personal health score of 9 or greater deemed participants as healthy; those with a personal health score less than 9 were considered unhealthy for the purposes of this study. The average personal health score of all participants was 8.6, with a standard deviation of 1.8. The lowest personal health score recorded was 5.6, and the highest personal health score recorded was 11. Complete descriptive statistics of personal health score based on various demographic groups are displayed in table 4.

Table 4

Descriptive Statistics of Personal Health Score by Demographic Category

Demographic	N	Min	Max	Mean	SD
All participants	35	5	11	8.6	1.8
Gender					
Male	8	5	10	7.5	2
Female	27	5	11	8.9	1.7
Age					
Less than or equal to 50 years	22	5	11	8.8	1.8
51 years or older	13	5	10	8.2	1.8
Practice specialty					
Primary care	10	5	10	7.4	2.0
Internal medicine subspecialties	8	6	10	8.5	1.4
Emergency medicine	4	6	11	9.5	2.4
Urgent care	1	8	8	8	--
Surgical subspecialties	5	8	11	9.4	1.5
Other	7	7	11	9.4	1.4
Practice category					
Primary care	10	5	10	7.4	2.0
Internal medicine and other	15	6	11	8.9	1.4
Emergency medicine and urgent care	5	6	11	9.2	2.2
Surgery	5	8	11	9.4	1.5

Of all participants, 85.7% were considered to have a healthy body mass index

(BMI) of 18.5 to 29.9, and 88.6% were within the appropriate range of alcohol intake per

week. One hundred percent of participants were avoiding tobacco use at the time of

survey completion, and 82.9% of participants had never used tobacco. The lowest

percentages of adherence were related to nutrition and exercise (grain intake = 65.7%;

vegetable intake = 60%; fruit intake = 51.4%; strength training = 48.6%; physical activity

= 77.1%). One hundred percent of participants met guidelines for blood pressure

monitoring and immunizations (Figure 2).
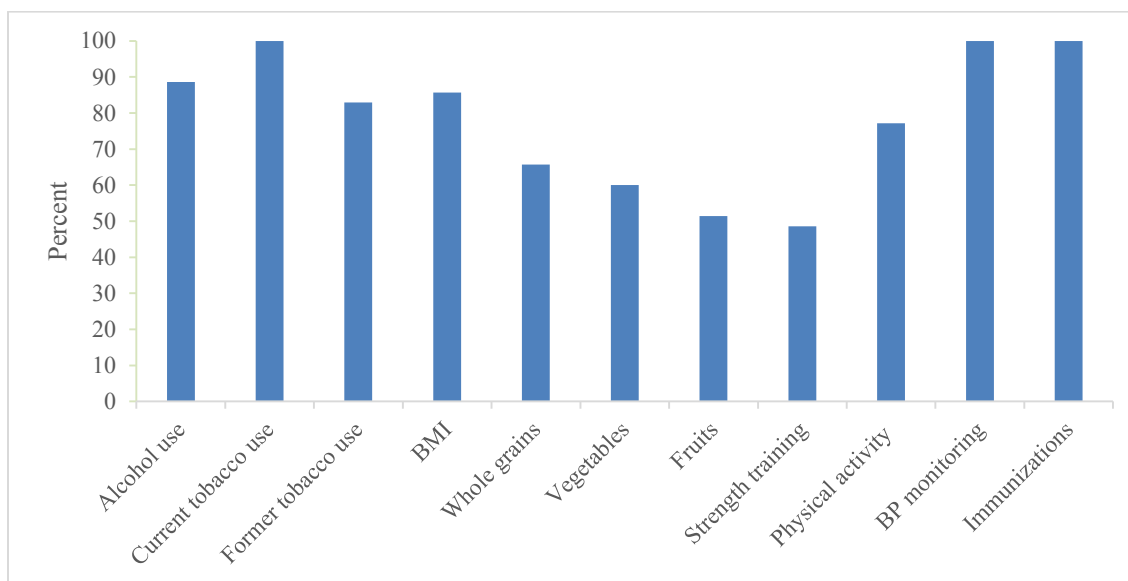
Figure 2. Participants Following Specific Health Guidelines. This figure displays the percentage of study participants following specific health guidelines in their personal lives.

Participants receiving a personal health score of 9 or greater met the satisfactory health score and were considered healthy. Based on this criterion, 57.1% of total participants exhibited a healthy lifestyle, while 42.9% did not. Healthy versus unhealthy participants were further compartmentalized based on age, gender, and specialty. In the 50 years of age and younger category, 63.6% of participants were considered healthy, while 36.4% were considered unhealthy. Conversely, 46.2% of participants in the 51 or older category were considered healthy, and 53.9% were considered unhealthy (Figure 3). Of the female respondents, 63% were considered healthy, and 37.0% were considered unhealthy. The majority of their male counterparts were categorized as unhealthy at 62.5%, with only 37.5% categorized as healthy (Figure 4). As for the percentage of participants meeting the satisfactory health score based on specialty, 40% of primary care, 0% of urgent care, 75% of emergency medicine, 62.5% of internal medicine

subspecialties, 60% of surgical subspecialties, and 71.4% of other professionals received

a personal health score of 9 or greater (Figure 5).
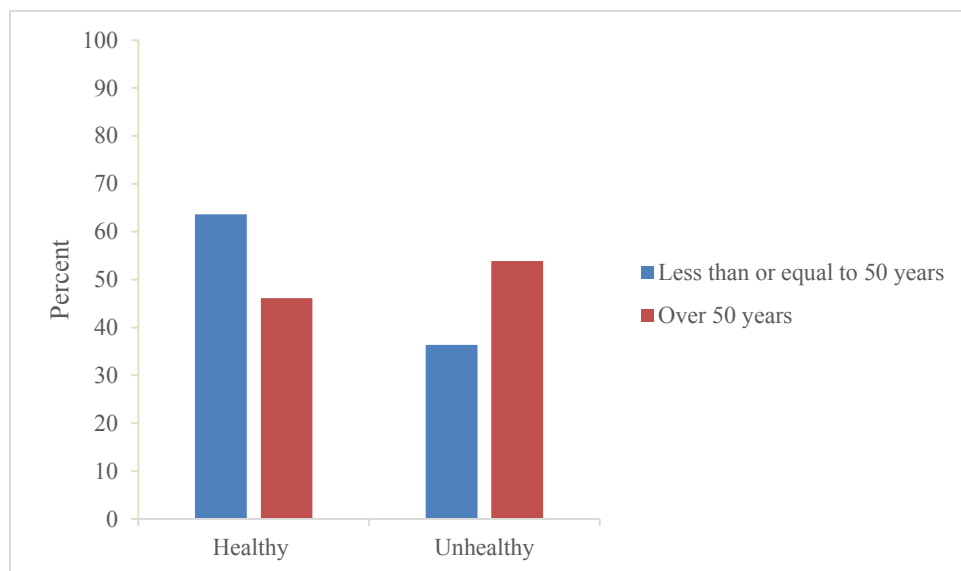
Figure 3. Participant Health Status by Age Group. Healthy: meeting satisfactory health score; Unhealthy: not meeting satisfactory health score. This figure displays the percentage of participants classified as healthy and unhealthy by age group.
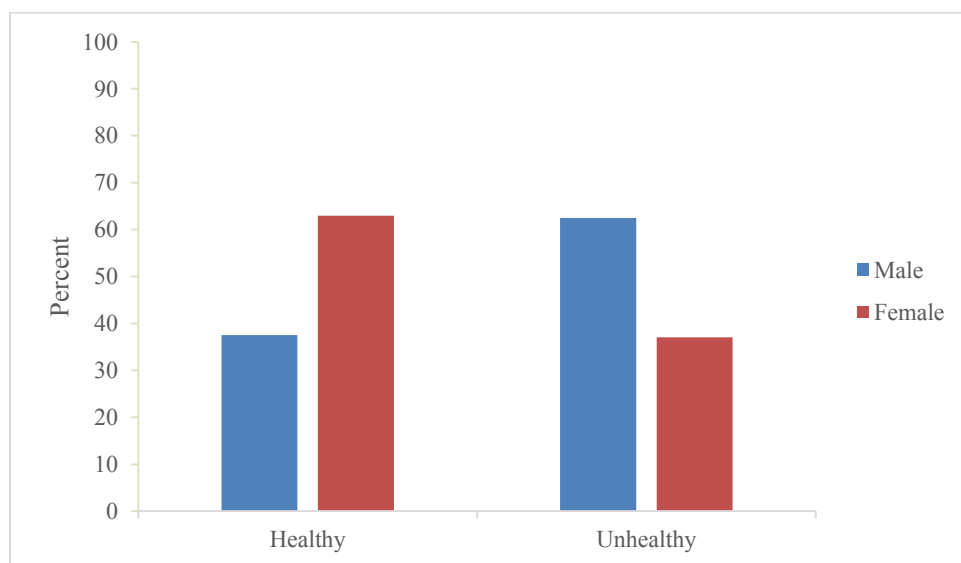
Figure 4. Participant Health Status by Gender. This figure displays the percentage of participants classified as healthy and unhealthy by gender.
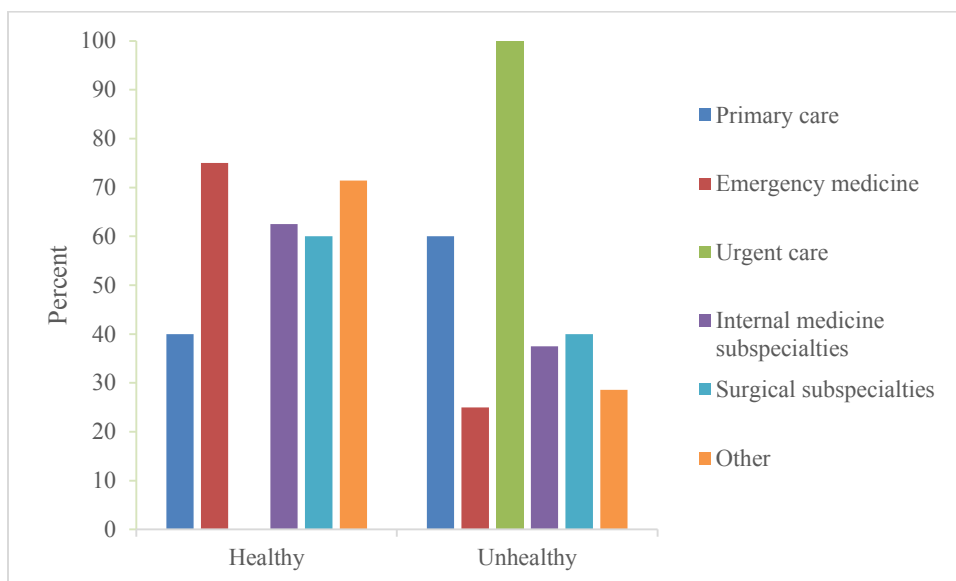
Figure 5. Participant Health Status by Practice Specialty. This figure displays the percentage of participants classified as healthy and unhealthy by practice specialty.

The differences in healthy and unhealthy participants' personal health habits were also analyzed. Of all healthy participants, 100% met guidelines for BMI, current tobacco use, alcohol use, blood pressure monitoring, and immunizations. Only 10% of healthy participants were former smokers. The proportion of healthy participants meeting criteria for adequate whole grain, vegetable, and fruit intake was 80%, 90%, and 60% respectively. As for exercise, 80% of healthy participants met guidelines for strength training and 95% met guidelines for other physical activity (Figure 6).

Unhealthy participants also had an adherence rate of 100% for current tobacco use, blood pressure monitoring, and immunization guidelines, but they had lower adherence rates than their healthy counterparts for the remaining categories. A healthy BMI was met by 66.7% of unhealthy participants. Former tobacco use guidelines and alcohol use guidelines were both followed by 73.3% of unhealthy participants. Only 46.7% of unhealthy participants had adequate whole grain intake, with only 20% and

40% of participants meeting criteria for adequate vegetable intake and fruit intake, respectively. In regards to exercise, only 6.7% of unhealthy participants met guidelines for strength training, and 53.3% met guidelines for other physical activity (Figure 6).
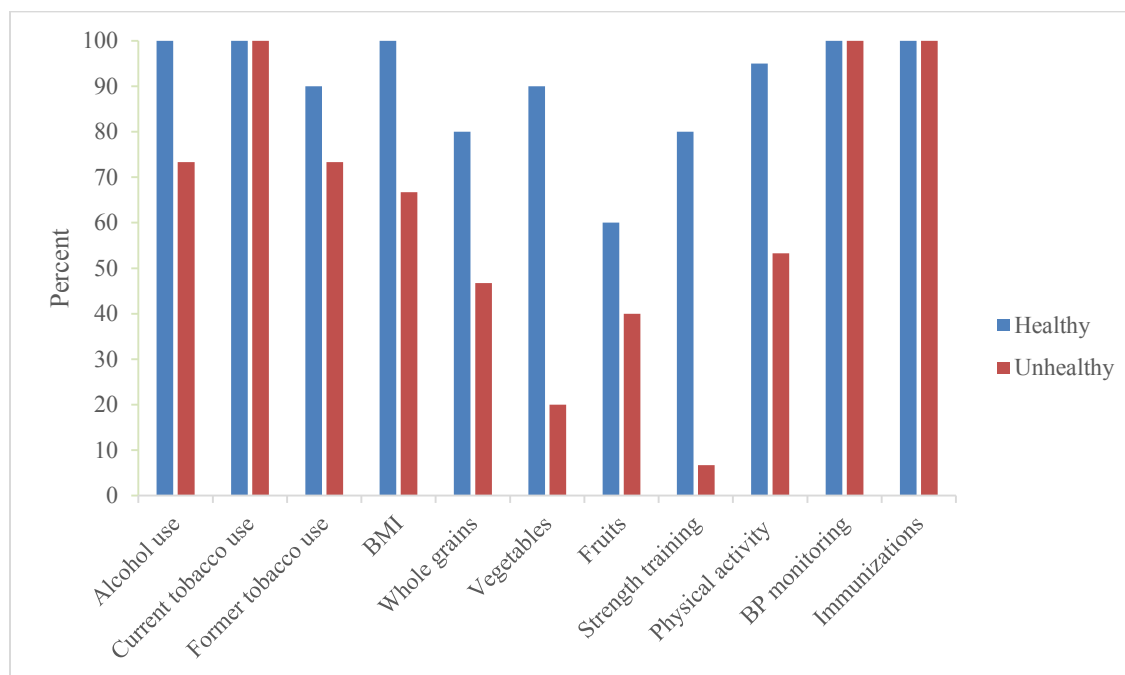
Figure 6. Participants Following Specific Health Guidelines by Health Status. This figure displays the percentage of healthy participants versus unhealthy participants following each specific health guideline.

Further analysis was conducted on healthy participants' versus unhealthy participants' adherence to specific guidelines using a series of independent *t* tests. There was no difference between healthy and unhealthy participants' scores for current tobacco use, blood pressure monitoring, and immunization guidelines, thus these categories were excluded from analysis. The calculated p-value was 0.05 or greater for former tobacco avoidance ($t(23) = 2.07$, $p = 0.24$), adequate whole grain intake ($t(26) = 2.06$, $p = 0.05$), and adequate fruit intake ($t(30) = 2.04$, $p = 0.26$). The p-value was less than 0.05 for alcohol limitation ($t(14) = 2.14$, $p = 0.04$), normal BMI status ($t(14) = 2.14$, $p = 0.02$),

adequate vegetable intake (t(25) = 2.06, p = <0.001), strength training (t(32) = 2.04, p = <0.001), and other physical activity (t(18) = 2.1, p = 0.01) (Table 5).

Table 5

Independent t tests of Health Habit Scores Assuming Unequal Variance

	Healthy		Unhealthy				
	Mean	SD	Mean	SD	t	df	p-value
Alcohol use	1	0	0.73	0.46	2.14	14	0.04
Current tobacco use	1	0	1	0	--	--	--
Former tobacco use	0.9	0.31	0.73	0.46	2.07	23	0.24
BMI	1	0	0.67	0.49	2.14	14	0.02
Whole grains	0.8	0.41	0.47	0.52	2.06	26	0.05
Vegetables	0.9	0.31	0.2	0.41	2.06	25	1.01×10^{-5}
Fruits	0.6	0.5	0.4	0.51	2.04	30	0.26
Strength training	0.8	0.41	0.07	0.26	2.04	32	2.84×10^{-7}
Physical activity	0.95	0.22	0.53	0.52	2.1	18	0.01
BP monitoring	1	0	1	0	--	--	--
Immunizations	1	0	1	0	--	--	--

In addition, evaluation of participants' health status based on practice category was conducted. As responses were received from many different specialties, specialties were consolidated into four practice categories: primary care, internal medicine and other, emergency medicine and urgent care, and surgery. The percentage of PAs meeting the satisfactory health score, and therefore being considered healthy, was calculated for each of the four groups. Of PAs in the internal medicine and other category, 66.7% were considered healthy. Emergency medicine and urgent care PAs had 60% of participants reach the satisfactory health score. Likewise, surgery PAs had 60% of participants meet

the satisfactory health score. Only 40% of PAs in primary care were considered healthy. A chi-square test was performed to determine whether personal health score was dependent on practice category, which yielded a chi-square value of 1.78 and a p-value of 0.618 (X^2 (3, N = 35) = 1.78, p = 0.618).

Analysis of the Relationship between Personal Health and Counseling Practices

The second goal of this study was to determine what impact a PA's personal health status has on his or her patient counseling about preventive health. As done previously for personal health scores, each participant was assigned a counseling score based on his or her survey responses. The maximum possible counseling score was 28. Of all participants, the maximum counseling score was 27, the minimum counseling score was 0, and the average counseling score was 12.7. The mean counseling score for healthy patients was 13.0 with a standard deviation of 7.0, and the mean counseling score for unhealthy participants was 12.3 with a standard deviation of 6.2.

A series of independent *t* tests was utilized to determine if there was a significant difference between healthy participants' and unhealthy participants' counseling practices on the preventive health habits assessed by this study. The independent *t* test comparing total counseling scores of healthy versus unhealthy participants revealed a p-value of 0.75. Table 6 displays the independent *t* test results comparing healthy versus unhealthy participants' counseling practices regarding each individual preventive behavior.

Table 6

Independent t tests of Health Habit Counseling Scores Assuming Unequal Variance

	Healthy		Unhealthy				
	Mean	SD	Mean	SD	t	df	p-value
Alcohol use	1.6	1.2	1.2	1.0	2.04	32	0.29
Tobacco use	2.2	1.3	2.1	1.5	2.05	28	0.89
Healthy weight	2.0	1.3	2.0	1.3	2.04	30	0.91
Healthy diet	2.2	1.4	1.8	1.4	2.04	31	0.41
Physical activity	2.0	1.6	1.9	1.4	2.04	32	0.82
BP monitoring	1.6	1.2	1.5	1.4	2.05	28	0.77
Immunizations	1.4	1.2	1.8	1.6	2.06	25	0.38

In addition to the aforementioned independent *t* tests, the values for each participant's personal health score and counseling score were plotted to determine if there was a correlation between the two. The regression equation was Y = 0.1548x + 11.412 (Figure 7). The R value was 0.0425.
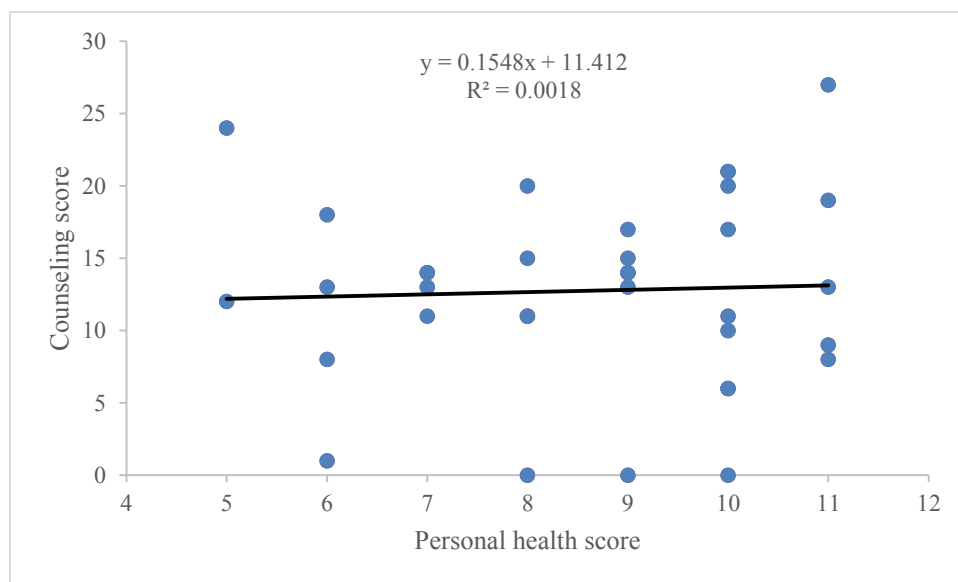
Figure 7. Correlation between Personal Health Scores and Counseling Scores. This figure displays the relationship between participants' personal health scores and counseling scores where R = 0.0425.

Conclusion

This chapter outlined the results obtained from the survey and the statistical analysis conducted to answer the research questions. Statistical analysis of collected data included independent *t* tests, a chi-square test, and a regression analysis. The following chapter will discuss the implications of these results and deduce conclusions based on the analyses conducted in this chapter.

Chapter 5: Discussion

Introduction

This study utilized a series of independent *t* tests and a chi-square test to determine the percentage of PAs who follow preventive health guidelines in their personal lives. In addition, a series of independent *t* tests and a regression analysis were used to determine how physician assistants' (PAs') personal health impacts their preventive health discussions with patients. This chapter serves as an expansion and discussion of the results outlined in the previous chapter. Furthermore, this chapter will focus on the implications of these findings, areas for future research, and limitations of the study.

Health Habits of PAs

The survey utilized in this study inquired about the following health habits: current and former tobacco use, alcohol intake, diet, exercise, blood pressure monitoring, and immunizations. Height and weight were also obtained to calculate each participant's body mass index (BMI). Study participants were assigned a personal health score utilizing a scoring matrix referenced in appendix G. Participants received one point for each preventive health guideline they were in compliance with. Points for all guidelines were then totaled to determine a personal health score for each participant. The more recommendations participants followed in their personal lives, the higher their personal health scores. Based on their personal health score, participants were categorized as healthy or unhealthy. A personal health score of 9 or greater, defined as the satisfactory health score, was used to qualify participants as healthy. Participants with a personal health score less than 9 were labeled unhealthy for the purposes of this study.

All participants, regardless of personal health score, followed the recommended guidelines for current tobacco use, blood pressure monitoring, and immunizations. These findings were consistent with the literature regarding tobacco use status among PAs. None of the participants in this study were using tobacco at the time of survey completion, and 82.9% had never used tobacco. In her study, Malachi (2015) found that <1% of PAs were smokers and 86% had never smoked. The harmful effects of tobacco are widely established and strongly recognized in the medical community, so it was not surprising that all participants of this study were avoiding tobacco at the time of data collection.

It was also not surprising that all participants were up-to-date on immunizations, as medical systems usually require healthcare professionals to stay up-to-date on immunizations in order to maintain employment. According to the literature, all participants being up-to-date on immunizations would suggest they were counseling patients about immunizations; a study by Paterson et. al (2016) found that "healthcare providers were more likely to recommend vaccination if they were themselves vaccinated" (para. 14).

A similar conclusion can be inferred about blood pressure monitoring. Frank, Rothenberg, Lewis, and Belodoff (2000b) investigated blood pressure screening in their study and found that "practicing a healthful behavior oneself was the most consistent and powerful predictor of physicians counseling [about that behavior]" (p. 637). This would suggest the PAs surveyed in this study were counseling patients about blood pressure monitoring since they all personally adhered to the guidelines for blood pressure monitoring. Furthermore, PAs surveyed in Malachi's study (2015) regarded blood

pressure monitoring as one of the most important preventive health habits to discuss with patients.

The findings of this study regarding BMI were also consistent with the reviewed literature. Malachi (2015) found that 78% of PAs had a BMI less than the obesity threshold of 30 kg/m^2. In this study, 85.7% of participants had a BMI less than 30 kg/m^2.

Of all the guidelines investigated by this study, dietary, physical activity, and strength training guidelines were least met by study participants. Alcohol use, current tobacco use, former tobacco use, BMI, blood pressure monitoring, and immunization recommendations each had an adherence rate of greater than 80%. Whole grain intake (65.7%), vegetable intake (60%), fruit intake (51.4%), physical activity (77.1%), and strength training (48.6%) recommendations were comparatively poorly followed. Of all participants in this study, 48.6% adhered to recommendations regarding both physical activity and strength training. These findings were relatively consistent with Malachi's findings in her 2015 study. Only 42% of PAs participating in her study consumed a healthy diet, and 58.9% exercised weekly according to guidelines (Malachi, 2015).

The benefits of physical activity, which is defined as "anything that makes you move your body and burn calories" (American Heart Association [AHA], 2016, para. 3), are well-understood and recommended to prevent heart disease and stroke. This may explain why physical activity guidelines were more commonly followed as compared to strength training guidelines, which are not as well-established. Studies show that physicians who exercise regularly are more likely to recommend exercise to patients, and the more time physicians spend promoting physical activity to patients, the more apt patients are to adhere to the recommendations (Abramson, Stein, Schaufele, Frates, &

Rogan, 2000). From this information, it can be inferred that PAs are not counseling about exercise and diet as much as they are other health habits, and patients are thus less compliant with diet and exercise guidelines than they are with tobacco use, immunization, and blood pressure monitoring guidelines.

In terms of alcohol use, this study was consistent with prior findings. Currently, it is recommended that alcohol be restricted to one drink daily for women and two drinks daily for men (U.S. Department of Health and Human Services and U.S. Department of Agriculture [HHS and USDA], 2015). The literature shows that 90.8% of PAs consume less than five drinks per week (Malachi, 2015). This study found that 88.6% of PAs followed recommended alcohol use guidelines.

Further analysis of healthy versus unhealthy study participants yielded statistically significant differences in their compliance with guidelines in five health habit categories. These categories were alcohol use, BMI, vegetable intake, strength training, and physical activity. From this, it can be deduced that healthy PAs are more likely to follow these recommendations than their unhealthy counterparts. Though not statistically significant, the data analysis revealed that healthy participants scored higher in the whole grain intake, fruit intake, and former tobacco use categories as well.

Due to limitations in sample size, data analysis was not conducted comparing health status based on age or gender. It was difficult to draw conclusions based on gender, as there were only 8 male participants versus 27 female participants. Analysis was, however, conducted on participants' practice specialties. Participants were separated into four practice categories based on their practice specialty, with specialties expected to have similar counseling habits grouped together. The four categories were

primary care, internal medicine and other, emergency medicine and urgent care, and surgery. As the nature of this research pertains to health habits known to prevent chronic disease, and counseling can vary from specialty to specialty, it was important to determine if there was a difference in PA health status based on practice category.

While there was no statistically significant evidence that personal health score was dependent on practice category based on the chi-square analysis, it was interesting that primary care had the lowest percentage of PAs meeting the satisfactory health score, thus qualifying primary care as the least healthy practice category. This finding was undesirable because primary care providers are at the forefront of preventive medicine counseling (Frank et al., 2000b). As mentioned previously, the literature supports a positive correlation between physicians' personal health and their counseling about healthy habits (Frank, 2004). Although the literature acknowledges that patients often receive preventive health recommendations from their primary care provider, this study's finding that primary care PAs are the least healthy would suggest they are not counseling about preventive health as much as PAs practicing in other specialties are.

Impact on Counseling

In addition to a personal health score, a counseling score was calculated for each study participant. A Likert scale was used to inquire about how frequently participants counseled patients about each of the health habits outlined previously. Self-reported responses to each habit were totaled to determine an overall counseling score for each participant. The more frequently participants counseled patients about the current guidelines surrounding preventive health, the higher their counseling scores.

The literature demonstrates that if a provider practices a healthy behavior, they

are more likely to counsel patients on this particular behavior (Frank et al., 2000b). From this, it can be inferred that those participants considered to be healthy based on their personal health score would have higher counseling scores than those participants considered to be unhealthy. This study did not support this notion, as there was no statistically significant difference between counseling practices of healthy and unhealthy participants. The independent *t* test comparing counseling practices of healthy versus unhealthy participants revealed a p-value of 0.75. Similarly, a regression analysis demonstrated a correlation coefficient of 0.04, signifying neither a positive nor negative correlation between personal health score and counseling score.

Although this finding was inconsistent with prior research, which demonstrated a positive correlation between healthcare providers' (HCPs') personal health and their preventive health counseling practices, this finding is ultimately reassuring because PAs in this study were counseling about healthy habits even if they themselves were not considered healthy. Malachi (2015) came to a similar conclusion about alcohol use in her study. She found that PAs counseled patients on alcohol limitation independent of their own alcohol use habits (Malachi, 2015). However, she found a positive correlation between personal health and counseling regarding other habits, such as diet and exercise (Malachi, 2015). In this study, when comparing healthy versus unhealthy participants' counseling practices, the p-value for each of the individual health habits ranged from 0.29 (alcohol use) to 0.91 (healthy weight). No p-value for any health habit category was less than 0.05, which demonstrates that PAs' preventive health counseling practices did not differ based on their health status.

Limitations

The sample size and response rate were both limitations of this study. Members of WAPA comprise only a small fraction of practicing PAs in the state of Wisconsin. Furthermore, there was a limited number of WAPA members participating in the study, with a response rate of 8.1%. Additionally, the results obtained from this population are not necessarily representative of other states or the nation as a whole.

Further Research

Recommendations for further research are based on the above limitations. As discussed, this study focused on PAs in only one state. It would be interesting to research health habits of PAs in different states, as health status could certainly differ from state-to-state. Malachi performed a national study focusing on personal health habits and preventive health counseling habits of PAs in 2015, and she found "a statistically significant and predictive relationship between physician assistants' personal health habits and their preventive medicine practices" (Malachi, 2015, p. 178). It would be interesting to conduct this study, in which participants were categorized as healthy or unhealthy and counseling practices between the two groups were subsequently compared, on a national level and compare it to Malachi's results. There remains limited literature surrounding PAs' personal health habits and the effect these habits have on preventive health counseling to patients. Further related studies would not only allow for a better understanding of how PAs' personal health habits affect counseling practices, but would also help define the profession's health as a whole.

This study was completed solely through a healthcare provider standpoint. It did not focus on patient attitudes of provider healthfulness or patient tendency to follow

recommendations based on provider health status. An interesting follow-up study would focus on the patients of WAPA members and their perception of their PAs' personal health. Likewise, patients' adherence to guidelines based on their PAs' personal health habits and counseling practices could be investigated.

As mentioned previously, primary care HCPs are at the forefront of chronic disease prevention and arguably have the greatest impact on patients in terms of preventive medicine. Instead of focusing on all practice specialties as this study did, a study focusing on primary care alone could further expand on the personal health habits and counseling practices of HCPs in this specialty.

Conclusion

This study aimed to determine the health habits of PAs and how these habits influence preventive health counseling practices. Healthy lifestyle choices are a main factor in the prevention of chronic disease, and PAs have the opportunity to not only set examples for their patients but also counsel on these important healthy habits. The group of Wisconsin PAs surveyed in this study helped achieve a better understanding of this profession's health and impact on chronic disease. Certain health guidelines, such as those regarding diet and exercise were relatively poorly followed. Others, such as tobacco use, immunization, and blood pressure monitoring guidelines were followed by all participants. Even though not all participants were considered healthy, this study showed no significant difference in the counseling practices of healthy versus unhealthy participants, meaning that patients may ultimately still be counseled about healthy habits even if their PA is considered unhealthy. Whether or not patients are motivated to follow advice given by an unhealthy provider is an area of future research. This study can help

PAs recognize areas of improvement for healthy lifestyles, but further studies are needed to better understand the implications on chronic disease prevention.

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APPENDIX A

Approval to Survey WAPA Members

BETHEL
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Megan Englund <mee46555@bethel.edu>

Study Participation

Tara Streit <tarastreit.wapa@gmail.com>   Tue, Jul 11, 2017 at 4:38 PM
To: Megan Englund <mee46555@bethel.edu>

You officially have permission to survey the WAPA members.

We would send out via the newsletter.

Tara
[Quoted text hidden]

APPENDIX B

Survey Description for WAPA E-Newsletter

<u>Do you practice what you preach?</u>
We are PA students at Bethel University in St. Paul, Minnesota. We are conducting research on the personal health habits of PAs and the impact these habits have on their preventive health discussions with patients. Please follow the link below to complete a 5 minute survey. Your response to the attached survey is vital to the success of our project. We understand the value of your time and appreciate your contribution to our study and the research surrounding preventive health.

Thank you,
Emily and Megan

APPENDIX C

Informed Consent

Dear WAPA member:

We are physician assistant students from Bethel University's Physician Assistant Program, conducting research in partial fulfillment of the requirements for a Master's Degree in Physician Assistant Studies. Our study is investigating the personal health habits of physician assistants and the effect these habits have on preventive health discussions with patients. You were selected as a possible participant in this study because you are a member of a local group of physician assistants.

There are no risks associated with participation, and the survey will take approximately 5 minutes to complete. Confidentiality of survey responses will be maintained, and no identifiable information will be collected. Only authorized research personnel will review survey responses.

Your decision whether or not to participate will not affect your future relations with WAPA or Bethel University in any way. If you decide to participate, you are free to skip any questions or discontinue participation at any time without affecting such relationships.

This research project has been reviewed and approved in accordance with Bethel University's Levels of Review for Research with Humans. If you have any questions about the research and/or research participants' rights or wish to report a research related injury, please call Megan Englund, PA-S at 507-254-3561, Emily Carstens, PA-S at 952-956-4881, or Lisa Naser, PA-C at 651-635-8679.

We understand that you have an extremely busy schedule and your time is limited. Please realize that your participation is vital to the success of this research. The information that you provide is essential to the validity of this study.

Thank you in advance for your prompt response to this study. If you have any questions, please contact Megan Englund, PA-S or Emily Carstens, PA-S.

Thank you again for your help.

Sincerely,
Megan Englund and Emily Carstens

You are making a decision whether or not to participate. Clicking "Yes, I consent. Please direct me to the survey" indicates that you have read the information provided above and have decided to participate. You may skip any questions or withdraw at any time without prejudice should you choose to discontinue participation in this study.

APPENDIX D

Survey for Current Study

Q1 Dear WAPA member:

We are students from Bethel University's Physician Assistant Program, conducting research in partial fulfillment of the requirements for a Master's Degree in Physician Assistant Studies. Our study is investigating the personal health habits of physician assistants and the effect these habits have on preventive health discussions with patients. You were selected as a possible participant in this study because you are a member of a local group of physician assistants.

There are no risks associated with participation, and the survey will take approximately 5 minutes to complete. Confidentiality of survey responses will be maintained, and no identifiable information will be collected. Only authorized research personnel will review survey responses.

Your decision whether or not to participate will not affect your future relations with WAPA or Bethel University in any way. If you decide to participate, you are free to skip any questions or discontinue participation at any time without affecting such relationships.

This research project has been reviewed and approved in accordance with Bethel University's Levels of Review for Research with Humans. If you have any questions about the research and/or research participants' rights, or if you wish to report a research related injury, please call Megan Englund, PA-S at 507-254-3561, Emily Carstens, PA-S at 952-956-4881, or Lisa Naser, PA-C at 651-635-8679.

We understand you have an extremely busy schedule and your time is limited. Please realize that your participation is vital to the success of this research. The information you provide is essential to the validity of this study.

Thank you in advance for your prompt response to this study. If you have any questions, please contact Megan Englund, PA-S or Emily Carstens, PA-S.

Thank you again for your help.
Sincerely,
Megan Englund, PA-S and Emily Carstens, PA-S

You are making a decision whether or not to participate. Selecting "Yes, I consent. Please direct me to the survey." indicates that you have read the information provided above and have decided to participate. You may skip any questions or withdraw at any time without

prejudice should you choose to discontinue participation in this study.

○ Yes, I consent. Please direct me to the survey.
○ No, I choose not to participate.

Condition: No, I choose not to partici... is selected. Skip To: End of survey.

Q2 Are you a certified physician assistant (PA-C)?
○ Yes
○ No

Condition: No is selected. Skip To: End of survey.

Q3 What is your gender?
○ Female
○ Male

Q4 Which of the following represents your age?
○ 50 or younger
○ 51 or older

Q5 Are you currently practicing medicine?
○ Yes
○ No

Condition: Yes is selected. Skip To: In which specialty do you primarily p....

Q6 Have you practiced medicine in the past **five** years?
○ Yes
○ No

Condition: No is selected. Skip To: End of survey.
Condition: Yes is selected. Skip To: In which specialty did you primarily p....

Q7 In which specialty do you primarily practice?
❍ Primary care (family medicine, internal medicine, pediatrics, OB/GYN)
❍ Urgent care
❍ Emergency medicine
❍ Internal medicine subspecialties
❍ General surgery
❍ Surgical subspecialties
❍ Other (please specify) _____

Condition: After answering. Skip To: What is your current height in inches?

Q8 In which specialty did you primarily practice most recently?
❍ Primary care (family medicine, internal medicine, pediatrics, OB/GYN)
❍ Urgent care
❍ Emergency medicine
❍ Internal medicine subspecialties
❍ General surgery
❍ Surgical subspecialties
❍ Other (please specify) _____

Q9 What is your current height in inches?

Q10 What is your current weight in pounds?

Q11 Do you currently use tobacco?
❍ Yes
❍ No

Condition: Yes is selected. Skip To: According to the Centers for Dis....

Q12 Have you ever used tobacco?
❍ Yes
❍ No

Q13 According to the Centers for Disease Control and Prevention, one serving of alcohol is defined as 12 ounces of beer, 8 ounces of malt liquor, 5 ounces of wine, or 1.5 ounces of 80-proof hard liquor.
On average, how many **servings** of alcohol do you consume each week?
❍ 0-7
❍ 8-14
❍ 15 or more

Q14 On average, what **percentage** of your daily grain intake is whole grains?
❍ Under 50%
❍ 50% or more

Q15 On average, how many **cups** of fruits do you consume each day?
❍ Less than 1.5
❍ Between 1.5 and 2
❍ 2 or more

Q16 On average, how many **cups** of vegetables do you consume each day?
❍ Less than 2
❍ Between 2 and 2.5
❍ Between 2.5 and 3
❍ 3 or more

Q17 On average, do you participate in 75 minutes of vigorous (i.e. jogging) **OR** 150 minutes of moderate (i.e. brisk walking) physical activity each week?
❍ Yes
❍ No

Q18 About how many times in the average week do you engage in strength or resistance training?
❍ Less than 2
❍ 2 or more

Q19 Are your immunizations up to date?
❍ Yes
❍ No

For questions 21 and 22, please read each question carefully and answer the **one** which applies to you

Q21 If your most recent blood pressure reading was **<120/80**:
When did you last have your blood pressure measured?
○ Within the past 2 years
○ More than 2 years ago

Q22 If your most recent blood pressure reading was **≥120/80**:
When did you last have your blood pressure measured?
○ Within the past year
○ More than 1 year ago

Q23 During the past 60 days, how often have you discussed the following with asymptomatic adult patients with no significant past medical history?

	Never	Sometimes	About half the time	Most of the time	Always
Limiting alcohol intake	○	○	○	○	○
Tobacco avoidance	○	○	○	○	○
Healthy weight	○	○	○	○	○
Exercise	○	○	○	○	○
Healthy diet	○	○	○	○	○
Blood pressure monitoring	○	○	○	○	○
Staying up-to-date on immunizations	○	○	○	○	○

APPENDIX E

Permission to Use and Modify Survey Published by Yeazel, Lindstrom-Bremer, and

Center

From: Mark Yeazel <yeazel@umn.edu>
Date: April 26, 2017 at 12:41:00 PM CDT
To: Emily Carstens <e-carstens@bethel.edu>

...

Subject: Re: Permission request to use and modify PMAAQ

Hello Ms Carstens,
I'd be pleased to share the PMAAQ with you and hope you find at least some portions
of it useful to you. You may alter it to fit your needs, but please acknowledge the original source. Please let me know if you do
find a way to incorporate this into your research project.

Please let me know if you need a formal letter and I would be glad to provide one.

Best wished on the success of your project.

Mark Yeazel MD, MPH

APPENDIX F

Preventive Medicine Attitudes and Activities Questionnaire (PMAAQ) Published by

Yeazel, Lindstrom-Bremer, and Center

Preventive Medicine
Attitudes and Activities Questionnaire
(PMAAQ)

This questionnaire is intended to obtain information about your knowledge, attitudes, and beliefs about preventive medicine activities. The information will be used in research on teaching methods for preventive medicine. While it is voluntary, we encourage you to take approximately 10-15 minutes to fill it out. It will allow us to better tailor our methods of teaching and providing clinical preventive services.

The information you provide here will be kept confidential. Only aggregate information without identification of individuals will be released.

Thank you for your willingness to participate!

1. What is your level of medical training? (circle one)
   - (1) First year resident
   - (2) Second year resident
   - (3) Third year resident
   - (4) Faculty
   - (5) Community preceptor
   - (6) Other _____

2. What year did you receive your M.D. or D.O. degree?   19 _____

3. From what medical school did you graduate? _____

   _____

4. What is your gender?   (1) female   (2) male

5. What is your year of birth?   19 _____

6. What is your name? _____

7. Today's date _____

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Department of Family Practice & Community Health

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During the past 60 days, with an adult patient during a **periodic health maintenance visit** or **routine check-up**, how often did you **ask** about the following?

	Never 0%	Rarely 1-20%	Some-times 21-40%	About half the time 41-60%	Often 61-80%	Usually 81-99%	Always 100%
1. alcohol use	❑	❑	❑	❑	❑	❑	❑
2. diet	❑	❑	❑	❑	❑	❑	❑
3. exercise	❑	❑	❑	❑	❑	❑	❑
4. immunization history	❑	❑	❑	❑	❑	❑	❑
5. oral health care	❑	❑	❑	❑	❑	❑	❑
6. screening for colon cancer	❑	❑	❑	❑	❑	❑	❑
7. seatbelt use	❑	❑	❑	❑	❑	❑	❑
8. number of recent sexual partners	❑	❑	❑	❑	❑	❑	❑
9. contraception use	❑	❑	❑	❑	❑	❑	❑
10. smoke detectors in the home	❑	❑	❑	❑	❑	❑	❑
11. symptoms of depression	❑	❑	❑	❑	❑	❑	❑
12. tobacco use	❑	❑	❑	❑	❑	❑	❑
13. illicit drugs	❑	❑	❑	❑	❑	❑	❑
For Female Patients: 14. *(If 18+)* pap smear history	❑	❑	❑	❑	❑	❑	❑
15. *(If 40+)* mammogram history	❑	❑	❑	❑	❑	❑	❑

During the past 60 days, when you saw an **asymptomatic** adult patient with no significant past medical history, how often did you **advise** the patient to:

	Never 0%	Rarely 1-20%	Some-times 21-40%	About half the time 41-60%	Often 61-80%	Usually 81-99%	Always 100%
1. exercise regularly	❑	❑	❑	❑	❑	❑	❑
2. increase consumption of fruit and vegetables	❑	❑	❑	❑	❑	❑	❑
3. decrease dietary fat consumption	❑	❑	❑	❑	❑	❑	❑
4. always use a seatbelt	❑	❑	❑	❑	❑	❑	❑

During the past 60 days, when you saw an adult patient who was **20% or more overweight**, how often did you **advise** the patient to:

	Never 0%	Rarely 1-20%	Some-times 21-40%	About half the time 41-60%	Often 61-80%	Usually 81-99%	Always 100%
1. exercise regularly	❑	❑	❑	❑	❑	❑	❑
2. decrease caloric intake	❑	❑	❑	❑	❑	❑	❑
3. set a goal for weight loss	❑	❑	❑	❑	❑	❑	❑
4. decrease dietary fat consumption	❑	❑	❑	❑	❑	❑	❑
5. get a plasma glucose test for diabetes	❑	❑	❑	❑	❑	❑	❑
6. set specific exercise goals in terms of frequency and duration	❑	❑	❑	❑	❑	❑	❑
7. perform specific exercises	❑	❑	❑	❑	❑	❑	❑

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4

During the past 60 days, when you saw a patient who **smoked cigarettes**, how often did you:

		Never 0%	Rarely 1-20%	Some-times 21-40%	About half the time 41-60%	Often 61-80%	Usually 81-99%	Always 100%
1.	advise the patient to quit smoking	❑	❑	❑	❑	❑	❑	❑
2.	advise setting a specific "quit date"	❑	❑	❑	❑	❑	❑	❑
3.	have a staff member call the patient a week after the quit date	❑	❑	❑	❑	❑	❑	❑
4.	refer the patient to a group clinic or intensive smoking cessation program	❑	❑	❑	❑	❑	❑	❑
5.	prepare the patient for withdrawal symptoms	❑	❑	❑	❑	❑	❑	❑
6.	prescribe a nicotine patch or gum	❑	❑	❑	❑	❑	❑	❑
7.	provide self-help materials	❑	❑	❑	❑	❑	❑	❑

During the past 60 days, for a patient with **high blood pressure**, how often did you:

		Never 0%	Rarely 1-20%	Some-times 21-40%	About half the time 41-60%	Often 61-80%	Usually 81-99%	Always 100%
1.	review health risks of hypertension	❑	❑	❑	❑	❑	❑	❑
2.	advise weight loss for patients who were overweight	❑	❑	❑	❑	❑	❑	❑
3.	advise salt reduction	❑	❑	❑	❑	❑	❑	❑
4.	talk about the importance of taking medication regularly	❑	❑	❑	❑	❑	❑	❑

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In general, how often do you give an **asymptomatic, low-risk**:

		Every 6 months	Every year	Every 2 years	Every 3 years	Every 5 years	Don't perform
1.	25-year-old woman a Pap test?	❏	❏	❏	❏	❏	❏
2.	35-year-old with diabetes an influenza vaccine?	❏	❏	❏	❏	❏	❏
3.	35-year-old woman a clinical breast exam?	❏	❏	❏	❏	❏	❏
4.	45-year-old woman a mammography screening?	❏	❏	❏	❏	❏	❏
5.	50-year-old woman a mammography screening?	❏	❏	❏	❏	❏	❏
6.	50-year-old woman a glaucoma screening?	❏	❏	❏	❏	❏	❏
7.	50-year-old woman a clinical breast exam?	❏	❏	❏	❏	❏	❏
8.	50-year-old woman with diabetes a dilated eye exam?	❏	❏	❏	❏	❏	❏
9.	50-year-old man a digital rectal exam?	❏	❏	❏	❏	❏	❏
10.	50-year-old man a blood pressure check?	❏	❏	❏	❏	❏	❏
11.	50-year-old man a serum cholesterol screen?	❏	❏	❏	❏	❏	❏
12.	50-year-old man a exercise stress test?	❏	❏	❏	❏	❏	❏
13.	55-year-old smoker a chest X-ray?	❏	❏	❏	❏	❏	❏
14.	55-year-old woman a flexible sigmoidoscopic exam?	❏	❏	❏	❏	❏	❏
15.	55-year-old man a fecal occult blood test?	❏	❏	❏	❏	❏	❏
16.	55-year-old man a PSA test?	❏	❏	❏	❏	❏	❏
17.	65-year-old man an influenza vaccine?	❏	❏	❏	❏	❏	❏
18.	75-year-old woman a mammography screen?	❏	❏	❏	❏	❏	❏
19.	75-year-old man a serum cholesterol screen?	❏	❏	❏	❏	❏	❏
20.	75-year-old man an EKG?	❏	❏	❏	❏	❏	❏

How **effective** are you in changing your patients' behavior with respect to:

	Very effective	Moderately effective	Somewhat effective	Minimally effective	Do not counsel
1. alcohol consumption	❏	❏	❏	❏	❏
2. safe sex practices	❏	❏	❏	❏	❏
3. illegal drug use	❏	❏	❏	❏	❏
4. exercise	❏	❏	❏	❏	❏
5. healthy diet	❏	❏	❏	❏	❏
6. smoking cessation	❏	❏	❏	❏	❏
7. weight reduction	❏	❏	❏	❏	❏
8. seat belt use	❏	❏	❏	❏	❏
9. stress management	❏	❏	❏	❏	❏
10. injury prevention	❏	❏	❏	❏	❏
11. violence prevention	❏	❏	❏	❏	❏
12. UV exposure	❏	❏	❏	❏	❏

In general, how **important** is it for physicians to **counsel** patients about the following?

	Very important	Moderately important	Somewhat important	Not very important
1. alcohol consumption	❏	❏	❏	❏
2. safe sex practices	❏	❏	❏	❏
3. illegal drug use	❏	❏	❏	❏
4. cholesterol	❏	❏	❏	❏
5. blood pressure	❏	❏	❏	❏
6. exercise	❏	❏	❏	❏
7. healthy diet	❏	❏	❏	❏
8. smoking	❏	❏	❏	❏
9. weight reduction	❏	❏	❏	❏
10. seat belt use	❏	❏	❏	❏
11. stress/relaxation	❏	❏	❏	❏
12. injury prevention	❏	❏	❏	❏
13. violence prevention	❏	❏	❏	❏
14. UV exposure	❏	❏	❏	❏
15. depression management	❏	❏	❏	❏

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To what extent do you agree with each of the following statements:

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
1. I feel comfortable discussing illegal drug use with patients.	❏	❏	❏	❏	❏
2. I feel comfortable discussing sexual behavior with patients.	❏	❏	❏	❏	❏
3. I feel comfortable asking patients about their sexual orientation.	❏	❏	❏	❏	❏
4. I feel comfortable counseling patients about AIDS.	❏	❏	❏	❏	❏
5. Smoking cessation counseling is an effective use of my time as a physician.	❏	❏	❏	❏	❏
6. For most patients health education does little to promote their adherence to a healthy lifestyle.	❏	❏	❏	❏	❏
7. I am less effective than professional counselors in getting patients to quit smoking.	❏	❏	❏	❏	❏
8. Patients without symptoms will rarely change their behavior on the basis of my advice.	❏	❏	❏	❏	❏
9. Most patients try to change their lifestyles if I advise them to do so.	❏	❏	❏	❏	❏

In your medical practice, how important are the following potential barriers to effective health promotion and disease prevention?

	Not important	Minimally important	Somewhat important	Moderately important	Very important
1. lack of time	❑	❑	❑	❑	❑
2. lack of availability of health educators	❑	❑	❑	❑	❑
3. insufficient reimbursement for preventive services	❑	❑	❑	❑	❑
4. lack of systems for tracking and prompting preventive care	❑	❑	❑	❑	❑
5. personal lack of interest in providing preventive services	❑	❑	❑	❑	❑
6. lack of patient interest in prevention	❑	❑	❑	❑	❑
7. uncertainty about what preventive services to provide	❑	❑	❑	❑	❑
8. lack of proper patient education materials	❑	❑	❑	❑	❑
9. communication difficulties with patients	❑	❑	❑	❑	❑
10. cultural differences between doctors and patients	❑	❑	❑	❑	❑
11. the patient came for a different purpose	❑	❑	❑	❑	❑

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APPENDIX G

Bethel University IRB Approval

Wallace Boeve <w-boeve@bethel.edu>   7/21/17

to me, Megan, Lisa, Peter

July 21, 2017

Emily & Megan;

As granted by the Bethel University Human Subjects committee as the program director, I write this letter to you in approval of Level 3 Bethel IRB of your project entitled: "Personal Health Habits of PAs and the Effect these Habits have on Preventive Health Counseling Practices." This approval is good for one year from today's date. You may proceed with data collection and analysis. Please let me know if you have any questions.

Sincerely;

Wallace Boeve, EdD, PA-C
Program Director
Physician Assistant Program
Bethel University
w-boeve@bethel.edu
651 308-1398 cell
651 635-1013 office
651 635-8039 fax
http://gs.bethel.edu/academics/masters/physician-assistant

CC: Bethel IRB Chair
       Faculty Chair Advisor
       PA Program Research Coordinator

APPENDIX H

Personal Health Habit Scoring Matrix

Health habit		Men <50 score	Men ≥ 51 score	Women <50 score	Women ≥ 51 score
Calculated BMI	<18.5	0	0	0	0
	18.5-29.9	1	1	1	1
	≥ 30	0	0	0	0
Current tobacco use	Yes	0	0	0	0
	No	1	1	1	1
Former tobacco use	Yes	0	0	0	0
	No	1	1	1	1
Weekly alcohol intake	0-7	1	1	1	1
	8 to 14	1	1	0	0
	15 or more	0	0	0	0
Percentage of daily grain intake that is whole grain	0-50%	0	0	0	0
	50% or more	1	1	1	1
Daily fruit intake	Up to 1.5 cups	0	0	0	0
	Between 1.5 and 2 cups	0	0	0	1
	Greater than 2 cups	1	1	1	1
Daily vegetable intake	Up to 2 cups	0	0	0	0
	Between 2 cups and 2.5 cups	0	0	0	1
	Between 2.5 cups and 3 cups	0	1	1	1
	Greater than 3 cups	1	1	1	1
Vigorous or moderate physical activity	Yes	1	1	1	1
	No	0	0	0	0
Strength training	Less than 2	0	0	0	0
	2 or more	1	1	1	1
Immunization status	Yes	1	1	1	1
	No	0	0	0	0
Hypertension screening if blood pressure is ≤ 120/80	Within the past year	1	1	1	1
	Over 1 year ago	0	0	0	0
Hypertension screening if blood pressure is ≥ 120/80	Within the past 2 years	1	1	1	1
	Over 2 years ago	0	0	0	0