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Holistic Lifestyle Counseling by Physical Therapists: Current Practice and Barriers to Improvement

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Murray State University Honors College

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Holistic Lifestyle Counseling by Physical Therapists:
Current Practice and Barriers to Improvement

Savannah Grogan
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Holistic Lifestyle Counseling by Physical Therapists: Current Practice and Barriers to Improvement.

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ABSTRACT

Context: Unhealthy lifestyle habits are a significant risk factor for chronic disease and death in the United States of America. The healthcare system is largely focused on symptom-management and disease treatment with seemingly little regard for prevention, but physical therapists are particularly well-placed to improve patients' health through lifestyle counseling and modification. **Objectives:** To assess the current state of holistic health promotion among physical therapists and to identify barriers to improving these practices. **Design:** An electronic survey was completed by physical therapists in and around the state of Kentucky. Descriptive statistics were used to assess participant demographics and the state of current practices. Chi-square analyses were used to assess the associations between demographic variables, current practices, barriers, and likelihoods of future practice. **Results:** Topics covered by participating physical therapists most frequently included physical activity (54.5% always, 45.5% often, n=11 total participants) and cigarette/tobacco use (36.4% always, 54.5% often). Therapists were least likely to discuss dietary habits (45.5% often). The barrier most frequently identified was a lack of time (affecting 45.5% of participants). Other identified barriers included a lack of knowledge (27.3%), a fear of negative patient perception (27.3%), and the belief that holistic health interventions were out of the scope of practice of a physical therapist (18.2%). **Conclusions:** Physical therapists are currently practicing holistic patient care and health promotion, but results revealed the need for improvements. Physical therapists should work to align their practices with the growing societal needs for preventative healthcare and lifestyle modifications. Modifications and additions to degree-level education and continuing education as well as supplemental material assistance and organizational changes are recommended to prompt and support these needed improvements in the physical therapy profession.

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INTRODUCTION

As of 2015, the United States (US) had the 7th highest risk of death from non-communicable diseases in the world at 13.6%.¹ The US also spends an average of \$10,000 per capita on health care each year which, conversely, is significantly higher than any other country.² The gap between the money being invested into American healthcare and the lack of successful prevention of disease reflects a discrepancy and inefficiency in the healthcare system. The focus of the American healthcare system has turned toward disease management, rather than disease prevention. The monetary amount spent on pharmaceuticals in the US is highly reflective of this shift—an average of \$300 billion annually, which is near the amount spent by every other country combined.³ While the shift toward disease management and its inefficiency is apparent, the cause of this shift may be less so. Healthcare providers are increasingly encouraged, and sometimes pressured by productivity quotas, to spend less time with patients.⁴ On average, primary care physicians spend 15.7 minutes with each patient and have to cover an average of 6 topics in this time.⁴ This emphasis on productivity has the potential to cause healthcare providers to diminish the quality of their visits in favor of greater quantity. All healthcare providers taking the primary value off of productivity and monetary factors and placing it on patient health would significantly improve the health of American citizens and the sustainability of the healthcare system and nation as a whole. Physical therapists (PTs) are in a particularly advantageous position to make this shift and implement practices based in holistic health care.

Current State of Typical American Lifestyle-Related Risk Factors

To fully comprehend the inordinate need for a change to the American healthcare system and the practice of its healthcare professionals, the gravity of the current state of the American lifestyle and its relation to health and disease in the country must first be recognized. Of the non-

communicable diseases that Americans commonly suffer from, many of them are caused or worsened by lifestyle-related risk factors (see Table 1). The World Health Organization (WHO) has prioritized the risk factors of physical inactivity, tobacco use, alcohol use, and unhealthy diet.⁵ The current state of the average American’s life in regard to each of these modifiable risk factors gives some insight as to the source of the country’s disease problem and must be understood before steps can be taken towards a resolution and the improvement of both the healthcare system in its entirety and the overall health of individuals in the US.

Table 1. Common non-communicable diseases among Americans and their lifestyle-related risk factors

Disease/ condition	High blood pressure	Physical inactivity	Overweight and obesity	High choles- -terol	Poor diet	High blood glucose	Tobacco use	Alcohol use	Depre- -ssion
Cardiovascular disease (heart disease, stroke) ⁵	X	X	X	X	X	X	X		
Cancer ⁶		X	X		X		X	X	
Chronic lung disease ⁷	X		X		X		X		
Diabetes ⁸	X	X	X		X	X			
Neurological diseases (dementia, Alzheimer’s) ⁹	X	X	X	X	X	X	X	X	X
Arthritis/ musculoskeletal diseases ¹⁰		X	X				X		

Physical inactivity

The most current version of the American College of Sports Medicine’s (ACSM) Physical Activity Guidelines for Americans recommends a minimum of 150 minutes of moderate physical activity per week and muscle-strengthening activity on a minimum of 2 days per week for adults.¹¹ The nation-wide prevalence of physical inactivity is 28% and the prevalence in Kentucky is 32.4%, making it the least physically active state.^{12,13} The US Department of Health

and Human Services (HHS) also reported that only one in three children are physically active each day, indicating that the prevalence of physical inactivity in adults will increase in the near future in the absence of some sort of intervention.¹³ Physical activity is one of the few risk factors that is associated with every major non-communicable disease and therefore the value of intervention towards improvement in this area should not be underestimated or diminished.

Diet and Nutrition

The typical American diet is what's often referred to as a Western diet—a diet high in calories from saturated fats, added sugars, refined grains, and sodium and low in fruits, vegetables, whole grains, and low-fat dairy products.¹³ Around 40% of the calories Americans consume each day are considered empty, meaning they contain no nutritional value and are sourced from added sugars and fats.¹³ On average, US adults consume 1,100 mg of sodium above the recommended daily intake.¹³ The CDC reported in 2015, that only 12.2% of adults met the recommended daily intake of fruits and 9.3% met the recommendations for vegetables.¹⁴ Consumption of fat increased from 57 pounds per person in 1980 to 78 pounds in 2009, and is likely even higher today.¹³ As reflected in Table 1, the poor, non-nutrient dense diet that most Americans adhere to is a risk factor for 5 of the 6 most common non-communicable diseases.

Tobacco use

The use of cigarettes and tobacco is clearly associated with lung disease and certain cancers, but its negative effects are more widespread than commonly thought and can cause or worsen 5 of the 6 common non-communicable diseases, as reflected in Table 1. While cigarette smoking has declined in the last 15 years (from 20.9% of US adults in 2005 to 13.7% in 2018), the prevalence of tobacco use and its health consequences are still high.¹⁵ At a prevalence of nearly 14%, 34.2 million American adults currently smoke cigarettes.¹³ In 2017, Kentucky was

the second highest state for prevalence of smoking, with 24.6% of residents being tobacco users, making the need for smoking cessation intervention even more pertinent in the surrounding regions.¹⁶

Mental health

A risk factor that is often overlooked due to its less-direct relation to physical health conditions is poor mental health in the form of stress, anxiety, and depression. The Anxiety and Depression Association of America identifies anxiety disorders as the most common type of mental illness in the US, affecting 18.1% of adults each year.¹⁷ Only 36.9% of these individuals suffering from anxiety receive proper mental health treatment, even though they are 3-5 times more likely to seek general medical care.¹⁷ Untreated mental health conditions create chronic stressors that can be detrimental to overall health and contribute to the development or worsening severity of chronic, non-communicable diseases.¹⁷

Health Status and Chronic Disease Incidence of Americans

The high prevalence of these lifestyle-related risk factors subsequently leads to a high prevalence of their associated non-communicable diseases.⁵⁻¹⁰ The severity of America's current disease status and the relation to preventable lifestyle factors must be understood prior to examining the role of healthcare professionals, and specifically PTs, in improving patient health.

Heart disease

Heart disease is the leading cause of death in the US, with 1 in every 4 deaths being heart disease-related.¹⁸ As reflected in Table 1, risk factors for heart disease include cigarette smoking, hypertension, and hyperlipidemia and almost half of the American population has at least one of these three conditions.¹⁸ Other lifestyle-related risk factors or conditions associated with heart disease include obesity, excessive alcohol consumption, unhealthy diet, and physical inactivity.¹⁸

The prevalence of heart disease-related deaths in Kentucky specifically (falling between 496.8 and 426.2 per 100,000 deaths) is higher than the national average (426.2 per 100,000 deaths), increasing the need for lifestyle modifications for individuals in this geographic region.¹⁹

COPD, Cancer, and Tobacco Use-related Conditions

Cigarette smoking is the leading cause of preventable death, due to its widely-accepted causal relationship with diseases like Chronic Obstructive Pulmonary Disease (COPD) and lung cancer, as well as its causal and/or exacerbating effects on 3 of the other 4 common noncommunicable diseases.²⁰ Current smokers are 2 to 4 times more likely to have both heart disease and stroke, are 12 to 13 times more likely to develop COPD, and are 25 times more likely to develop lung cancer.²¹ Correlated with a high prevalence of cigarette smoking, Kentucky also has the highest death rate from COPD of any state at 62.8 per 100,000 deaths.²⁰ The importance of intervention and the promotion of smoking cessation is reflected in the fact that 5 years after smoking cessation the risk for certain cancers drops by 50% and 2-5 years after cessation the risk of a stroke is similar to that of a non-smoker's.²¹

Mental health

As previously mentioned, many individuals that suffer from mental illnesses or other mental health complications do not receive the treatment and help they need, even when they do seek medical help.¹⁷ This lack of intervention and adequate assistance can often have tragic repercussions ranging from physical ailments to death.¹⁷ Walker *et al* published an international study of mental health and concluded that individuals with mental illnesses had an average life expectancy 10.1 years shorter than individuals without mental illness.²² The majority of early mortality in this population is attributed to natural causes from co-morbid conditions, like heart disease or infectious diseases, that may be exacerbated by poor mental health and its associated

effects.¹² The remaining 17.5% of these early deaths are attributed to unnatural causes from suicide or injury.¹² In fact, if the problems surrounding mental illness were resolved and this population were to die at the same rate as the rest of the population, around 8 million deaths would be avoided per year.² While mental illness cannot be completely eliminated, these statistics emphasize the importance of intervention and reflect that any effort health care professionals put in to helping their patients properly handle their mental health could result in lower rates of death and disease.

Obesity and its related conditions

The risk factors of poor diet and physical inactivity are the primary contributors to the overweight or obese condition. In 2018, the CDC estimated that 71.6% of US adults were either overweight or obese (31.8% and 39.8% respectively).²³ The presence of excess body fat as well as its distribution are a widely-accepted method of estimating mortality risk, and individuals with a larger-than-average waist circumference increase their mortality risk by about 25%.²⁴ Overweight and obesity are therefore inherent risk factors for mortality, but they also lead to and/or are associated with other conditions that further increase this risk. The WHO associates overweight and obesity with consequences including cardiovascular diseases (CVD), type 2 diabetes, osteoarthritis, and certain cancers.²⁵ The CDC estimates that 32.6 million Americans currently have Type 2 diabetes and in 2017 the disease caused or contributed to 270,702 deaths in the US.²⁶ Individuals with diabetes are more likely to also have osteoarthritis (a prevalence of 52% as opposed to 27% for the general population).²⁷ Overweight men and women also have a 5 and 4 times greater risk (respectively) of developing lower-limb osteoarthritis.²⁸ While conditions like diabetes and osteoarthritis can diminish an individual's quality of life extensively, which isn't to be taken lightly, other obesity-associated conditions like CVD and cancer can

contribute to the secondhand mortality associated with obesity. Obesity is correlated with both stroke rates ($R^2= 0.462$) and hypertension ($R^2=0.811$).²⁹ This data reflects that obesity exacerbates the prevalence of heart disease and other cardiovascular complications which, as previously discussed, is already high nation-wide and even more so in the state of Kentucky. Efforts to reduce obesity by modifying its associated risk factors are therefore one avenue of diminishing the negative impact of America's number one killer. Not only is obesity a threat to individual health, but it also is estimated to be responsible for over 20% of American healthcare costs.³⁰ Therefore, as is the case with many of these lifestyle-related conditions, any steps taken by healthcare professionals toward prevention and intervention would be to the benefit of not only the individuals they serve, but to the American healthcare system and society as a whole.

While the PT is a member of a healthcare system that currently focuses on disease management, the American Physical Therapy Association (APTA) calls therapists to fulfill a role in primary prevention. Activism by PTs, as well as other health professionals and governing bodies, on behalf of holistic patient care and primary prevention has been on the rise. The APTA established the Choose PT campaign in 2016, which advocates for PT as a better method of pain management than pharmaceuticals and as a potential solution to the negative effects of the over prescription of opioids, which is an especially prevalent problem in Kentucky and the surrounding regions.³¹ The ACSM also partnered with the American Medical Association (AMA) in 2007 and started the Exercise is Medicine initiative, which advocates to make the assessment and promotion of physical activity a standard for all healthcare professionals.³² While these efforts in activism are a step in the right direction, the most impactful way for PTs to intervene is in their every-day practice and personal interaction with patients. In addition to the musculoskeletal and orthopedic injuries commonly associated with PT, the list of conditions that

PTs treat, as identified by the APTA, includes COPD, heart attack, and diabetic ulcers.³³ Since these conditions are often themselves lifestyle-related or have comorbid lifestyle-related conditions, the PT is in an integral position to provide lifestyle counseling to their patients. Physical therapists are considered experts in movement but are in a position to also improve their patients' overall physical activity habits as well as other aspects of their patients' lives. In 2011, 11.7 million adults received outpatient PT alone.³⁴ Physical therapists' increased hands-on patient interaction time compared to other healthcare providers creates opportunity for conversation and facilitates patient-provider relationships that allow for more personal and holistic conversations about health. In some cases, PTs are the only healthcare providers some individuals see on a regular basis or at all. Both of these factors are among the many reasons that PTs are well-placed to deliver more holistic health interventions to their patients and should feel a professional obligation to do so.

LITERATURE REVIEW

Role and Scope of Physical Therapists

Improving the overall health and quality of life of patients is a goal PTs should have, as reflected by the APTA mission to “transform society by optimizing movement to improve the human experience.”³⁵ The APTA identifies that societal problems, primarily those resulting from poor lifestyle habits, are a call for PTs to “engage with consumers to reduce preventable healthcare costs” and to ultimately “ensure the successful existence of society into the future.”³⁵ While the APTA as an organization perceives the role of a PT to include helping patients improve their overall health and lifestyle for the benefit of society as a whole, patients and therapists themselves on a more individual level have varying perceptions of what is included in a PT's role. Black et al surveyed outpatient PT patients in the US and found that 91.3% agreed

PTs should advise them on appropriate levels of physical activity, 32.1% agreed PTs should advise them on recommendations for fruit and vegetable consumption, 73.0% agreed PTs should advise them on maintaining a healthy weight, and 51.3% agreed PTs should advise patients to quit or avoid cigarette smoking.³⁶ While this study reflects that patients perceive PTs as providers of holistic health care, Kearns *et al* found that there was a greater than 20% discrepancy in a patient's first choice of practitioner (most often choosing a medical doctor over a PT) and the practitioner's actual training and skill set for 13 conditions, ranging from chronic pain to stress.³⁷ While patients' reported perception of the scope of a PT's practice and their own actions in choosing health care providers may reflect a discrepancy, there is also a difference in the perception of the role of a PT between patients and therapists themselves. A survey of hospital physiotherapists by Aweto *et al* found that 97.1% of PTs agreed or strongly agreed that discussing the benefits of physical activity with patients was a part of their role, and 95.4% agreed or strongly agreed that making suggestions on how to increase activity levels was also within the role of a PT.³⁸ Freene *et al* also concluded that physiotherapists perceived discussing the benefits of physical activity and suggesting an increase in physical activity to patients were both the role of health care professionals (98.8% and 98.4% respectively).³⁹ However, these studies were conducted on PTs practicing in Nigeria and Australia respectively, and may not be reflective of the beliefs and perceptions of American PTs. A study by Grannis *et al.* reflected the difference in perception of a PT's role between patients and PTs themselves, particularly when it comes to patient education, with patients identifying that "teacher" was descriptive of a PT more than the therapists themselves identified this as a description of their job (an average of 4.28 and 3.87 respectively).⁴⁰ In the same study, both therapists and patients ranked the quality of a PT of being "well-educated in other areas of knowledge besides physical therapy" in the lowest 4 (out

of 28) descriptive characteristics of an ideal PT.⁴⁰ This study indicates that PTs in America may perceive that their role includes health education and promotion less than therapists in other countries and less than patients would like them to.³⁸⁻⁴⁰

In addition to identifying the role of a PT as one that includes healthy lifestyle promotion, the APTA also makes recommendations for how to promote aspects of holistic health to assist PTs in their attempts to fulfill the organization's overall vision.³⁵ For example, the APTA's Guide to Physical Therapist Practice recommends that PTs assess patients' circulation, especially if risk factors for impairment are present such as CVD, diabetes, hypercholesterolemia, hypertension, physical inactivity, or a history of cigarette smoking.⁴¹ The guide suggests using tools such as ECGs, blood pressure measurement, or even simple palpation to gather data, as well as including any observable signs of conditions like cardiovascular impairment in the PT documentation notes.⁴¹ The APTA guide also notes that screening clients nutritional habits and providing information about healthy diet is within the scope of practice of a PT, and even further that PTs should work closely with dietitians through patient referral since many of the conditions a PT treats can be associated with the effects of poor diet, as previously mentioned.⁴¹ While the APTA recommends that PTs provide extensive, holistic health screening and counseling, current research indicates that therapists' fulfillment of these recommendations is minimal.

Current State of Assessment/Counseling

Current research on PTs' use of physical tests and screenings to gather general health information from patients in America is limited to one study by Healey et al⁴², who conducted focus groups with American PTs employed in a variety of settings. While the findings of this study cannot be corroborated due to a lack of existing research and cannot be compared to those of PTs in other countries for the same reason, the results can be assessed based on their

alignment with the recommendations of the APTA based on the *Guide to Physical Therapist Practice*.^{41,43} The findings of Healey et al and the related recommendations from the APTA are displayed in Table 2.

Table 2. Frequency with which physical therapists assess aspects of patient health and the related APTA recommendations for assessing or obtaining information about these topics

Test/assessment	Frequency ^a n(%)	APTA recommended?
Blood glucose	4 (28.6%)	Yes
Blood pressure	3 (21.4%)	Yes
Foot inspection	6 (42.9%)	Not specifically mentioned
Psychological concerns ^b	6 (42.9%)	Yes
Alcohol/drug use	3 (21.4%)	Yes
Skin checks	1 (7.1%)	Yes

^a Frequency is measured as the number of times a PT in any of the three focus groups (14 therapists total) reported conducting each test and the percentage calculated from this total.

^b Assessment of psychological concerns included asking patients about anxiety, depression, and counseling.

Most other studies on the state of PTs’ holistic health screening practices are from countries outside the US and focus on surveying or subjectively assessing the frequency with which PTs ask their patients about various health topics. Abaraogu et al used a questionnaire to assess how often Nigerian physiotherapists asked their patients about their diet and family history of cardiovascular and metabolic diseases and how often they performed anthropometric testing on patients.⁴⁴ Physiotherapists most often asked patients about their family disease history (52.4% asking always and 24.3% asking sometimes), followed in frequency by asking about diet (19.4% always and 16.6% sometimes) and performing anthropometrics (16.5% always and 27.2% sometimes).⁴⁴ Therapists were less likely to ask about and assess health status in returning patients than new patients.⁴⁴ Most other studies focused on the frequency with which PTs assessed their client’s current physical activity levels. Lowe et al surveyed physiotherapists in the United Kingdom and found that 76.6% of therapists reported that they always initiated conversations about physical activity with their patients, and 40% reported that they always

performed screenings for physical activity status.⁴⁵ These findings are similar to that of Barrett et al who surveyed Irish physiotherapists and found that 34% performed physical activity screenings on all of their patients, while others performed screenings only if it were linked to the patient's complaint or current therapeutic intervention (28%), only on an ad hoc basis (24%), never at all (11%), or only upon patient request (1%).⁴⁶ There is a gap in the literature when it comes to the current state of PTs' health screening practices and obtaining health-related information from patients here in the US, and the results would expectedly differ internationally necessitating further research into this topic.

Current State of Advice/Intervention

While screening and interviewing is a step in the right direction towards PTs improving the overall health of their patients, what therapists do with that information is just as, if not more, important—to what extent are PTs in the US currently advising and intervening in their patients' lifestyles? Most of the research in this area, again, has been conducted internationally and the following review will therefore present the state of PT practice around the world. While some studies on PTs' lifestyle intervention practices have been conducted in the US, a research gap on this topic remains. The only relevant studies in the US have been conducted in New York, Illinois, California, Michigan, and Minnesota, with the only study geographically close to the area in which the current study was conducted being one in Tennessee. However, this study combined data from PTs in Tennessee with that from PTs in California and New York making it less specifically applicable to the surrounding region and population of the current study. To assess the current state of health counseling and intervention in a way in which the practical application of knowledge obtained from this research would be relevant to PTs in Kentucky and

more generally to the Southeast region of the US, research needs to be conducted isolating PTs in Kentucky and the immediate surrounding geographical areas.

Patient referrals

Physical therapists in America were more likely than those in other countries to refer their patients to other healthcare providers (see Table 3), but the American study by Healey et al also had the broadest requirements for what was considered a referral, whereas other studies asked PTs about referrals to a more selective and specific list of providers. This difference means that a decisive conclusion cannot be drawn about how the practice of American PTs compares internationally when it comes to making referrals to improve patient health.

Table 3. Frequency with which physical therapists from various countries made referrals to other health care providers for aspects of their patient’s health not related to the current therapeutic intervention

Study	Methodology	Location	Frequency	Referral type
Healey et al ⁴²	Self-reported	Illinois, USA	57%	Any non-PT provider
Abaraogu et al ⁴⁴	Self-reported	Nigeria	21.4%	Provider for dietary help or diet support group
Barrett et al ⁴⁶	Self-reported	Ireland	45%	Gym
MacFarlane et al ⁴⁷	Medical record audit	Australia	37%	Other support services
MacFarlane et al ⁴⁷	Patient-reported	Australia	56%	Classes

Diet and weight management-related intervention

Most of the reviewed studies concluded or reflected that diet and weight management were among the topics that PTs were least comfortable discussing with patients. More studies from the US asked PTs about their habits of discussing weight and diet with patients than international studies did, which may be attributed to the obesity epidemic often associated with the Western culture of the US increasing the need and opportunity to address this topic. An assessment of the details of what these assessments and interventions entailed reflected that PTs

in the US were more likely to report that they spoke with patients about weight management^{36,42,48}, while international PTs were more likely to focus on nutrition or fruit and vegetable consumption⁴⁴ (see Table 4). This emphasizes the fact that proper interventions change based on the patient population’s demographics and lifestyle habits, again necessitating a study focused in the geographical region of where conclusions are intended to be applicable (in this case, Kentucky) and with PTs serving a variety of patient populations.

Table 4. Frequency with which physical therapists from various countries intervened by providing patients with advice or education regarding diet and nutrition and weight management.

Study	Methodology	Location	Frequency	Intervention type
Healey et al ⁴²	Self-reported	Illinois, USA	57%	Promoting proper nutrition/weight control
Abaraogu et al ⁴⁴	Self-reported	Nigeria	2.9%, 41.7%	Written advice about a balanced diet, advice on increasing fruit/vegetable intake (both only for patients with poor diets)
Rea et al ⁴⁸	Self-reported	CA, NY, TN (USA)	19.1%	Advice about nutrition and weight
Black et al ³⁶	Patient-reported	Michigan, Minnesota (U.S)	5.7%, 10.9%	Spoke about recommended fruit and vegetable consumption, spoke about weight to those with a BMI>25

Smoking cessation-related intervention

Similar to interventions regarding diet and weight management, those regarding smoking cessation were only assessed in studies conducted in the US and were among the lifestyle factor interventions less frequently addressed (see Table 5).^{36,42,48} Since the prevalence of smoking can vary by geographic location, the need for this type of intervention would also vary. It is therefore

particularly important to fill the research gap by assessing the current state of smoking prevention and intervention practices in PTs in the geographic area in and around Kentucky since conclusions from the current study are meant to be specifically applicable to therapists in this region.

Table 5. Frequency with which physical therapists from various countries intervened by providing patients with advice or education regarding smoking cessation.

Study	Methodology	Location	Frequency	Intervention type
Healey et al ⁴²	Self-reported	Illinois, USA	28.6%	Promoting smoking cessation to patients that smoke
Rea et al ⁴⁸	Self-reported	CA, NY, TN (USA)	16.5%	Assistance with smoking cessation
Black et al ³⁶	Patient-reported	Michigan, Minnesota (U.S)	16.7%	Spoke about smoking cessation

Physical activity-related intervention

Since PTs are considered exercise professionals and physical activity is the lifestyle modification most closely related to typical therapeutic interventions, it is reasonably expected that physical activity promotion would be among the lifestyle factors most frequently addressed. Most studies found this to be the case^{36,48,49} internationally and domestically, with a study conducted in the US³⁶ reporting the highest frequency among all reviewed studies for PTs providing physical activity recommendations to patients (see Table 6). The descriptions of physical activity promotion varied between studies, however, which may affect the reliability of drawing comparisons. The international studies^{38,39} gave specific criteria of counseling at least 10 patients per month, while other studies were more subjective allowing PTs to report their frequencies as they perceived them to be themselves, again potentially affecting the reliability of not only making cross-study comparisons but also of the validity of the studies themselves.

Table 6. Frequency with which physical therapists from various countries intervened by providing patients with advice or education regarding physical activity.

Study	Methodology	Location	Frequency	Description
Freene et al ³⁹	Self-reported	Australia	55%	Therapists that had encouraged physical activity to >10 patients in the last month
Lowe et al ⁴⁵	Self-reported	United Kingdom	68%, 44.2%	Gave brief interventions for physical activity, had signposting to other physical activity support
Rea et al ⁴⁸	Self-reported	CA, NY, TN (USA)	54%	Assist with physical activity implementation
Black et al ³⁶	Patient-reported	Michigan, Minnesota (U.S)	74.3%	Spoke about physical activity
Aweto et al ³⁸	Self-reported	Nigeria	36%	Had counseled more than 10 patients in the last month on the benefits of physical activity

Mental health-related interventions

Another aspect of health intervention that was assessed by studies conducted on PTs in the US was mental and emotional health counseling (see Table 7). Both studies that included this aspect were conducted objectively by monitoring the number of statements PTs included per therapy session, rather than employing a subjective survey as commonly used in the other reviewed studies. Gahimer et al reported an average of only 0.21 statements that would be considered stress counseling (for comparison, the same study reported the highest number of statements at an average of 16 statements per session regarding information about illness).⁵⁰ Fruth et al also reported comparatively low frequencies of statements by PTs that would be considered mental and emotional health intervention or help at less than 5% combined of the total statements made in all therapy sessions.⁴⁹ In order to accurately compare the frequency with

which PTs practice mental-health related counseling and intervention to other intervention topics a study must be conducted that assesses all topics in the same way. Since studies on most other topics have been conducted subjectively and these studies on mental health counseling were conducted objectively, this gap in the research remains.

Table 7. Frequency with which physical therapists (PTs) from various countries intervened by providing patients with advice or education mental and emotional health.

Study	Methodology	Location	Frequency	Intervention type
Fruth et al ⁴⁹	Observed appointments	Indiana (USA)	0.92%, 2.75%	Statements made by PTs regarding mental health, emotional health
Gahimer et al ⁵⁰	Observed appointments	Indiana (U.S)	.21	Average number of statements regarding stress counseling per session

Current Identified Barriers

Lack of time was the most commonly identified barrier to PTs assessing and/or intervening in their patients' overall health, with PTs in every study included in the review positively identifying it as a barrier (see Table 8). Lack of time was the most frequently identified barrier in four of the studies, one of which was conducted in the US. The second most commonly identified barrier was a lack of reimbursement for intervention, with PTs in 6 of the 8 reviewed studies positively identifying it as a barrier. While reimbursement was identified as a barrier in many of the reviewed studies, it was not often among the barriers with the highest frequencies of identification within each study. The only study from the US that assessed both frequency of counseling and/or intervention and barriers to implementing these practices was Healey et al.⁴² The results of this study reflected that while the frequency with which PTs discussed or intervened in their patients' health and lifestyle habits was no greater than 60% in

any category (see Tables 4-6), PTs also did not identify any barrier with greater than a 50% frequency (see Table 8).⁴² These results reflect that there is a discrepancy between PTs' perceived ability to implement health and lifestyle counseling and intervention (indicated by the low frequency with which barriers were identified) and their actual practice in doing so (indicated by the low frequency with which intervention was reported). More research is needed that includes both an assessment of current practices and an evaluation of identified barriers to improving and/or implementing these practices in order to corroborate the results of this singular study in the US and further assess the relationship between these variables.

Table 8. Barriers identified by physical therapists from various countries and the frequency with which they were identified.

Study	Healey et al ⁴²	Goodgold et al ⁵¹	Abaraogu et al ⁴⁴	Freene et al ³⁹	Aweto et al ³⁸	Shirley et al ⁵²	Barrett et al ⁴⁶	Frantz et al ⁵³
Location	Illinois (U.S)	United States	Nigeria	Australia	Nigeria	Australia	Ireland	Rwanda
Barrier								
Time	42.9%	49%	7.8%	13.6%	41.2%	34%	50.5%	Yes
Reimbursement	28.6%	34.2%	--	5.4%	20.8%	9%	--	Yes
Materials/resources	--	55.3%	61.2%	--	--	--	31.5%	No
Patient interest	--	68.1%	5.8%	--	--	--	--	No
PT's education/expertise	--	35.8%	34%	--	--	--	--	No
PT's counseling experience	--	25.7%	--	6.2%	9.7%	8%	--	--
PT's lack of interest	--	8.9%	6.8%	1.2%	11.7%	1%	--	--
Believe intervention would not change behavior	--	0.8%	--	9.3%	18.2%	20%	66%	--
Believe lifestyle modification would not benefit patient	--	--	--	0.8%	6.8%	2%	--	--

In addition to the need for studies that assess both current practices and barriers, there is also a gap in current research in the identification by PTs of ways they believe are feasible to overcome barriers. This is a necessary aspect of research in this topic in order to identify realistic ways of helping PTs increase the frequency with which they counsel patients to help them modify their lifestyles and manage their health. A study that takes the suggestions of PTs on how to overcome barriers, rather than studies that solely assess the current state, is necessary to realistically improve the state of holistic health counseling and intervention within the PT profession.

METHODS

Participants

Participants included 11 currently-practicing PTs who voluntarily completed the survey. Due to the nature of survey distribution through the KPTA and personal contacts (as described in the procedures section) most respondents were those practicing in the state of Kentucky, but participation was not limited by any demographic variables.

Survey

A questionnaire containing 19 items was developed to obtain information on participant demographics, current practices regarding holistic health counseling and intervention, barriers to implementing or improving these practices, and willingness to take various actions towards improvement. See the Appendix for a copy of the survey questions that were distributed to participants. In section 1 of the questionnaire, participants identified any current wellness initiatives they were familiar with (examples included Exercise is Medicine and the Choose PT campaign).

In section 2, demographic data was collected including gender, age, education level, specialty certifications, year in which participants graduated with a degree in PT and from what institution, location and setting in which they currently practice, and patient populations with which they primarily work.

Section 3 included current practices by asking participants to rate the frequency with which they asked certain questions or performed certain tasks with their patients (using a Likert scale ranging from never to every patient, or 1 to 5). Examples of questions included “How often do you obtain information from patients about their current physical activity habits?” or “How often do you provide patients with information regarding dietary and nutritional recommendations and/or the potential benefits of their modification?”.

In Section 4, participants identified any and all barriers they currently experience, such as “I feel it is out of my scope of practice to counsel patients on their overall health” or “I don’t think my patients care about or want to know this information.”

The final section asked participants to identify the likelihood (on a four-point scale from not at all likely to very likely) that they would take certain actions such as “have signs in [their] waiting room containing current recommendations for health practices such as diet and physical activity” or “ask patients about smoking and/or tobacco use.” All data was subjective and self-reported by participants.

Procedures

Prior to implementation, the study was approved by the Murray State University Institutional Review Board. The survey was created online using Google Forms and a link to the survey included the informed consent document and signified that completion of the survey indicated consent to participate. The survey link was included in two March 2020 editions of the

KPTA weekly newsletter along with a short paragraph describing the study and asking for participation. The survey link was also distributed to personal contacts of university personnel involved in the study. Data collection lasted one month, from mid-March to mid-April 2020. To ensure anonymity the surveys were submitted online with no potentially identifying information included and the data was reported in aggregate.

Data Analysis

Descriptive statistics of averages, frequencies, and percentages were used to summarize data. Responses to the survey were analyzed using SPSS 25.0 (Chicago, IL) for Windows applications (City, State) and Chi-square tests were used to determine the association of current practices, barriers, and likelihood of action among demographic variables. The level of significance was set at $p < 0.05$ *a priori*.

RESULTS

Participant Demographics

Descriptive statistics of participating PTs are shown in Table 9. There were 7 female participants and 4 males, with ages ranging from 34 to 59. Four participants held a bachelor's degree, 2 held a master's degree, and 5 held a doctorate degree, all in PT. Only one participant held a specialty certification (in sports). All but one participant, who practiced in Indiana, were currently practicing in the state of Kentucky. Six participants worked primarily in an outpatient clinic and 5 in an acute care setting or hospital, with no other practice settings represented. Years of experience in the PT field was fairly evenly distributed between 0 and 40 years, shown in Table 9 in increments of 10 years.

Table 9. Demographics of participating physical therapists.

Gender		Current state of licensure/practice	
Male	4 (36%)	Kentucky	10 (91%)
Female	7 (64%)	Other	1 (9%)
Age		Primary practice setting	
21-29	0 (0%)	Outpatient clinic	6 (54.5%)
30-39	4 (36.4%)	Acute care/hospital	5 (45.5%)
40-49	3 (27.3%)	Skilled nursing facility	0 (0%)
50-59	4 (36.4%)	School system	0 (0%)
60+	0 (0%)	Early intervention	0 (0%)
Average in years (Range)	45.6 (34-59)	Home care	0 (0%)
Level of PT education		Other	0 (0%)
Bachelor's	4 (36.4%)	Years in practice	
Master's	2 (18.2%)	0-9	2 (18.2%)
Doctorate	5 (45.5%)	10-19	3 (27.3%)
Specialty certifications		20-29	3 (27.3%)
Pediatrics	0 (0%)	30-39	3 (27.3%)
Women's health	0 (0%)	40-49	0 (0%)
Geriatrics	0 (0%)	50+	0 (0%)
Orthopedics	0 (0%)		
Neurology	0 (0%)		
Sports	1 (9%)		
None	10 (91%)		

Data is reported as n(%) unless otherwise noted.

Current Practices

Under the interviewing/information gathering category, the majority (>50%) of participants asked either often or with every patient about current physical activity habits, tobacco use, mental health, medications they currently take, CVD risk factors, and family history of CVD (see Table 10). Under the intervention/action category, the majority (>50%) of participants either often or with every patient referred their patients to other healthcare professionals, referred patients to exercise professionals, provided information on and/or recommendations for physical activity, and provided advice on other aspects of patient health not directly related to the current PT intervention. The only practice that every participant identified as practicing often or with every patient was asking about physical activity levels. The practices

with the second-highest identification frequency of often or every patient (with 10 participants ranking their practice at either a 4 or 5) were providing patients with information on physical activity recommendations and/or benefits and asking patients about their current tobacco use.

Table 10. Frequency with which participating physical therapists practice interviewing and intervention related to holistic health care.

How often participants obtain information from patients about...	1- Never	2- Rarely	3-Sometimes	4-Often	5-Every patient
Current physical activity habits	0	0	0	5	6
Current dietary habits	0	1	5	5	0
Current use of tobacco/ nicotine products	1	0	0	6	4
Mental/emotional health	0	0	4	4	3
Medications they currently take	0	0	3	0	8
Cardiovascular disease risk (blood pressure or cholesterol levels)	1	0	1	4	5
Family history of cardiovascular disease	0	1	2	4	4
How often participants...					
Recommend that patients see their physicians to check aspects of their health profile	1	0	6	3	1
Refer patients to other healthcare professionals upon discharge	0	1	3	7	0
Refer patients to exercise professionals upon discharge	0	2	2	5	2
Take patients' blood pressures upon intake	1	2	3	2	3
Take patients' blood pressures on every visit	1	3	3	3	1
Provide patients with information on physical activity recommendations/benefits	0	0	1	6	4
Provide information on diet or nutritional recommendations	0	2	6	3	0
Provide advice, counseling, or education on any other aspect of their health not directly related to the current therapeutic intervention	0	0	5	5	1

See the Appendix for the specific questions represented by the above-listed topics.

Statistically significant correlations were observed between the frequency with which PTs asked patients about their CVD risk factors and both years of experience in the PT field and the state in which therapists were educated. The state in which participating PTs were educated had the highest frequency of values with correlations that were statistically significant (See Table 11 for all specific X^2 and p values). Physical therapists educated in Indiana (n=1) had the highest average values for both interviewing and intervention-related questions regarding current practice (at an average of 4.7 and 4.3 respectively, on a 1-5 scale). While Kentucky-educated PTs (n=7) had average values of 4.1 (for interviewing) and 3.7 (for intervention), Ohio-educated (n=1) averaged 3.3 and 2.4, Pennsylvania-educated (n=1) averaged 3.6 and 2.6, and North Carolina-educated (n=1) averaged 4.3 and 3.1. The correlation between the state in which PTs were educated and the frequency with which they referred their patients to both their own physicians (for things like blood pressure checks or other health concerns) as well as any other non-PT related healthcare provider (such as a dietician or mental health professional) were both statistically significant. The final statistically significant correlation was between the setting in which the PT worked and the frequency with which they provided advice or education regarding physical activity.

Table 11. Results from Chi-Square tests on participant demographics and survey responses representing current practices in interview and intervention related to holistic health counseling.

	Employment setting	Years of experience	Gender	Level of education	State educated in
How often participants obtain information from patients about...					
Current physical activity habits	0.052 (0.819)	3.260 (0.352)	1.061 (0.303)	2.127 (0.345)	4.086 (0.395)
Current dietary habits	2.357 (0.308)	6.967 (0.324)	2.357 (0.308)	6.38 (0.173)	5.029 (0.755)
Current use of tobacco/nicotine products	0.917 (0.632)	7.944 (0.242)	1.277 (0.528)	6.188 (0.186)	14.143 (0.078)
Mental/emotional health	4.518 (0.104)	10.160 (0.118)	2.357 (0.308)	1.788 (0.775)	10.214 (0.250)
Medications they currently take	1.637 (0.201)	7.219 (0.065)	1.637 (0.201)	1.169 (0.557)	2.357 (0.670)
Cardiovascular disease risk (blood pressure or cholesterol levels)	4.302 (0.231)	17.05 (0.048)*	3.221 (0.359)	3.272 (0.774)	24.514 (0.017)*
Family history of cardiovascular disease	4.518 (0.211)	9.854 (0.362)	7.759 (0.051)	2.612 (0.856)	19.643 (0.074)
How frequently participants...					
Recommend that patients see their physicians to check aspects of their health profile	7.399 (0.060)	15.583 (0.076)	2.357 (0.502)	5.225 (0.515)	23.571 (0.023)*
Refer patients to other healthcare professionals upon discharge	0.711 (0.701)	8.556 (0.200)	3.592 (0.166)	2.986 (0.560)	17.510 (0.025)*
Refer patients to exercise professionals upon discharge	1.493 (0.684)	11.550 (0.240)	1.061 (0.787)	8.085 (0.232)	11.914 (0.45)
Take patients' blood pressures upon intake	3.077 (0.545)	12.528 (0.404)	5.283 (0.264)	8.617 (0.376)	20.952 (0.180)
Provide patients with information on physical activity recommendations/benefits	7.759 (0.021)*	7.486 (0.278)	0.917 (0.632)	5.363 (0.252)	5.238 (0.732)
Provide information on diet or nutritional recommendations	1.637 (0.441)	3.208 (0.782)	5.238 (0.073)	2.292 (0.682)	8.905 (0.350)
Provide advice, counseling, or education on any other aspect of their health not directly related to the current therapeutic intervention	2.357 (0.308)	4.767 (0.574)	0.629 (0.730)	4.620 (0.329)	5.029 (0.755)
Take patients' blood pressures on every visit	5.238 (0.264)	12.833 (0.381)	5.238 (0.264)	9.900 (0.272)	19.905 (0.225)

Values are represented as a chi-square value (p value).

A value of $p < 0.05$ was used to determine statistical significance.

* denotes statistical significance

Barriers

Only four of the barriers provided on the survey were positively identified by participating PTs as reasons they don't practice more holistic patient care (see Table 12). None of the barriers were identified by half or more of the participants, with lack of time being the most frequently identified at 45.5% (5:11) of participants. Four participants identified lack of time as their only barrier. Participants had the option of identifying any additional unlisted barriers they experienced; pressure to meet productivity quotas (with holistic intervention not counting towards billable time) was identified by one participant. Only two participants did not identify any barriers, one of which stated that they "felt well-equipped and able to discuss holistic lifestyle suggestions."

Table 12. Frequency with which participating physical therapists identified certain barriers to implementing or improving their practice of holistic health counseling and intervention.

Barrier	Frequency (n)	Percentage of participants that identified this barrier
Lack of time	5	45.5
Lack of information/knowledge of other aspects of health and wellness	3	27.3
Believe it is out of scope of practice	2	18.2
Fear patients' negative perception of efforts	3	27.3
Lack of experience addressing health/lifestyle subjects	0	--
Lack of knowledge of scope of practice	0	--
Not comfortable discussing patients' health and lifestyle	0	--
Supervisor/ organization would not allow	0	--
Feel that patients don't care about this information	0	--

See the Appendix for full-length barrier identification statements represented by the barrier categories above.

Likelihood of Future Practice

When asked about their future practice of holistic patient care, 100% of participating PTs identified that they were most likely to interview their patients about their current physical activity levels (all 11 reported either likely or very likely to do this). The practices with the second-highest frequencies (with 10 of the 11 therapists identifying that they were likely or very likely to take action in these ways) were providing their patients with materials containing information about a healthy lifestyle, providing patients with a list of referrals to other health and lifestyle professionals upon discharge, asking their patients about their blood pressure or history of hypertension, asking patients about their tobacco use, and asking patients about any other CVD risk factors (see Table 13 on the next page). On average, PTs were least likely to interview patients about their lifestyles in the form of brief counseling integrated into regular visits/treatments (with only 4 therapists likely to take this action and none very likely) and to interview patients using time outside of direct treatment time (with only 1 therapist likely to do this and none very likely).

Table 13. Frequency with which participating physical therapists identified their likelihood of practicing specific interview or intervention techniques.

Intervention type	Not at all likely (0)	Somewhat likely (1)	Likely (2)	Very likely (3)
Signs posted with recommendations for health practices	0	2	6	3
Provide materials with information on recommendations for health practices	0	1	8	2
Allow another member of the healthcare team (such as a physical therapist assistant or technician) to provide counseling and/or education about lifestyle/ health habits	1	3	5	2
Provide a list of referrals upon discharge related to improving current health habits	0	1	8	2
Interview patients in the form of brief counseling integrated into regular consultations	1	6	4	0
Interview patients using time outside of regular consultation/ treatment times	4	6	1	0
Ask patients about their current physical activity levels	0	0	2	9
Ask patients about known blood pressure measurements/ history of hypertension	1	0	4	6
Ask patients about smoking and/or tobacco use	1	0	5	5
Ask patients about other cardiovascular disease risk factors	1	0	4	6

See the Appendix for the full-length questions represented by the categories above.

DISCUSSION

The aim of this study was to assess the alignment of the current condition of PTs' practice with holistic patient healthcare and identify barriers therapists currently face to implementing or improving such practices.

Health Promotion Practice Patterns

The researcher had no basis for hypothesis regarding the current implementation of healthy lifestyle promotion practices among PTs, but based loosely on the conditions typically treated by PTs expected that the prevalence of these practices would be diminished. However,

over half of participating PTs identified that they interviewed patients about 6 of the 7 topics in the survey either often or with every patient. The topic with the highest identified practice frequency under the interview section was obtaining information from patients about their current physical activity habits, which 5 participants did often and 6 participants did with every patient. This finding is consistent with current research that reflects that PTs are more likely to counsel patients about their physical activity levels than other aspects of their health.^{36,48} This is likely due to the nature of PT treatment and its direct relation to exercise prescription, making therapists feel comfortable addressing it and like their patients expect it and would respond well. Black et al reported that over 90% of surveyed outpatient PT patients agreed that their PT should advise them on recommended activity levels, should discuss the benefits of physical activity, and should suggest ways for them to increase activity levels confirming the idea that patient expectations regarding physical activity counseling and intervention are a contributing factor to PTs' willingness to address the topic.³⁶ Physical activity being the most frequently addressed topic by PTs in the current study may also be explained by the fact that the second-most frequently identified barrier to holistic health interviewing and intervention in the current study was a lack of knowledge of other aspects of health and wellness, with 27.3% of participants positively identifying this as a personal barrier (see the Identification of Barriers section and Table 12). Participants also reported barriers such as the perception that education and intervention dealing with other aspects of health was out of their scope of practice and that they feared patients would negatively perceive their questions or efforts. Study results regarding barriers will be discussed in greater detail later on, but the positive identification of these specific barriers gives an indication as to why physical activity was the most frequently-addressed topic. Physical therapists feel more confident in their knowledge of physical activity and exercise and

patients reasonably expect their PTs to address physical activity, making the PT field most conducive to health interventions related to activity and exercise.

Another frequently-addressed topic by participating PTs was patients' current use of tobacco and nicotine products, with 10 out of 11 therapists asking their patients about this often or always. This finding is consistent with current research. Black et al³⁶ reported that 16.7% of patients surveyed reported that their PT spoke to them about cigarette smoking. While this percentage is lower than the percentage of PTs that report addressing this same topic with their patients in the current study, the ranking of topics by frequency is consistent between the two studies. Both Black et al and the current study found the topic of tobacco use to be second only to that of physical activity for frequency with which each topic was reportedly addressed.

Out of the 11 therapists participating in the current study, 7 identified that they interviewed patients about topics related to their mental health. As previously mentioned, the current research reviewed prior to this study reflected that the frequency with which PTs interview their patients about their mental and emotional health is minimal.^{49,50} The results of the current study corroborate the need for improvement in PTs' frequency of addressing mental health topics, but differ in the degree to which this topic is currently being addressed. The studies by Fruth et al⁴⁹ and Gahimer et al⁵⁰ reflect that this topic was addressed significantly less frequently than any others, while the current study reflects that the frequency of mental health-related interviewing falls somewhere in the middle of all topics included in the survey. Since the reviewed literature included studies that objectively measured statements PTs made during treatment sessions and the current study asked PTs for their subjective interpretation of their own current practices, the discrepancy between the conclusions of these studies could be a result of a

difference in definition or interpretation of what mental health counseling includes or entails, or could indicate an overestimation and self-disclosure bias by PTs in the current study.

The only topic which fewer than half of participants asked patients about either often or always was their diet and nutritional habits. The finding that PTs ask least frequently about patients' diets is consistent with contemporary research. Abaraogu et al concluded that therapists were least likely to assess return patients' diets (only 14.6% always did so, while 37.9% always assessed family history of CVD risk factors) and second-least likely to assess new patients' diets (19.4% always did so) with the least-likely assessment being anthropometrics (16.5% always did so).⁴⁴ The current study did not ask PTs about their measurements of patient anthropometrics, so considering only the available data the comparison of these two studies corroborates that therapists are less likely to ask patients about their dietary habits than other aspects of their health.

Participants' practice of intervention was not as frequent or consistent as their use of holistic health interviewing. Participants reported that they either often or always practiced only 4 of the 8 actions represented by the survey questions. Participants were least likely to provide patients with information on nutrition, with only 3 therapists (27.3%) stating they did this often and none reporting that they did always. This finding is also consistent with current research in concluding that PTs are less likely to intervene in patients' diets than other aspects of their health and lifestyle. Only 9.7% of therapists studied by Abaraogu et al⁴⁴ reported that they usually or always gave their patients written advice related to a balanced diet and Black et al³⁶ found that only 5.7% of patients said their PTs had diet-related discussions with them. In general, participating PTs were less likely to act than to interview. The average score (on the 1-5 scale) for questions relating to obtaining information was 4.06, while the average score on questions

related to actions taken toward intervention was 3.46. However, even within the intervention category, physical activity was still the topic most likely to be addressed with 6 participants providing patients with information on physical activity (including recommendations and/or benefits) often and 4 providing it to every patient. This is presumably due to the close relation of physical activity recommendation to the scope of practice and role perception of a PT, as previously discussed.

Associations Between Current Practices and Demographics

The researcher hypothesized that participants' practice of lifestyle counseling and patient education would vary based on the setting in which PTs were employed. This hypothesis was largely incorrect, as only 1 of 14 actions relating to holistic health counseling or intervention had a statistically significant correlation to employment setting—providing advice and/or information on physical activity was significantly associated with employment setting ($X^2=7.759$, $p=0.021$). The rejection of this hypothesis could be explained by the lack of representation of settings within the PT field by participants in the study. Only 2 of the 6 options for employment setting provided in the survey were chosen by participating PTs. The researcher's hypothesis was based on the assumption that different settings would provide varying levels of opportunity for counseling and lifestyle intervention and subsequently that the different patient populations associated with each setting would require different types and levels of intervention. For example, researchers expected that PTs employed in a school system would report lower frequencies of patient counseling due to the fact that young children would not be as receptive and would not have as many negative habits or risk factors to be addressed. Since the settings in which a PT would presumably work with the most demographically unique patient populations, such as school systems, early intervention, or a skilled nursing facility, were not

represented in the data, correlations between current practices and employment settings were not as prevalent as anticipated.

It was expected that outpatient PTs would be more likely to practice holistic health counseling and intervention than those working in other settings, for similar reasons as previously described—those receiving outpatient therapy are largely physically able to make positive life changes and outpatient PTs may have more frequent opportunity for counseling and intervention. Outpatient clinics are more likely than other settings (such as acute care or early intervention) to be private practices. In these types of clinics, while insurance coverage and other factors do still dictate what a PT can do with a patient, researchers expected that therapists have a greater degree of autonomy and are less pressured by productivity units in this type of setting. This led researchers to hypothesize that PTs in this setting would be able to practice holistic health promotion and counseling with a greater frequency. Out of participants with an average score for questions related to patient interviewing of 4 or greater, 4 worked primarily in an outpatient setting, 2 worked primarily in acute care, and 1 worked in both outpatient and acute care. For questions related to lifestyle intervention participants that averaged 4 or above included 1 practicing in outpatient care and 1 in acute care. While outpatient PTs individually averaged a score of at least 4 with greater frequency than those in acute care, the total average score for all acute care PTs was higher for both interview and intervention categories (4.14 for acute care interviewing, 4.06 for outpatient interviewing, 3.76 for acute care intervention, and 3.31 for outpatient intervention). This finding rejects the researcher's hypothesis related to which setting would be more conducive to the practice of holistic health counseling and intervention. No variables within the data set gave any indication as to why the researchers' original hypothesis

was not supported by the results of the study or gave any insight into why PTs in one setting practiced health promotion more or less frequently than those in another.

The demographic variable with the highest frequency of significant correlations to specific actions was the state in which therapists obtained their PT degree (see Results section and Table 11 for specific question correlations). This association could indicate a discrepancy by state in the inclusion of knowledge and skills needed to effectively counsel patients on lifestyle modification between universities or programs and/or the bodies that govern their curriculums. When asked whether or not they received education on the importance of general health promotion and/or training on effective lifestyle counseling during their education toward becoming a PT, 63.6% of participants said they did. Out of the 7 participants educated in Kentucky, 4 (or 57.1%) of them answered yes to this question. Participants from all other states except Ohio reported that they did receive this education, but every other state was represented by only one participant, making it obsolete to compare the percentages representing the frequency with which individuals from each state were educated on holistic health counseling. No obvious explanations arise for the associations between the specific questions and state of education, as they all appear to be equally applicable to patients in all states since they ask about general CVD risk factor assessment or referral to physicians and other healthcare providers. For example, it would be expected that the question regarding asking patients about their tobacco use may be more significantly associated with state of education, as tobacco use and smoke exposure, and subsequently incidence of diseases like COPD and asthma, are variable based on region and state. Both Kentucky and Pennsylvania produce a lot of coal and Kentucky has a higher rate for tobacco use than any other state represented in the study.⁵⁴ This would reasonably lead to the expectation that healthcare professionals educated in these areas would be more likely

to receive intervention training or at least be exposed to more information regarding the importance of smoking cessation and these individuals would therefore report counseling patients on smoking with a higher frequency. This, however, was not reflected in the data—but the lack of reasoning for the presence or lack thereof of association between specific questions and state of education may be explained by the fact that most PT programs are governed by the Commission on Accreditation in Physical Therapy Education (CAPTE), which governs many parts of the program and its curriculum and creates educational uniformity between programs and between states.⁵⁵

The researcher also expected that there would be associations between level of PT education (measured by highest degree obtained) and current practices. There were, however, no significant correlations between this demographic variable and the results from any survey question. This hypothesis was based on the expectations that longer degree programs would allow for more extensive education and training on topics like patient health counseling, that higher degrees would require a standard of more comprehensive and in-depth knowledge and competency, and that the shift over time of the PT degree from a bachelor's to a master's and now to a doctorate would have allowed for the addition of more contemporary and updated practices and education to program curriculums. The primary goal of PT, and therefore PT education, is not lifestyle counseling or health promotion so when degree programs have limited time to educate students, it makes sense that those topics are not covered. However, when the number of semesters PT students spent in their professional program increased with the shift of degree requirements from a bachelor's to a master's, this presumably opened up time and room in the curriculums for the coverage of other topics like health promotion and counseling. Along these same lines, PTs that were required to have a degree beyond a bachelor's and then beyond a

master's would likely be expected to have knowledge and practice beyond what others holding a lesser degree would. Therefore, individuals holding a higher degree in PT would be more likely and/or expected to be more adept in patient education and counseling than those without more advanced education. Finally, considering the timeline with which PT programs switched from bachelor's to master's to doctorate degrees, those holding a doctorate degree would have been educated most recently. The master's degree replaced the bachelor's degree for PT in the late 1990's and in recent years schools began transitioning to doctorate programs.⁵⁶ Researchers expected that this would have allowed for participants that have a doctorate or master's degree to have been exposed to the more recently-developed research and knowledge of the impact of lifestyle factors on patient health. Those holding a doctorate of PT degree likely would have been educated contemporarily with or after the establishment of movements promoting lifestyle modification for health (such as Exercise is Medicine), the exposure to which would expectedly lead to increased frequency in their practice of intervention and counseling.

While there were no significant correlations between level of education and actual practice of holistic health counseling or intervention, when comparing the frequency with which participants said they received education on the importance of health promotion and/or training on how to counsel patients a difference based on level of education was clear. Out of 5 participants with a doctorate degree and 2 participants with a master's degree 100% reported receiving this particular type of education, while out of the 4 participants with bachelor's degrees 0% reported receiving this education. This distinct separation between degree levels indicates that the previously-discussed differences in level of education may actually be accurate. Since different degree levels do apparently include varying levels of education on health promotion and lifestyle counseling but PTs' actual employment of these practices does not differ based on

their education, there must be a disconnect in the translation of education to practice. Proposed explanations for this discrepancy include that the increased education may not be focused on the implementation of health promotion into future practice or may not include strategies on and/or experience with actually implementing health promotion techniques. Or, maybe these student PTs are presented with information on health counseling and intervention but the importance of its implementation in their own future practice is not well-enough emphasized. If students learn about the benefits of a healthy lifestyle and about health promotion but do not gain experience with how to address these topics with patients or do not understand the magnitude of positive effect their own personal intervention could have, they may not be able or willing to implement health promotion practices in the future.

Identification of Barriers

Only 4 of the 9 barriers provided on the survey were positively identified by participants as affecting their likelihood or ability to practice health promotion and counseling (see the Results section and Table 12). Lack of time was the most frequently identified barrier, which is consistent with current research-- Healey et al⁴², Freene et al³⁹, Aweto et al³⁸, and Shirley et al⁵² all determined lack of time to be the most frequently identified barrier among PTs to implementing more holistic health promotion. Out of the current research reviewed for this study, only one study was reviewed in which lack of time was not one of the top barriers identified by participants.⁴⁴ In the current study, no distinct patterns emerged in those identifying time as a barrier in regard to any demographic variables. Both the high frequency of identification and lack of association to demographics, such as years of practice or employment setting, indicate that lack of time is a problem that transcends the entirety of the PT field.

One of the second most frequently identified barriers was a lack of information or knowledge about other aspects of health. All individuals that positively identified this as a barrier held a bachelor's degree in PT and only one individual holding a bachelor's degree did not identify this barrier. This trend corresponds with whether or not participants reported that they received training on health promotion and counseling during their education, as previously discussed. All 3 individuals identifying lack of knowledge as a barrier also reported that they did not receive this information and/or training during their education. To bridge the gap between PTs holding bachelor's degrees that are further removed in time from their degree programs in regard to the knowledge needed for successful health promotion and counseling, it may be necessary for some parts of continuing education for PTs to include this information and training. Even PTs that were educated more recently and felt that they obtained enough knowledge of general health promotion may soon also feel ill-equipped to address various health topics with patients as advancements in different health fields will soon render what they learned in school obsolete. For all PTs, the inclusion of information and skills needed for health counseling and intervention in continuing education would likely increase the confidence they had in their own knowledge and abilities knowing they were regularly exposed to new information, meaning they would then ideally be more comfortable and inclined to employ those skills and share that knowledge with patients.

Another barrier that was second-most frequently identified was the fear that patients would negatively perceive the PT's counseling and intervention efforts. There were again no distinct patterns in any demographic variables with regard to the identification of this barrier, indicating that this perception is therapist-specific and perhaps individually derived rather than the result of any factor such as employment environment or patient population. On the other

hand, no participants positively identified the barrier of patients not caring about this information. Recognition of patients' desire for this information indicates that participating PTs believe to some extent that health promotion and counseling does have the potential to be positively received by patients. This could therefore potentially indicate that the fear of patient perception is derived in a lack of ability to effectively deliver this information, rather than a fear of the offensive or unwelcomed nature of the information itself. However, no PTs identified a lack of experience addressing health and lifestyle subjects nor that they were uncomfortable discussing their patients' lifestyles with them as barriers. It would be expected that if PTs acknowledged that receiving health information is not unimportant to their patients while also acknowledging a fear of patients' negative perception of this information that the faltered confidence in the effectiveness of intervention would be derived from their own inability to counsel. The results of the current study, however, do not reflect this lack of confidence in their own abilities, apparently making the previously-described explanation for this discrepancy irrelevant. The explanation, then, could potentially lie either in participating PTs' overestimation of their own comfort levels and abilities to effectively counsel patients or in a misunderstanding of patients' perception of what is and is not acceptable for PTs to address. This theory is supported by the research conducted by Aweto et al that, as previously discussed, revealed a discrepancy between what PTs and their patients viewed as acceptable topics to be discussed during PT intervention.³⁸

The final barrier that participants identified was that holistic health counseling and/or intervention was outside the scope of practice of a PT. Again, no participants identified a lack of knowledge of their scope of practice as a barrier, but the practices included in the current study all fall within the scope of practice of PT. This indicates that the participants have either been

given false information regarding what is and is not within their scope of practice or are assuming anything they do not recall having been blatantly told is within their scope must be outside of it. While PT degree programs are required to educate students on their scope of practice, the extent to which they do so and what they include or emphasize may differ. Data from the current study suggests that the educational programs of the participating therapists may have focused more on what is not within the PT's scope of practice rather than what is within it (especially practices that are within their scope that may not be obvious). In the eyes of the degree programs, and future PTs themselves, the primary goal of scope of practice education is likely to ultimately keep patients safe and avoid future malpractice litigations. This approach to education on the subject gives a clear indication as to why it seems PTs are more inclined to assume practices are not within their scope—to be on the safe side. All individuals that thought the practices mentioned in the survey would be outside their scope of practice held bachelor's degrees in PT. While their level of education and/or length of time since graduation could have contributed to the misconception of what is within their scope of practice, the other two participants that held bachelor's degrees in PT did not identify this as a barrier, indicating that only half of individuals with a bachelor's degree as their highest level of education had misconceptions of their scope of practice, making this association more questionable. The weakness of association between highest degree obtained and misconception of scope of practice as well as the fact that no participating PTs self-reported a lack of knowledge of their scope both indicate that PTs are being educated on their scope of practice and more or less in the same way across all degree programs; however, maybe scope of practice education in PT programs is less than complete or is approached in a way not conducive to fostering holistic patient care.

While no associations between the barriers identified and the average frequency scores that reflect current holistic health counseling and intervention practices of participating PTs were significant, some trends and patterns did emerge. The average score reflecting frequency of current practices for individuals identifying 0 barriers (an average of 4.28 on a 1-5 scale) was higher than the averages for individuals identifying one barrier (3.54), 2 barriers (3.95), and 4 barriers (4.15). It could be reasonably expected that as the numbers of identified barriers increased, the scores reflecting current practices would decrease linearly. While individuals reporting no barriers did average scores reflecting the highest frequency of current practice, the rest of this linear trend was not maintained in the current study. However, the groups identifying 2 and 4 variables only consisted of one participant each, which could have caused the expected pattern to not be reflected in the data.

Another pattern in the data involved the frequencies of health promotion practices of participants (represented by average scores on survey questions related to health promotion) based on the specific barrier they identified. Average scores for all individuals that identified a lack of knowledge as a barrier was 3.52 on the 5-point scale, making this barrier the one associated with the lowest frequency. Individuals identifying time as a barrier averaged a slightly higher score at 3.69, and those positively identifying scope of practice and fear of negative patient perception as barriers both averaged a score of 4.05. Presumably, the barriers associated with the lower average scores are more significant limiting factors to implementing holistic health counseling and intervention practices. Based on this, a PT with a lack of sufficient knowledge to implement health promotion techniques would be less likely to counsel patients than a PT that feared their patients would perceive or respond negatively to health counseling. Assessing which barriers likely act as a more significant limiting factor in the practice of health

promotion is an important start to deciding where efforts to help PTs improve their practice should be focused, which will be further discussed later on.

Likelihood of Future Intervention

Assessing which barriers are associated with PTs' opinions about their own likelihood to take certain actions in the future is also necessary to determine how to best help therapists incorporate health promotion and lifestyle counseling into their practices. There were no significant associations between employment setting and likelihood of taking any actions included in the survey. However, similar to the patterns observed between barriers and average frequencies of current practices, trends are also reflected in the associations between reported barriers and scores reflecting how likely participating PTs are to implement certain holistic health promotion practices in the future. The highest average likelihood among groups divided by the number of barriers they positively identified was the group of participants that identified 0 barriers (with an average score on likelihood-related questions of 2.4 on a 0-3 scale). It would be expected that as the number of barriers increased the likelihood that PTs would take action would decrease linearly. A linear relationship was present between these two variables (with the group that identified 1 barrier averaging 1.9 and the group that identified 2 barriers averaging 1.7) with the exception of the group that identified 4 barriers, as they actually averaged 2.2 on likelihood questions. As previously mentioned, the unequal distribution of participants between groups when divided by number of barriers identified likely affected any trends in the data. This lack of expected trend could also be explained by a difference in self-efficacy in participating PTs-- if the participants that identified multiple barriers had high levels of self-efficacy (that is, believed more highly in their abilities to overcome barriers) they could possibly still score higher than others on the questions regarding likelihood of taking action in the future, as was observed

in the current study. Considering these factors, it is likely that conclusions drawn from the trend between number of barriers identified and likelihood of taking action would still be true.

Researchers also analyzed how the average likelihood scores of participants varied by which specific barriers they positively identified. The barrier with the highest average likelihood score was a lack of time, with participants that identified this barrier averaging a 2 on the 0-3 scale. While the average score for current practices for participants that identified lack of time as a barrier was one of the lowest of all barriers, the group that identified lack of time as a barrier had the highest average score for their likelihood to take action in the future. Data indicates that lack of time may be one of the most significant reasons PTs currently don't practice health promotion but that it is a barrier many therapists believe they would be able to easily overcome. The discrepancy between current practices and self-belief in the ability to act in relation to the barrier of a lack of time may be explained by the fact that this barrier is an extrinsic factor. Individuals that identified scope of practice and fear of negative perception as barriers scored similarly on likelihood questions, with averages of 1.95 and 1.97 respectively. The lowest likelihood score was for participants that identified a lack of proper knowledge as a barrier. The group of participants that identified lack of sufficient knowledge averaged the lowest score in both the current practices category of survey questions and the likelihood to act category of questions. This reflects that while time (an extrinsic factor) and knowledge (an intrinsic factor that the therapist is better able to control) both inhibit PTs' current practice of health promotion, the intrinsic factor is more likely to affect the therapists' belief in their ability to make the change to increase future implementation. This information is helpful when determining the best approach to helping PTs overcome specific barriers and implement health promotion practices, as will be discussed in greater detail further on.

Participants' identification of specific barriers may also determine what type of interventions they are or are not likely to practice or implement. For example, participants that identified a lack of knowledge as a barrier all noted that they would be likely or very likely to display signs in their waiting rooms containing information about and current recommendations for aspects of health such as diet and physical activity. These same participants' answers to the proposal of interviewing patients about their health during their regular treatment times included that they were primarily not at all likely or somewhat likely to do so. A greater likelihood of providing information from another source than of directly counseling patients is to be expected from the participants that were not confident in their own knowledge of health promotion subjects. Participants that identified lack of time as a barrier were also more likely to have signs in their waiting room (an average score of 2, equaling a likelihood rating of "likely") than they were to incorporate counseling into their regular treatment time (an average score of 1, or a likelihood rating of "somewhat likely"). It would be expected that PTs concerned with time would report being more likely to use interventions that took little to no extra time than those that were more time-consuming, which is confirmed by the data from the current study.

Without considering participant demographics or any other aspect of the current data, the actions that participants identified with the highest average likelihood rating were those involving providing patients with materials or presenting information in a more indirect way--having informational signs in the waiting room, providing handouts with information about a healthy lifestyle, and providing a list of referrals to health and wellness professionals upon discharge (all with a likelihood rating of 2.1 on the 0-3 scale, or "likely"). The action that participating PTs were least likely to take was to take time outside of regular consultation or treatment time to counsel patients on their health (with an average likelihood rating of 0.7,

between “not at all likely” and “somewhat likely”). When asked about what topics they would be willing to obtain information from patients on, PTs reported that they were most likely to ask about current physical activity habits (an average of 2.8, close to “very likely”) and were least likely to ask about tobacco use/cigarette smoking (an average of 2.3, closer to “likely”). In general, this data reflects that participating PTs were more likely to implement counseling practices than they were to take action toward intervention and health promotion, as reflected by the high likelihood scores for asking questions about all included topics. For any efforts towards helping PTs implement more patient health counseling and promotion into their practices to be successful, they must consider what therapists have to say about their own likelihood of making certain changes.

Suggestions for Enhancing Clinical Practice

Suggestions on how to best enable PTs to increase their practice of holistic health promotion lie primarily in educating students and PTs and providing practicing PTs with tools and materials to facilitate patient education and lifestyle counseling. In regards to recommendations for PT education in the area of health counseling and intervention, based on an analysis of the data collected in the current study and the associations previously discussed, education should focus on therapists’ knowledge of their scope of practice, techniques for and experience actually implementing educational and intervention practices, and emphasizing the importance of health promotion and the positive impact it could have on patients. One frequently-identified barrier that properly-directed education could help PTs overcome was the fear that patients would perceive their health promotion efforts negatively. Since this barrier was not associated with any demographic or environmental factors like employment setting or primary patient populations, it should be addressed with all PTs across all settings. Educating

PTs on techniques for successfully interviewing and advising patients may increase their confidence in their own abilities to successfully address health promotion topics without eliciting a negative feeling or response in their patients. As previously discussed, current research reflects that PT patients actually do want their therapists to address most of these health topics with them, but PTs don't believe it is their role to do so. Providing PTs with education on patient beliefs and expectations in order to make them aware of this discrepancy may also encourage their beliefs that intervening in patient health concerns are not only appropriate when done correctly, but also well-received and even expected by patients.

The need to change or clarify PTs' perspectives on their role in health promotion indicates that efforts to help therapists with their health promotion practices would need to focus on more internal factors. The fact that participants in the current study identifying lack of knowledge as a barrier had lower average scores in both the current practices section and the likelihood of future action section supports this indication of the usefulness of intrinsic interventions geared towards therapists themselves. Based on the data from the current study, helping PTs improve their knowledge of current health promotion topics and their confidence in their own abilities to successfully intervene in patients' health would have the most significant positive impact on current health promotion practices in the PT field. The implementation of an educational approach may be necessary both during degree programs for future PTs and included in continuing education work for already-licensed PTs (as previously discussed) in order to maximize its effectiveness in regard to improving patient health and ensure the success of health promotion in PT both now and in the future.

While the current study indicates that an educational approach to improving health promotion in the PT field would be successful, also changing external factors and providing

tangible resources to best facilitate changes PTs make would create an ideal environment for improvement. The most frequently identified barrier in the current study as well as many others, and the one that was identified consistently with no influence from demographic variables, was lack of time. This indicates that efforts to help PTs overcome this barrier would have the most significant and widespread impact on the frequency and effectiveness with which PTs implemented holistic healthcare practices. Health promotion and intervention techniques that require the least amount of time from PTs and run the lowest risk of diminishing productivity should be most heavily encouraged as they are the most likely to be successfully implemented and/or utilized. Examples given in the current study's survey that take up little to no time from PTs include having signs and posters in the waiting room or treatment space and providing all patients with a list of referrals to various health and wellness professionals upon discharge. The potential success resulting from recommending that PTs implement these practices is supported by the high frequency with which participants identifying lack of time as a barrier reported that they would be likely to take these actions, especially compared to more time-consuming actions like verbal and intentional health counseling. It's not enough, however, just to recommend actions for PTs to take. In order to best facilitate PTs' implementation of these practices, they should be provided with any necessary tools or supplies, and organizational changes may need to be made. Based on the interventions that PTs reported that they were likely to make, necessary supplies could include a database or way of accessing ready-made and up-to-date posters and signage with information on current recommendations for health practices including but not limited to nutrition, physical activity, and stress management and mental health. For PTs that reported being likely to provide patients with a list of referrals, having access to an organized list of local healthcare providers, dieticians, fitness facilities, and other health professionals would

likely facilitate the successful implementation of this practice to avoid the time-consuming nature of procuring a similar list for themselves.

For PTs that were willing to counsel patients, and possibly to increase the willingness of those that were not, materials to use during counseling to facilitate discussions and obtain information would likely be helpful. Having documents that PTs could include with their typical patient intake forms that obtained written information from patients to briefly assess their current health status could let therapists know if and what they needed to address to make counseling more efficient. To overcome the barrier of fear of patient perception, these forms could include a question about whether or not the patients would like to discuss aspects of their health with the therapist to gauge their interest in and receptiveness to counseling. For PTs that did want to verbally counsel patients, documents with guiding questions and conversation facilitators may be useful.

In addition to supplementing PTs' health promotion practices with materials and resources, another key factor in improving these practices in the field may lie in organizational changes to settings in which PTs are employed. While these changes may be less feasible than those already mentioned, they could have significant and long-lasting positive effects on the health of PT patients. The majority of (7 of 11) participants in the current study identified that they would be either likely or very likely to allow another member of the team within their practice to counsel and educate patients on their current and recommended lifestyle habits. As one participant identified, the concern with a lack of time for health promotion likely stems from the fact that these practices would not count as billable time for a PT and therefore would diminish productivity and profit. However, the time that other members of a treatment team spend with a patient may be less strictly governed, leaving more room for health promotion and

counseling. These team members that have the potential to use their time with patients in this way include physical therapist assistants (PTAs) and technicians. By providing these individuals with brief training and resources for counseling patients and promoting holistic health, PTs can positively impact their patients' lives without diminishing their own productivity and affecting their livelihood and business or the business that employs them. Another member of the therapy team that is not seen in practices as frequently but is beginning to gain entry into the field is the exercise physiologist (EP). Some PT clinics are beginning to hire EPs to fulfill roles similar to those of a technician, with a focus on improving fitness. The EP would have the knowledge and training to effectively counsel patients on many health aspects while also having increased patient contact time and less restriction on what they can realistically do with patients outside of direct therapeutic interventions without significantly disrupting treatment times or productivity units. A more widespread employment of health and wellness professionals like the EP in PT practices would likely have a significantly positive impact on the frequency of practice of health promotion in the field and subsequently on the overall health of PT patients.

Study Limitations

Limitations of the current study include the self-selected, voluntary nature of survey participation and subjective reporting by participants about their own behaviors and opinions, which have subjected survey data to a level of bias and necessitate that any interpretation of findings be made conservatively bearing this in mind. Therapists that participated in the study may have done so because they were already interested in the subject of holistic health promotion, which could have subjected the study to self-selection bias and skewed the data in a positive direction. A low response rate and limited sample size are also limitations of the study. This also led to limited diversity in participant demographics like only having two employment

settings represented. The low response rate may be attributed to the timing of the study's data collection period, which occurred in the beginning stages of a global health pandemic in which many PTs were out of work. Finally, since only PTs currently practicing in Kentucky and surrounding areas (Indiana) participated in the survey, conclusions drawn from the study may only be generalized to these populations.

Conclusions

The PT is well-placed to deliver holistic lifestyle counseling and interventions to their patients to improve their health and, based on APTA standards, are professionally obligated to help as they are able. Physical therapists are currently addressing health promotion topics more frequently than expected but do so in varying degrees with plenty of room to improve these practices. Physical therapists are interviewing patients about their lifestyle habits and risk factors more frequently than they are advising and intervening in areas of patients' lives that need improvement and reports of their likelihood to act in the future reflect the same pattern. While getting the conversation started is a step in the right direction, actual improvements in health rely heavily on the ability to help patients implement lifestyle changes. Physical therapists are most likely to counsel and advise patients about physical activity and are least likely to counsel and give advice about diet and nutrition. Frequently-identified barriers to increasing the frequency of PTs' health counseling and intervention practices include a lack of time, a lack of knowledge, believing it is out of their scope, and fear of negative patient response. To improve the frequency with which PTs are implementing health promotion practices and to maximize the efficiency of these practices when it comes to improving patient health, facilitation should be provided in multiple forms. Education should be delivered at multiple levels (including during degree programs and through continuing education credits) based on identified barriers and

demographic trends in practice, assistance on supplemental materials should be provided, and longer-term changes to organizational structure may need to be implemented. With these measures and the individual efforts of practicing PTs to increase and improve their health promotion practices, the profession of PT will be able to better serve patients and increase the positive impact it has on the overall health of the population it serves.

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APPENDIX

Survey Questions

Familiarity with wellness initiatives

1. Are you familiar with any of the current wellness initiatives pushing for lifestyle modification and interventions for primary disease prevention? Check all that apply.
 - a. Exercise is Medicine (American College of Sports Medicine)
 - b. Choose PT (American Physical Therapy Association)
 - c. Blue Zones Project
 - d. Make the Move: National Physical Activity Plan
 - e. Other (please list)

General information/demographics

1. Gender
 - a. Male
 - b. Female
2. Age
 - a. Text box
3. Level of physical therapy education (check all that apply)
 - a. Master's
 - b. Doctorate
4. Do you have any specialty certifications?
 - a. None
 - b. Pediatrics
 - c. Women's health
 - d. Geriatrics
 - e. Orthopedics
 - f. Neurology
 - g. Other (please list)
5. In what year did you graduate with a degree in physical therapy and/or pass your initial licensure exam?
 - a. Text box
6. From what institution did you obtain your degree in physical therapy?
 - a. Institution: Text box
 - b. State: Text box
7. During your education toward becoming a PT, did you receive education on the importance of health promotion and/or training on how to effectively counsel patients on a healthy lifestyle?
8. In what state do you currently practice?
 - a. Text box
9. In what setting do you currently practice?
 - a. Outpatient clinic
 - b. Acute care/hospital
 - c. Skilled nursing facility
 - d. School system

- e. Early intervention
 - f. Home care
 - g. Other (please list)
10. What population(s) do you primarily work with? Check all that apply.
- a. Pediatrics
 - b. Geriatrics
 - c. Orthopedics
 - d. Sports
 - e. Cardiopulmonary
 - f. Neuro
 - g. Women's health
 - h. Other (please list)
11. For how long have you been practicing?
- a. Text box

Current practices section (1-never 2-rarely 3- sometimes 4-often 5-every patient)

12. How often do you obtain information (on a written form, verbally, etc.) from patients about:
- a. their current physical activity habits (excluding those directly related to their present therapeutic interventions)
 - b. their current dietary/nutritional habits
 - c. whether or not they currently smoke or use other tobacco/nicotine products
 - d. their mental/emotional health
 - e. the medications they currently take (prescribed or otherwise)
 - f. aspects of their health profile related to cardiovascular disease risk such as blood pressure or cholesterol levels
 - g. Their family history of cardiovascular disease
13. How often do you:
- a. recommend that patients see their physicians to check their blood pressure, cholesterol levels, or other key aspects of their health profile
 - b. refer patients to healthcare professionals for an aspect of their health unrelated to the current physical therapeutic intervention (such as a dietician or mental health counselor) upon discharge
 - c. refer patients to exercise professionals upon discharge
 - d. take patients' blood pressures upon intake
 - i. If you do: Do you take patients' blood pressures on every visit?
 - 1. Text box
 - e. provide patients with information on physical activity (to include recommended physical activity levels, the benefits of physical activity and exercise, or ways of becoming more physically active)
 - f. provide patients with information regarding dietary and nutritional recommendations and/or the potential benefits of their modification
 - g. provide patients with advice, counseling, or education on any other aspect of their health not directly related to the current therapeutic intervention
14. How often do patients ask you questions about aspects of their health not directly related to the present therapeutic intervention (such as diet, weight loss, or mental health)?

Barriers to improvement section

1. Please check all reasons below that prevent you personally from providing (or increasing your current frequency or extent of) holistic lifestyle counseling and patient education:
 - a. I feel I don't have enough knowledge/information about other aspects of health and wellness to provide correct and complete patient education.
 - b. I feel I don't have enough knowledge of/experience with how to approach patients or begin discussions about aspects of their current lifestyle.
 - c. I feel it is out of my scope of practice to counsel patients on other aspects of their health.
 - d. I am unsure of the extent of my scope of practice and don't want to overstep.
 - e. I feel uncomfortable discussing other aspects of patients' health and lifestyle with them.
 - f. I don't have enough time to spend with patients to provide lifestyle counseling or education that's not directly related to their current therapeutic intervention.
 - g. I don't think my patients care about or want to know this information.
 - h. I am concerned that my patients would perceive my efforts toward counseling/education negatively.
 - i. I don't think my supervisor or the organization for which I work would allow me to provide this type of holistic patient counseling and education.
2. Please identify any barriers not listed above that you currently experience:
 - a. Text entry box

Willingness to take action

1. How likely would you be to: (0=not at all likely, 1=somewhat likely, 2=likely, 3=very likely)
 - a. have signs in your waiting room containing current recommendations for health practices such as diet and physical activity
 - b. provide your patients with materials (such as handouts or online references) containing information about current recommendations for health practices such as diet and physical activity
 - c. ask patients questions about their current health practices to include:
 - i. physical activity levels
 - ii. blood pressure
 - iii. dietary habits
 - iv. other cardiovascular disease risk factors
 - d. allow another member of the healthcare team in your practice (such as a physical therapy assistant or technician) to provide counseling and/or education to patients about their current and recommended lifestyle/health habits?
 - e. provide patients with a list of referrals upon discharge related to improving their current health habits (such as an exercise professional, nutritionist, or counselor)
 - f. Interview patients in the form of brief counseling integrated into regular consultations
 - g. Interview patients using time outside of regular consultation/treatment times
 - h. Use signage around your office/workplace with health-related information such as physical activity guidelines or direction as to where to find this information.

2. Please provide any additional comments related to why you do or do not believe the interventions listed above would be effective and realistic, or provide additional suggestions for or opinions about methods of overcoming barriers to lifestyle counseling and education in the physical therapy profession: Text box entry

Any final additional comments based on any part of the survey are welcome: Text box entry