GeriNotes

Academy of Geriatric Physical Therapy

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Older Adult Caregiver Issues: A Select Review of Current Literature

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Managing Persistent Pain Among Older Adults: Geriatric Physical Therapists Should Be Leading the Change

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IN HONOR/MEMORIAM FUND

Each of us, as we pass through life, is supported, assisted and nurtured by others. There is no better way to make a lasting tribute to these individuals than by making a memorial or honorary contribution in the individual's name. The Academy of Geriatric Physical Therapy has established such a fund which supports geriatric research. Send contributions to:

The Academy of Geriatric Physical Therapy | 3510 East Washington Avenue | Madison, WI 53704

Also, when sending a contribution, please include the individual's name and any other person you would like notified about your contribution. If you are honoring someone, a letter will be sent to that person, and if you are memorializing someone, the surviving family will be notified of your contribution.

In the field of geriatric physical therapy, we receive many rewards from our patients, associates, and our mentors. A commemorative gift to the Academy of Geriatric Physical Therapy In Honor/Memoriam Fund is a wonderful expressive memorial.

President's Message

Greg Hartley, PT, DPT

This special continuing education issue of *GeriNotes* is focused on psychosocial issues related to aging. This topic is timely as more and more evidence describing health care disparities related to topics such as food deserts, sexuality, health literacy, and depression/anxiety is emerging on a seemingly daily basis. These factors cannot be ignored if our patients are to achieve their highest potential. Physical therapists and physical therapist assistants have an obligation to address these concerns based on professional judgement, patient context, and best evidence.

Like many other psychosocial issues, mental health concerns in aging adults are staggeringly common. Depression, anxiety, and/or dementia have impacted virtually every family in one way or another. According to the Alzheimer's Association's 2018 Report, 5.7 million American's are living with Alzheimer's disease. By 2050, this number is projected to rise to nearly 14 million. Put another way, every 65 seconds, someone in the United States develops the disease.[1] Depression and anxiety also plague aging adults. Social isolation and financial stress are both exacerbated by the uncertainties present in the health care system, shortsighted community/housing planning, an evolving family unit, and a society that is (by and large) downright ageist.

The positive impact of exercise and physical activity in managing major depression has been well documented.[2] However, evidence guiding intervention is not typically crystal clear. Take, for example, evidence that emerged regarding exercise and cognition this past summer. In May, a systematic review was published by researchers from the University of Miami and Harvard University that analyzed the appropriate dose of exercise required to impact cognitive function.[3] The authors looked at nearly 100 studies connecting exercise with more than 122 tests of brain function. Based on the data that included more than 11,000 older adults, they found that those who exercised about 52 hours over 6 months showed the biggest improvements in various cognitive tests. On average, people exercised for about an hour, 3 times a week. The effect applied to those without cognitive decline, those with mild cognitive impairment, and those with dementia. The article was widely covered in the media.[4]

Controversy ensued when another study, published at nearly the same time, concluded that moderate to high intensity aerobic and strengthening exercises had no impact on dementia and might make it worse.[5] The headlines were contradictory. In the second study, conducted by researchers at the University of Oxford, subjects exercised 60 to 90 minutes, twice a week in a gym and were asked to exercise once a week at home for a period of 4 months. After this supervised period of training, subjects were asked to continue activities at home. During the supervised portion of the protocol, 65% of subjects participated in at least 75% of scheduled sessions. Adherence to exercise regimes after the supervised period of activity was not reported. Authors measured outcomes at 12 months postintervention and found improvement in physical fitness but not noticeable improvement in the cognitive clinical outcomes. In this study, exercise increased cognitive impairment in dementia patients. Sadly, that is what made the headlines, even as the authors note that the difference between the two groups was small and may not be clinically meaningful.[6] However, there is strong evidence that lifelong exercise can lower your future risk for Alzheimer's disease. A recent review that combined epidemiology studies ranging in length from 3.9 to 31 years and including 23,345 people showed that exercise can reduce your Alzheimer's disease risk by up to 35%.[7]

Physical therapists and physical therapist assistants should incorporate appropriately dosed exercise and physical activity, as well as behavior modification, health promotion and prevention strategies into the management of patients with and without cognitive impairment. Physical therapists and physical therapist assistants also have an obligation to address disparities caused by other psychosocial issues. These topics are often the topics that garner media attention. Factual evidence is one way physical therapists and physical therapist assistants should stay informed. However, it is imperative that one appraise the evidence and go beyond the headlines. Headlines can be misleading, evidence can be gray, and clinical implications can sometimes be confusing. Be an educated consumer of media. Be an educated appraiser of evidence. Most important, be an educated provider for your patients.

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Editor's Note

Michele Stanley, PT, DPT

"Every moment is an organizing opportunity, every person a potential activist, every minute a chance to change the world." **– Dolores Huerta**

We are living in complex times of great opportunity for continuing to grow stronger, smarter, healthier… as we also grow older. Aging muscles and bones have always been the main stay in the wheelhouse of the geriatric physical therapist. This issue features our annual continuing education series; we have chosen to focus on societal issues involved with aging. I hope that you will learn something…and be inspired by colleagues who have chosen to develop an additional knowledge base in diverse areas affecting the aging process and health. Outcomes of physical therapy interventions become increasingly important to payers as well as our clients…and our paychecks. Insightful understanding of the complex psychosocial factors accompanying every person walking into our clinic is essential to optimizing the results from our skilled musculoskeletal interventions – a chance to change the world, one person at a time.

This is also a great opportunity to take advantage of low cost CEUs offered by the AGPT. If you missed this with past years – good news! The CE exams from 2015 – 2018 are still available (see http://geriatricspt.org/exams/) –a great way to get 16 CEUs for $160.00. Tell a friend, let them read your issue(s) and become an activist to grow the Geriatrics Academy.

Speaking of activism, I hope that you noticed the prompt and forceful response of the APTA and AGPT to the erroneous article published (and now modified) by the Reader's Digest about exercise in people over 50. http://GeriatricsPT.org/?gnd16nhttps://t.co/ICPAEPRYv7.

Congratulate one of our newer colleagues for his foray into activism – read his analysis of productivity in this issue.

As most of you are aware, by now, there have been some technical, logistical publication problems with the last issues of *GeriNotes*. Hopefully these are fixed. We upload the finished issue onto the AGPT website as soon as it goes off to print so you can always access the magazine at: https://geriatricspt.org/members/publications/gerinotes/index.cfm.

Want to interact more with colleagues? Try the AGPT listserv. This is free and open to any physical therapist even if not an AGPT member. Lots of lively discussion and questions pop up. Invite your friends to join, it is a monitored site to prevent SPAM and new members have to be "approved" by sharing credentials. Go to https://groups.yahoo.com/neo/groups/geriatricspt/info.

YOU are a READER! This is an open call to be a WRITER as well. Please share case studies, ideas for other focused issues, and other suggestions for this publication. Not all submissions can be published but we welcome, especially, articles from real-world clinicians. Do you work in the Emergency Department (at least sometimes)? Looking for others to collaborate on an article about emergency department physical therapists and the elderly. Respond directly to michele.m.stanley@gmail.com and put "ideas for GN" in the subject line.

(Continued from page 3)

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Do you work in the Emergency Department (at least sometimes)?

Looking for others to collaborate on an article about ED PTs and the elderly.

Are you a PTA who would like to write articles about other PTAs?

Do you work with a PTA who is doing amazing things?
We all want to hear about it.

Respond directly to michele.m.stanley@gmail.com and put "ideas for GN" in the subject.

Social Determinants of Health Impact PT Outcomes: A Continuing Education Module for the Academy of Geriatric Physical Therapy

MODULE CHAPTERS

1. Aging Adults: Introduction to a Changing Demographic
2. Use of the ICF Framework to Support Health in Aging
3. Nutrition and the Aging Adult - Impact on Physical Therapy
4. Sleep Insufficiency and Older Adults
5. Older Adult Caregiver Issues: A Select Review of Literature
6. Depression and Anxiety
7. Unique Concerns of the LBGT Aging Population (Patients)
8. Managing Persistent Pain among Older Adults: Geriatric Physical Therapists Should be Leading the Charge

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REFERENCE LIST

References can be found at the end of each chapter in the module.

OBJECTIVES

1. Explain changing demographics of the aging US population with implications for physical therapy and health care delivery.
2. Discuss relationships between nutrition and physical therapy outcomes.
3. Identify measures of sleep health assessment for consideration by physical therapists.
4. Explain the ramifications of available caregiver characteristics when developing a plan of care.
5. Identify signs and symptoms of depression and anxiety disorders that may affect the rehabilitation process.
6. Recognize health care disparities affecting the LGBT aging population.
7. Discuss the costs, prevalence, and physical therapy role in managing persistent pain in the geriatric population.

TARGET AUDIENCE

Physical Therapists and Physical Therapist Assistants

CONTACT HOURS/CONTINUING EDUCATION UNITS

Completion of this CE Module is equivalent to 4 contact hours (0.4 CEU Units).

CONTINUING EDUCATION CERTIFICATE OF COMPLETION

A Continuing Education certificate will be provided to each participant after successful completion of the course requirements (post-test and module evaluation) and payment of a processing fee. The Academy of Geriatric Physical Therapy is a recognized component of the American Physical Therapy Association. The Academy has not applied to any state licensure agency for prior approval of this course. The module has all the components (content, objectives, qualified instructors, reference lists, and post-test) that will allow participants to submit the certificate of completion to meet CE requirements in some states. Participants are urged to check with their State Licensure Board to see if this course counts towards continuing education credit.

HOW TO OBTAIN CEUs

To obtain CEUs for this unit, participants must complete the ONLINE post-test AND the ONLINE evaluation form. Go to http://geriatricspt.org/exams/

A processing fee of $40.00 for Academy of Geriatric Physical Therapy members and $80.00 for non-members is required. Read the module and complete the post-test and the evaluation online and provide payment online. **Test and evaluation forms must be completed online no later than December 31, 2021.** Upon submission of materials and a passing score of 80% or higher on the post-test, the Academy will email you a continuing education certificate for .4 CEUs. Those with incomplete submissions will be notified via email and given the opportunity to re-take the exam. There is only ONE correct answer for each question. NOTE: This is to be performed ONLINE ONLY at http://geriatricspt.org/exams/

Join us in the nation's capital January 23-26 to connect and learn with over 12,000 caring and committed physical therapy professionals at CSM 2019. With programming designed by all 18 of APTA's specialty sections, you'll get the information and tools you need to learn and grow.

Aging Adults: Introduction to A Changing Demographic

Jill Heitzman, PT, DPT; Charles Gulas, PT, PhD

Changing demographics of aging adults have and will continue to have a tremendous impact on health care including physical therapy. The Center for Disease Control and Prevention (CDC) predicts that older adults will account for 23.5% of the US population by 2060.[1] The roughly 71 million people in this age group will result in an increase of 25% in health care spending.[2] The increase in minority elders will almost double by the year 2050 from 18% in 2000 to over 30% by 2050.[3] According to the AARP State Profiles, 32% of the aging population live at incomes below the poverty level.[4] At least 80% of aging adults have at least one chronic disease,[1] 25% of these individuals have activity of living (ADL) limitations (which increase the older one is)[2]; the impact on the health care system is great. Changes in family structures over the end of the 20th century and 21st century impacts how health care is provided and by whom.[3,4] The population of older Americans is growing, as is the population of older Americans who identify as gay or lesbian. Approximately an estimated 4,000,000 older Americans will identify themselves as gay or lesbian by 2030. Even by the most conservative estimates, this indicates that approximately 1.2 to 1.4 million of those individuals will be older gay men.[5]

This article will look at how family changes have impacted aging adults and why the physical therapist needs to consider family structures when providing assessment and care.

FAMILY

The basic definition of family is those who are emotionally and economically connected to each other by blood, marriage, or commitment. Family has been considered more broadly as a common biological, legal, cultural, and/or emotional history that ties people together with an implied future. Family varies by size, composition, and closeness but can be the most important system one belongs to, giving each an identity.[6] The traditional family has been a married pair with dependent children in an independent household bound by ties of affection and duty.[7] Recent social changes, including changes in living arrangements, divorce/remarriage, decreases in fertility, more women working outside the home, gay and lesbian relationships/marriage, and impacts of death and disability, have led to many older adults being embedded in a complex relationship unit.[8-11] Stressors and change ultimately affect all individuals within these units. Shifting roles, relationships, financial and physical control, and purpose can result as one ages; this is especially true with emerging limitations in function. How families adapt to changing circumstances (physical or cognitive decline of a member) can impact the outcome of a physical therapy plan of care.

Family systems can impact and be impacted by both social issues and structural makeup. Social issues include immigration, religious, and end of life issues that are influenced by ethnicity, socioeconomic status, regional/geographical location, and age. Structural changes from the traditional two parent family include single parents, divorced, same sex parents, non-married committed, grandparent involvement, homelessness, or other living arrangements, as well as involvement by a network of friends.[7,9,11] Family structure may impact participation in therapy services.

SOCIAL ISSUES

Immigration is a major social issue impacting health care.[3,4,12] Immigrants who came to the United States are aging along with the rest of the older population. Younger working immigrants are bringing their parents to the United States to care for them. This brings potential complications of language, food preference, outcome measures, view of caregiving, lifestyle, customs, and determination of health care decision-making to the health care system.[12] Many of these issues are also impacted by the ethnic status (how community views people from that country), socioeconomic status (can family afford the care or health care insurance coverage), regional/geographic location (is health care available or do they live in a medically underserved area), and age.[4]

The stage of enculturation of an immigrant, which may be different for each member of the same family, also results in a more complex situation for the health care provider. Cultural ties in relation to family can be specific to particular role relationships, systematically related to social class, race, ethnicity or region, as well as the traditions of families that can vary across and within cultures.[12] Most of the research on culture and family has focused on living arrangements and who provides the caregiving. This impacts who will help and support each individual as they require health care assistance. Three main types of living arrangements have been noted. From 1950-1993, the United States (along with other Westernized countries) saw a decline from 33% to 15% of aging adults living with their adult children.[9,12,14] This leaves the question of who is available to care for the aging adult? Recent economic changes have seen adult children returning home to live with their aging adults.[14] This can put a strain on household habits and finances. "Intimacy at a distance" is when adult children live near their aging family to assist but maintain separate households.[15] While this allows some assistance, 24-hour care is not available for those that need full-time assistance. Assessing who the older adult lives with (spouse, child, or alone) and if the arrangement is a co-residence or a visiting residence, can help the therapist determine how health care can be managed.

Language is another cultural issue that impacts health outcomes.[12] There are several areas of language that need to be addressed. Is an interpreter needed?

Who will be the interpreter? An accompanying family member may appear to be a convenient interpreter; this can become a barrier to health care.[12] Does the family member translate everything the patient or therapist is saying? The family interpreter may shorten the conversation to what he or she "thinks" the patient needs to know or to dismiss patient complaints. The family member and patient may carry on a conversation about the issue that could lead to clues for the therapist to investigate further, yet the family interpreter may only tell the therapist his or her final decision. The patient may also be reluctant to share personal health information for fear of worrying the family member or embarrassment, especially if the family interpreter is a grandchild.[12] Terminology and slang does not always translate well between languages and cultures. Spanish from Mexico or Central America may have different slang usage than Spanish from other Latin America countries such as Argentina or even from Spain. These dialectical differences can be overcome by having a trained interpreter present. Trained interpreters are also instructed to translate everything between the parties involved. Face-to-face translators are better than on the phone as body language can add to better interpretation. One caution: the health care provider should continue to talk and look at the patient, otherwise the session can become an interaction between the interpreter and therapist versus the patient and therapist.

Similar to language barriers, one avenue of communication that is often overlooked is health literacy. Health literacy is the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions.[16] In a shortened version, this is the ability to read, understand, and act on health information. Seventy-eight million adults have been determined to have basic or below basic health literacy.[16] This level of health literacy ranges from 34% of the population at ages 50-64 to over 70% of the population in those 75 years of age and older (US Department of Education).[17] Health literacy is needed in physical therapy: signing informed consent, maintaining appointment slips, completing insurance forms, understanding discharge instructions, and following health education materials. All of these can impact outcomes.

As the demographics of aging adults change with regards to immigration, food and nutrition become an important consideration. (See the article on nutrition and the aging adult). While many therapists consider food and nutrition issues in relation to ability to perform the task of making or eating the meal, cultural differences in food need to be considered.[12] An aging adult coming to the United States in later life may not be familiar with or enjoy the traditional Western diet. Many institutions provide foods based on cost, majority population preferences, and may not consider the individual desires of those from various backgrounds. This may lead to older adult malnutrition/dehydration based on preference/culture versus a medical condition. However, special diets related to specific diseases (low salt) or interventions (NPO, pureed) may also impact overall nutritional consumption. Understanding specific cultural foods (vegan, vegetarian, seafood, rice and beans, spices, etc) can help the therapist make appropriate referrals for overall health improvement.

Health care providers, including physical therapists, increasingly use outcome measures to measure progress and justify a need for services. Many outcomes are not standardized on diverse populations. Gait speed was developed initially on highly educated people in the New England and Atlantic Coast area. How people walk in New York City may be different than walking patterns in rural America. The requirement for gait speed when crossing a busy roadway may be different than one walking in a nursing home or senior living facility. Recognizing the environment in which the person lives and functions is an important component of choosing the appropriate outcome measure.

Lifestyle and customs also impact the delivery of health care.[12] Is it offensive to wear shoes when entering a home during a home health visit? Who is allowed in the bedroom/bathroom or to view body parts within the mores of a specific culture are among factors that need to be considered when performing physical therapy assessments and interventions. How does one teach bathroom transfers, fit a lumbar corset, or perform manual therapy when touching the patient may go against customs? Culture may also impact who can visit the patient in a facility and who participates in making health care decisions. This can lead to a dilemma for the health care provider when following the legal practices required by HIPPA and the power of attorney. Helping an aging adult, especially from another culture, understand legalities that have to be followed can be challenging.

Religious and end of life beliefs can impact the care provided and by whom.[12] Medical procedures may go against religious belief, eg, many Jehovah Witness followers do not allow blood transfusions. Native American Indians may have beliefs regarding end of life that come into conflict with traditional Western medicine. There are also religious based facilities that may have protocols that conflict with the patient's personal beliefs. How does one reconcile these to ensure participation in physical therapy?

FAMILY STRUCTURAL CHANGES

The traditional nuclear family structure of 2 parents is changing.[6,8] This includes single parents as result of no marriage, divorce, or death.[11,14] Same sex parents are a relatively new change to the nuclear family structure.[5] Grandparents may move into a child or grandchild's home and become caregivers for the younger children or require caregiving themselves. "Living apart, together" describes a new family structure between aging adults and a significant other with whom they may or may not share a full-time home and are not married.[6,15] Family structural changes can have an impact on health care, especially in considering the issues of the power of attorney and HIPPA. Implications of changing family structure have considerable ramifications in global society as well; family caregivers provide over 80% of the informal care of aging and frail elders.[4,18] Historically, extended families lived in the same geographic area throughout their lifetime.[10] Currently, many children move away from the area in which they grew up. This becomes problematic for the older adult needing assistance in health care decisions and care. In some instances this is still dictated by the culture; ie, the oldest child (male or female depending on the culture) still has decision authority no matter where he or she lives and the implied obligation to arrange for necessary care.[12] If the deci-

sions become a shared responsibility of the family member living closest to the older adult, this could be a grandchild, niece, or nephew.

Aging adults may move in with a child. From 1975 to 2010, the number of aging adults moving in with a child more than doubled.[3] The economic downturn since 2010 resulted in a trend for adult children moving back home with their aging parents.[6,10] In some regions grandchildren commonly move in with grandparents to save money while attending college. The impact of this may include changes in lifestyle and schedules, and bring emotional and financial stress to the aging adult. Although it may also provide a mechanism for assistance with household maintenance and transportation needs. Changes in living situations as well as family structure engender questions regarding health care. Who will assist in health care visits? How will the health care provider handle the communication? Who will assist in caregiving at home if needed? Another component of the traditional structure results when the "parents" move away from their hometown and support system when they retire. How is contact with adult children or other support systems maintained? Who can assist when needed with caregiving needs in this retirement area? Will organizations become surrogate children to assist with health care decisions?

The rise in single adult households brings other issues as the single parent ages.[6,14] Decisions need to be made regarding who will assist if health care services are needed. Issues regarding emergency contacts become of primary importance as children move out of the home. Prior divorce, especially if the divorce was a bitter process, brings many social and psychological issues for the older adult even if one or both of the divorced individuals remarry. The issue of multiple children of different parentage that may have a role in health care decisions must be considered. This can also impact health care and insurance coverage. Many aging adults, those that were single as a result of any reason, are choosing to "live apart, together."[15] The major rationale for this is economical. By staying single, the older adult can still receive the pension of the previous spouse when this is advantageous. This strategy is often encouraged by adult children in order to preserve a perceived inheritance. Keeping finances and material possessions, such as homes and insurance policies, separate decreases arguments over who will inherit. Decisions on income tax, insurance, housing, health care power of attorney, and visiting rights become complicated with an added layer of consideration when making discharge recommendations.

The 2015 Obergefell v Hodges Supreme Court decision established the legality of same gender marriage and opened more issues regarding health care.[19] This includes insurance coverage, health care decision rights, and power of attorney (see the LBGT article in this issue).

Health care providers cannot assume anything regarding the person who is with the patient at any health care visit. He or she may be in a relationship that is different than traditionally perceived. Professionals must ask the client questions such as, Is this someone important to be involved in your care, do you want him or her to stay in the room? Only then can the therapist be assured not to embarrass the patient and/or partner/spouse/relative present as well as comply with HIPPA regulations.

GRANDPARENTS AND CAREGIVING

Changing family dynamics may result when the grandparent becomes the caregiver for a grandchild or vice versa.[20,21] A grandchild becoming the caregiver, either by choice or necessity, impacts the young person's development. The grandchild may become less sociable while he or she spends the time caring for grandparents.[22] Does the grandparent reveal his or her entire health history when in the presence of the grandchild? Is the grandchild mature enough to understand the implications and provide necessary support and care?

The bigger issue is when the grandparent becomes the caregiver for his or her grandchild. This is defined as a grandparent who provides the majority of care for a grandchildren under the age of 18 through either an informal or formal process.[22] Many informal processes include caring for the grandchild after school, during work hours, or even overnight babysitting. Most of these have no significant impact. When informal childcare becomes more formal, whether legally bound by guardianship or not, the physical, emotional, and financial impacts on both generations can impact the health status of the aging adult.[22,23]

The role of the grandparent is changing; aging adults live longer and an increasing number are caregivers. According to the US Census, 5.8 million people were identified as co-resident grandparents, 2.4 million were grandparent caregivers, 39% had cared for grandchildren for 5 or more years. The majority of these grandparent caregivers reside in the Southern states and are more likely to live in poverty.[3,4] Fuller-Thomson and Minkler[23] identified grandparent caregivers as female, African American, younger older adults, and not having a high school degree. Many grandparents become formal caregivers but are reluctant to get the legal guardianship papers. Identified reasons for grandparents assuming caregiver roles include substance abuse (22%), neglect (18%), and incarceration (14%) of the grandchild's parent. Parents of these adult children (who are unable to care for their own children) may feel they failed their own child and so do not want the embarrassment, financial strain, or the emotional stress of legal guardianship of the grandchildren.[23] Other financial concerns arise when the adult child/parent was receiving government assistance for the grandchild which the grandparent cannot afford to stop receiving.[22,23] State departments regulating family and child welfare prefer family placement for children due to familiarity, customs/food/language, as well as the child's emotional fear of abandonment.[4,13] However, financial assistance does not typically come to these family members as would be provided to foster parents. TState reports by the AARP demonstrate that the financial value of grandparent provided care to be between $23.5 and $39.5 billion.[4]

There can be a negative impact on the grandparent caregiver's health; increased incidence of depression, diabetes, hypertension, and insomnia are prevalent.[18] Those who are grandparent caregivers are more likely to have increased cardiac conditions and arthritis that is not being monitored by a health care provider. Caregivers who are still working may be unable to add the grandchild to health insurance coverage or even take time away from work as a result of a child's health or education issue. If the grandparent is retired, Medicare does not cover children in

the home. Therefore, many grandparent caregivers neglect their own health (including skipping preventative services) to make sure the child receives proper care.[23] Despite the focus on the health of the child, many children are at a higher risk for asthma and anemia and may be behind in vaccinations and other preventative care because of financial costs.

Along with finances, health literacy of the aging adult needs to be addressed both by geriatricians and pediatricians. When a grandparent caregiver brings a grandchild for a health visit, is the pediatrician prepared to assess the cognitive status of the grandparent to assure follow-up care? Does the grandparent have the authority to even sign for the pediatrician to provide care? Who will pay for the services? Geriatricians must screen the client for an ability to care for a child or assess, if the grandchild is the caregiver, is the child mature enough to handle the care needed for the grandparent? Geriatric specialists need to recognize the issues related to child care that may be impacting the grandparent's health.

CONCLUSION

Many social determinants may impact the outcome when caring for an aging adult. Changing cultural demographics require the physical therapist to assess more than physical functions. The client's health literacy and relationship to cultural practices of food, medical care, languages, and caregiving tasks or needs requires the therapist to ensure that these areas are assessed to provide services and referrals to optimize movement ability. Changing family dynamics and structures add another complexity to providing care. Only by developing a cultural awareness and sensitive questioning on family relationships, can the physical therapist provide optimal therapy interventions to improve quality of life.

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Use of the ICF Framework to Support Health in Aging

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The International Classification of Functioning, Disability and Health (ICF) was developed by the World Health Organization in 2001 and adopted by the APTA House of Delegates in 2008 for use in communication and documentation in practice. This methodology moved health care and medicine from a premise of disability to a focus on the positive abilities of the individual across the spectrum of life experiences.[1] It conceptualizes functioning as a dynamic interaction between a person's health condition, environmental factors, and personal factors. Our scope of practice extends beyond evaluation of systems and physical function to address the activities and participation that are both necessary and meaningful to the patient. Figure 1 should be a familiar graphic.

In the context of social determinants of health (SDOH) presented in this focus issue, the ICF continues to provide a firm foundation for identification of comprehensive health, lifestyle factors, and resources that influence patient status and clinical outcomes through a client-centered approach. Embracing this methodology enables the provider to develop a thorough, individualized assessment and plan of care. We may be quite articulate at discussing the domains of the ICF in academic terms, but do we effectively apply it in our clinical decision-making and care management?

The basic premise of SDOH is clarified in a discussion published by the Robert Wood Johnson Foundation: "The opportunity for health starts long before onset of an illness or need medical care. It is reflected in how we live, work, and play."[2] When therapists evaluate clients in the context of their lifestyle, activities, social roles, and environment, the correlations with the SDOH become readily apparent. Consider the values and priorities that impact the person's reasons for seeking medical care. In addition to acute signs and symptoms, does the current condition impact quality of sleep, mental health status (depression, anxiety, coping strategies, etc), family and occupational responsibilities, social and community activities? What risks are present in the person's social and economic circumstances that threaten safety and well-being? This requires a thorough subjective history, motivational interviewing, and identification of the client's goals in terms of functional outcomes. These questions are best addressed in the context of their usual health behaviors before the onset of the current condition.

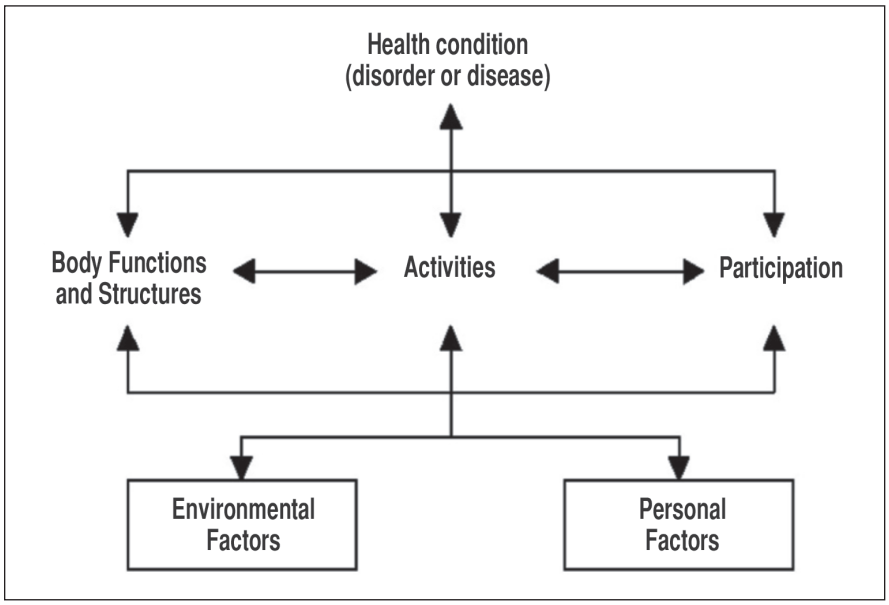

Figure 1. The International Classification of Functioning, Disability and Health (ICF).[1]

What it means to be healthy includes not just where health ends but also where it starts.[2] Lifestyle choices and conditions impact holistic health status and provide the substance for how the person will respond to challenges or disruption of the status quo. Physical therapy provides a unique opportunity to identify impairments across all systems and consider the impact on function in all domains addressed in the ICF. Understanding the SDOH provides additional insight into the "whole" person. The more we see the problem of health this way, the more opportunities we have to improve it. Consideration of barriers to health and well-being will potentially help the clinician address modifiable factors and direct the patient toward assistance resources to provide meaningful change to quality of life.

When people are referred to physical therapy with a primary complaint, therapists should begin investigating contributing factors beyond the disease, condition, or injury. In geriatric care especially, we are proficient at examining function with assessment of contributing systems. The ICF framework expands this further by addressing the contexts of activity, participation, and personal and environmental factors that impact the person's overall health status.[1] Many of the topics discussed in this issue will contribute to client "health" both before and after the condition presenting as the reason for referral. An individual's health is deeply rooted in the beliefs and values as well as his or her physical and medical

conditions.[2] Consider how the client's personal habits, social roles, and usual activity patterns are impacted by the current condition(s).

As you seek to address the needs of the patient's life experience through physical therapy interventions, try incorporating these strategies:

1. Provide solutions and direction, addressing barriers and setting realistic goals that connect problems to outcomes (ie, exercise to restore musculoskeletal function may in turn improve sleep and weight management).
2. Stay attentive to patient or client choices and encourage shared responsibility for treatment outcomes.
3. Keep "prescription" in the context of patient or client participation and life activities (ie, functional gait activities should serve to enable performance of tasks required for the patient to manage specific home and community mobility tasks).

The patient management model provides comprehensive assessment and intervention. The essence of the ICF blended with the SDOH goes beyond "systems" to address full life experience.

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Nutrition and the Aging Adult-Impact on Physical Therapy

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INTRODUCTION

In 2015, the House of Delegates (HOD) of the American Physical Therapy Association (APTA) developed a position statement that asserts, "The role of the physical therapist is to screen for and provide information on diet and nutritional issues to patients, clients, and the community within the scope of physical therapist practice."[1] The HOD acknowledged that diet and nutrition are important components of many of the conditions presented by patients in physical therapy clinics. Screening for and providing information on diet and nutrition enables healthy outcomes to be achieved. This also includes appropriate referral to nutrition and dietary health professionals when the needs of the patient exceed what can be found in the public domain or involves specific dietary guidelines outside the government or health entities such as the American Institute for Cancer Research.[1] These would involve specific meal planning related to disease processes or pharmaceuticals that require dietary changes.

Nutrition can directly affect recovery and daily function of clients seen by physical therapists.[2] An inadequate intake of food or even excess food can lead to reduced immunity, increased susceptibility to disease, and impaired mental and physical ability resulting in reduced productivity.[3] This article will examine the impact of the social determinants of health on nutrition, nutrition's impact on an older person's health, and therapy outcomes. By understanding the nutritional impact on the person's overall health, the physical therapist (PT) can incorporate basic education to the individual as well as recognize need for further screening and referrals.

SOCIAL DETERMINANTS OF HEALTH IMPACT ON NUTRITION

The choices individuals make is dependent on the choices they have available to them.[4] The US Department of Health and Human Services identified 6 domains of social determinants of health in the Healthy People 2020 document.[5] These include economic stability, education, health literacy, neighborhood & community environment, transportation, and community/social context. Braveman et al[6] examined each of the 6 domains of social determinants of health (SDOH) and discussed them in depth.

The economic stability of the SDOH domain affects older adults on fixed incomes. This domain further influences those in lower income brackets. Expenses, medical bills, low retirement income (if any), and other expenses for living (rent, utilities) all shape the funding available for healthy food choices. Many in these lower income brackets have reported that their health care provider does not listen to them explain their medical needs for food or other interventions, nor take the time to communicate with them.[6] As a result, patient and family communication is a priority goal. Listening to clients, PTs have a role to screen for those that may be struggling to balance food costs with other life costs and make appropriate referrals.

Education and health literacy include language barriers based on geographic regions and immigrant populations.[6] These barriers affect the ability to read, understand, and use the food labels.[8] Physical therapists can work on educating the individual on how to read

the food labels and determine ingredients to ensure understanding of food he or she is consuming. Lack of education regarding the quality and the types of food for healthy lifestyles may also be missing and represents an opportunity for education by the PT.

The domain of neighborhood and community environment includes the safety and walkability to local food stores, the ability to participate in physical activity, and even transportation and housing.[5] Where one lives can influence the choice of food options and limits cultural preferences.[6] Many of the lower income communities are in food deserts where healthy, fresh foods are not available or easily accessible. Options such as fresh fruits, vegetables, and other produce from local grocery stores or farmer's markets are not found in these communities; the only possibility for grocery shopping may be the local convenience store. Most lower income areas are targets for liquor stores, junk food stores, and fast food restaurants. The safety of the area may also affect the ability to travel to these stores. Public transportation is notably deficient or even absent in many rural areas, worsening the problems related to access. Even those in suburban areas where organic stores may be present, the transportation to get to these areas may be limited. Compounded with mobility dysfunctions that may occur with those seeking physical therapy services, food choices become severely reduced.

The domain of community and social context can further affect the ability to make healthy food choices. This domain includes the support system of the patient, not just the individual, but community support and social integration.[6] People tend to eat more food when they are socializing.[7] Aging adults who live alone may have reduced social contact that leads to depression resulting in disinterest in food/food choices. The ability to go shopping to get what is needed may be limited by a recent hospital stay, mobility, or even finances for transportation. Does the client have a support system to assist them in shopping for food? If a referral to a health program such as Meals on Wheels is made, are the person's cultural choices for food considered or even available? When working with older adults, the PT must consider the nutritional aspect of the individual's plan of care. Without proper nutrition, the outcomes may be difficult to achieve.

Impact of Nutrition on Health

Sarcopenia, frailty, obesity, and malnutrition are uniquely individual conditions but share common traits in that each of these conditions result in part due to the diet and nutritional intake. Insufficient protein intake and skeletal muscle inactivity lead to skeletal muscle depletion.[7,9] Increasing the daily protein intake above 0.8 g/kg body weight (about 46 and 56 g/day when using the reference weight of 57 and 70 kg for women and men, respectively) reduces the risk of developing sarcopenia.[10]

Additionally, Schurch et al[11] found that strength training with protein supplementation resulted in an increase of isometric biceps strength by 17%. Muscle weakness is strongly associated with falls and fractures and proper strength training along with proper nutrients can have a strong impact on fall reduction. The takeaway for PTs is to insure adequate protein intake when prescribing a program of strengthening exercises. Viewing the albumin levels in lab values is one way to achieve this. Another is to ask about food intake to ensure protein is being consumed.

Frailty is considered a syndrome resulting in loss of physiologic reserve and reduced tolerance to common stressors. Loss of muscle strength is a trait described by Fried.[12,13] Both insulin resistance and systemic inflammation have been attributed to the development of frailty. Excessive adiposity and sarcopenia are hypothesized to underline this age-related disease. The loss of muscle fat can change body chemistry resulting in a loss of appetite as well furthering the decline to malnutrition. The Mediterranean-type diet has been recommended by nutritionists, along with exercise to prevent frailty.[14] The Mediterranean-diet consists of higher intake of fruits, vegetables, legumes, fish, poultry, and whole grains and is associated with lower C-reactive protein levels (a marker for inflammation) than the Western diet.[14]

Malnutrition is a non-communicable health condition related to inappropriate food intake. The World Health Organization fact sheet (2018) reports,[15] "Malnutrition includes undernutrition (wasting, stunting, underweight), inadequate vitamins or minerals, overweight, obesity, and resulting diet-related noncommunicable diseases." Malnutrition can lead to fatigue; weakening immune system; increased risk of pneumonia; worsening of current medical conditions; risk of digestive, heart, and lung problems; and increased risk of mental confusion and depression. For PTs, malnutrition in the older adult usually relates to excess high-caloric fatty and sugary foods with insufficient protein intake (macronutrient), as well as insufficient vitamin and mineral intake (micronutrient).[16] Excessive caloric intake leads to increased adiposity. Lack of protein leads to reduction in lean muscle mass, and insufficient vitamin and mineral intake increases the risk for pressure injury and negatively impacts healing when wounds are present. Saghaleini et al[17] recommend an intake of protein, zinc, and vitamins A, C, and E.

Many older adults are at an increased risk for development of a pressure injury due to a lack of proper micronutrient intake and sedentary lifestyle, which provides increased pressure to the skin and may result in pressure injuries.[17] A PT's care plan to reduce pressure injury risks should include pressure relief, positioning, and nutritional considerations that influence skin integrity and muscle strength.

Obesity is defined as having a body mass index of 30 or higher[18] and is associated with having abnormal or excessive fat accumulation that may impair health leading to type 2 diabetes.[19] Obesity is most often attributed to an imbalance of caloric intake and expenditure where the intake of calories exceeds energy expenditure and the excess calories are stored as fat. People who are overweight or obese are recommended to follow a diet of caloric restriction with increased physical activity with a goal of 7% weight loss.[19]

Physical therapists have a large role to play in reducing obesity by promoting increased physical activity and exercise while, at the same time, encouraging appropriate nutrition as per the patient's physician and/or nutritionist. The 2018 Physical Activity Guideline reports strong evidence exists for the use of moderate to vigorous exercise being associated with preventing or minimizing excessive weight gain in adults, main-

taining a healthy weight, and preventing obesity.[2] Incorporating education on activity promotion and nutritional modification along with the exercise prescription may improve therapy outcomes greater than exercise prescription alone.

Issues Related To Physical and Cognitive Abilities

Some age-related changes can lead to difficulty with achieving adequate nutrition. According to the American Dental Association,[20] there are several factors involved. Wearing down of the tooth surfaces or tooth loss can make biting and chewing fresh foods problematic. Loss of the taste receptors can make food appear bland and unappetizing. Some medications can alter the taste of food, as well as increase or decrease the amount of saliva available to promote proper chewing and swallowing of food. When faced with decreased ability to bite, taste, chew, and enjoy foods, many older adults will choose soft, smooth, and easily digestible foods. Though convenient, most are processed with high levels of sodium, fats, and sugars and offer little actual nutritional value. Nutrients such as fiber and protein are often exchanged for easily digestible carbohydrates. Higher caloric values are found usually in processed foods, which may not be necessary as metabolic rates decrease with age.

Medications can also interfere with gastrointestinal (GI) function. Though nausea and vomiting occur as a result of some medications, the patient may not be retaining the food they do eat and even may develop a decrease desire for food. Some medications reduce the production of digestive enzymes and acids and interfere with protein breakdown and absorption. A PT should be aware and educate the person regarding which medications should be taken with or without food. These are listed typically on the medication bottle. If there is any concern regarding timing of food and medications, a referral to the pharmacist for further education may be warranted.

Patients in acute care or admitted to hospitals may have specific requirements related to their conditions. Low-salt diets may be prescribed for persons with hypertension; low fat diets may be prescribed for persons with hypercholesterolemia. Both may be seen by the patient as bland and unappetizing and may be problematic if the patient does not follow the dietary guidelines. When trying to recover from infection or heal wounds (surgical induced wounds as well as others), increased amounts of protein and calories may be required. However, if there are difficulties in the organs that digest and metabolize nutrients, such as the liver, kidneys, or intestines, the benefits of these types of foods may be difficult to achieve. Registered dietitians (RD) can work with physicians to help plan meals for patients with gastrointestinal co-morbidities. Physical therapists should ensure referral to a RD is achieved when needed.

Patients need to restrict food or water when preparing for bloodwork, a procedure, or surgical intervention sometimes for several days. Following surgery, the GI tract is slow to mobilize because of anesthesia resulting in a decreased desire for food. Physical therapists who work with these patients must be aware of the implications that lack of food or water may have on a patient's ability to participate in therapy. Monitoring patient status during therapy, and at times, decreasing intensity may be required in order to treat the patient effectively. Specific diets may also be required for a patient during rehabilitation to avoid further complications.

Physical therapists need to be aware of orthostatic hypotension, excessive fatigue, lethargy, and other manifestations of nutritional problems that may occur. Often, the medications may have interactions with the person's ability to metabolize and digest food. Furosemide (Lasix) is a common medication for hypertension, which reduces the amount of fluid in the body and thus increases the potential for dehydration. In addition, constipation may occur due to inactivity as well as when there is not enough fluid in the GI tract to support proper digestion and passing of stool. Constipation may also lead to urinary incontinence due to pressure on the pelvic floor.

The physical ability of an aging adult to secure, prepare, cook, and eat a meal depends on a wide variety of factors. The physical and cognitive competence required to choose the ingredients, read a recipe, safely handle a kitchen knife, and cook on a stovetop or oven may become a challenge when faced with physical and/or cognitive impairments. Physical therapists may miss opportunities to provide resources to clients who have difficulties in one or more of these areas unless some probing questions are asked about meals and meal preparation. If a person with intention tremor is unable to hold a fork, how is he or she getting food into his or her mouth? If the client has left hemiparesis, who is cutting his or her food? For people with dementia, who is buying and preparing food? These questions explore beyond general activities of daily living such as the independent ability to eat, but actively investigates the mechanics of all that is involved before and after the food is on the plate.

CONCLUSION/PT ROLE

While PTs are not trained to give specific instructions on diet and nutrition management, the knowledge of nutritional impact on the physical therapists' plan of care and ultimate patient outcomes is important. Diet and nutrition are key components of many conditions of the older adult for which physical therapy is provided. Lack of nutrition can directly affect recovery and function. During the initial assessment, asking about eating habits can be easily included in the history-taking. Observing the client for poor wound healing, easy bruising, and dental difficulties and asking about weight loss are examples to identify nutrition problems. Review the pharmaceutical profile for drugs that may affect appetite and digestion. Determine if the person can physically and cognitively prepare his or her meals. Make referrals to the pharmacist, RD, or social worker as appropriate. Educate the patient and family on community services that may provide meals to the client in their home. Other ideas include eating as a family, as many older adults, especially those with dementia, will mimic those around them and eat better. Eating is a social event. Discuss how to read a nutrition label. Suggestions on how to add protein (or other nutrients) to a diet can be easily provided. This may include frequent small snacks, adding nutrition rich foods, and stronger spices or other herbs to increase the taste of bland foods. Choosing higher fiber foods can increase GI motility. Encourage physical activity to stimulate the appetite and the GI motility. Taking a walk

around the home frequently during the day can be added without extra effort.

According to the APTA, physical therapists should be able to provide any information to a patient that is readily available in the public domain. This includes the information on food and nutrition from government guidelines. Check out the APTA webpage on Nutrition and Physical Therapy[18] and the United States Department of Agriculture MyPlate site[22] for more ideas on what a PT can provide to assist the patient nutritional health and ultimately the physical therapy outcomes.

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Sleep Insufficiency and Older Adults

David M. Morris, PT, PhD, FAPTA; Donald H. Lein, PT, PhD

Proper sleep is essential for a maintaining a healthy body and mind.[1] Experts recommend that adults get 7 to 9 hours of quality sleep each night.[1-3] Unfortunately, poor sleep is a public health problem in the United States (US)[2]: 34% of US respondents report getting less than 7 hours each night, 25% report insufficient sleep at least 15 out of every 30 days. Older adults tend to spend less time asleep than younger adults. Certain types of sleep disorders are particularly problematic with older adults.[4,5] For example, older adults are more likely to experience sleep architecture problems (eg, they spend more time in the lighter stages of sleep and decreased time in the deep, more restorative stage of sleep). This altered sleep pattern results in low quality, ineffective sleep. Older adults with sleep insufficiency are likely to suffer with these issues for several years before they are formally diagnosed. Even worse, their complaints may be disregarded and considered a normal part of aging. Poor sleep is not a consequence of normal aging! The prevalence of poor sleep among older adults is higher in individuals with multiple physical and psychiatric conditions. Sleep insufficiency is also more common in older women than older men.

While most of the body is typically at rest during sleep, the brain is quite active. During a typical night's sleep, the brain cycles in and out of 5 stages of activity, over 90- minute periods, that go from slow wave sleep to brain states that mimic wakefulness.[1] When we sleep, our bodies engage in muscle relaxation and repair, memory consolidation activities important to cognition, and hormones are released that are important to critical body functions like growth regulation and appetite control. The negative health effects from inadequate sleep are numerous (See Table 1).[1] Older adults are even more likely to experience sleep insufficiency. They report more difficulty going to sleep, more trouble staying asleep, and are more likely to experience disruptions in their sleep cycles that lead to poor sleep quality. The International Classification of Sleep Disorders includes over 60 specific diagnoses within 7 major categories.[1] Experts agree that physical therapists (PTs) are well positioned to identify sleep disorders, intervene within their scope of practice, and refer their patients to other professionals as needed.[6-10] The purpose of this article is to provide readers with essential information needed to support their older adult patients and/or clients with sleep insufficiency.

FACTORS LEADING TO POOR SLEEP

Sleep is a behavior. As such, it is subject to learning, intentional, motivational and habit-related factors. These issues can often be addressed with education and behavior management techniques (addressed later in this article). Spielman and colleagues[11] describe a 3P model for describing the underlying causes of sleep insufficiency. The 3 Ps are: (1) predisposing factors – risk factors that increase the likelihood that the older adult will experience poor sleep (eg, physical and mental health problems, family history of sleep insufficiency, low socioeconomic status); (2) precipitating factors – events that acutely disrupt sleep (eg, depressive episodes, hospitalization, loss of a loved one, changing place of residence); and (3) perpetuating factors – behavioral, psychological, environmental, physiological factors that maintain poor sleep (eg, taking naps, drinking alcohol close to bedtime, physical inactivity). Using this model, the predisposing and precipitating factors lead to the development of poor sleep. The perpetuating factors contribute to the maintenance of poor sleep. Medical conditions may also be the source of poor sleep. The top common medical conditions (ie, sleep disorders) are insomnia, sleep apnea, and restless leg syndrome.

Table 1. Physical Effects of Inadequate Sleep

- impaired immunological functions
- increased risk for chronic disease
- increased cardiovascular mortality
- higher risk of diabetes
- higher incidence of hypertension
- higher incidence of obesity
- impaired mental performance
- significant increase in injury and accidents

Insomnia

Insomnia, by definition, is a chronic condition characterized by difficulty falling asleep, staying asleep, or waking up too early at least 3 nights each week for the past 3 months that negatively influences day time functioning (eg, difficulty concentrating, mood disturbances, fatigue, and worry about sleep).[1,4] This sleeping difficulty occurs despite adequate opportunity and circumstances for sleep. Insomnia can be associated with multiple conditions including substance abuse, anxiety, arthritis, diabetes, Parkinson's disease, congestive heart failure, and chronic obstructive pulmonary disease. Management of underlying comorbid conditions is a primary, first-line strategy for addressing insomnia.

Sleep Apnea

Sleep apnea is characterized by repetitive episodes of reduced or absent airflow during sleep.[4,12] At least 25 million adults in the United States have sleep apnea and 80% of individuals with moderate to severe sleep apnea are undiagnosed. There are two main types of sleep apnea. The first, obstructive sleep apnea, is caused by an upper airway obstruction secondary to anatomical features (eg, obesity). The second, central sleep apnea, is a reduced respiratory effort secondary to other medical problems such as neurologic conditions (eg, stroke) or heart problems. The cardinal features of sleep apnea are snoring, restlessness, resuscitative snorts, gasp-

ing, and/or choking sensations. Patients also often report sleepiness, fatigue, and poor concentration during the day. Risk factors include obesity, large neck size, craniofacial or upper airway abnormalities, allergies, a family history, alcohol use, use of sedatives or tranquilizers, and smoking. Weight loss is an important management strategy for sleep apnea.

Restless Leg Syndrome

Restless Leg Syndrome (RLS) is a sleep-related movement disorder characterized by unpleasant or uncomfortable sensations in the legs that lead to an irresistible urge to move them during periods of inactivity.[4,13,14] Restless leg syndrome is a neurologic condition that occurs in 5% to 10% of adults. Symptoms are partially or totally removed by movement. Individuals with RLS answer yes to the question "when you try to relax in the evening or sleep at night, do you ever have unpleasant, restless feelings in your legs that can be relieved by walking or movement?" Patients with RLS often report a family history of the disorder and they rarely report daytime sleepiness. Restless leg syndrome is often managed with pharmacotherapy. A pad device, Relaxis™, can be used to deliver vibratory counter-stimulation to the legs while lying in bed.

ASSESSMENT OF SLEEP INSUFFICIENCY

Questions about sleep health can and should be incorporated into the PTs' examination of older adults. Bezner recommends questions like "Do you get 7-8 hours of sleep each night?; Are you tired in the morning?; Do you fall asleep quickly?; Are you sleepy during the day?; and Do you wake up at night?" If further assessment is warranted, more structured tools are available to assess common sleep disorders.[9] For example, the Insomnia Severity Index[15] and the STOP-Bang questionnaire[16] are helpful for identifying chronic insomnia and obstructive sleep apnea, respectively. More detailed questionnaires are also available including the Pittsburgh Sleep Quality Index[17] and Epworth Sleepiness Scale.[18] The formal assessment strategies can be particularly helpful for identifying the need for a referral to a sleep professional.

When sleep issues are more complicated and/or require more detailed assessments that fall outside of the PTs scope of practice, a referral to another professional may be appropriate. Patients and/or clients with more serious sleep issues likely need a more extensive sleep evaluation. While a general practice physician can be helpful for advising on complicated sleep issues, a certified sleep physician is best for a thorough sleep examination. Assessment generally involves a polysomnogram, a noninvasive, painfree procedure that usually requires spending a night or two in a sleep clinic. During this procedure, a technologist gathers information that is later reviewed and interpreted by the sleep physician. Wrist actigraphy is another diagnostic tool used to assess sleep patterns. The actigraph device can be worn on the wrist to record movements that can estimate sleep parameters with specialized algorithms in computer software programs. Sleep diaries may also be helpful. These differ from the self-report questionnaires listed above in that they prospectively capture information about sleep timing, quantity, and quality across several days. Of note, sleep diaries are recommended above polysomnography and wrist actigraphy when used with older adults.

PHYSICAL THERAPY MANAGEMENT OF SLEEP INSUFFICIENCY

Provide Sleep Hygiene Education

Sleep hygiene is defined as behaviors and/or routines that help to promote good sleep. Patient and/or client education about better sleep hygiene practices can be easily integrated into usual physical therapy services. Some of the more common sleep hygiene recommendations are listed in Table 2. If the therapist has limited time to discuss these sleep hygiene principles, they can be shared on handouts and/or on the clinic's website. Education efforts should also include a list of credible and informative resources, organizations, and websites available for learning more on the topic (discussed later in the article).

Exercise

Exercise can positively influence many health issues, including poor sleep. Studies suggest that acute and chronic exercise has a moderately positive benefit on sleep duration and quality. The exact mechanism by which exercise improves sleep is unknown. As exercise experts, PTs are well qualified to explore exercise options to improve sleep and other health issues. While exercise is

Table 2. Sleep Hygiene Tips

1. Maintain a regular sleep routine by going to bed and getting up at the same time every night of the week.
2. Avoid naps if possible.
3. Do not stay in bed awake for more than 5 to 10 minutes. Get out of bed, sit in a chair in a low lit room (perhaps read) until you feel sleepy. Avoid TV, smartphone, or computer use during this time.
4. Do not watch TV or read in bed.
5. Do not drink caffeinated food and drinks for at least 4 hours prior to bedtime.
6. Exercise regularly. However, many recommend avoiding rigorous exercise before bedtime.
7. Avoid unprescribed or over-the-counter sleeping pills.
8. Do not drink alcohol or smoke cigarettes with 3 or 4 hours of going to bed.
9. Establish a comfortable sleeping environment (eg, comfortable and supportive pillows and mattress, a comfortable room temperature, light-blocking curtains).
10. Establish a comfortable pre-bedtime routine (eg, warm bath or shower, meditation, quiet time).
11. If you find yourself constantly watching the clock while trying to sleep, hide the clock.

beneficial, most individuals should avoid exercising in the evening because an increase in body temperature is believed to interfere with natural sleep mechanisms. Relaxation or meditative exercise can also be helpful (eg, tai chi, yoga, deep breathing, progressive relaxation).

Positioning

Pain is a common complaint associated with poor sleep. The PT can be helpful for assessing sleep positioning issues and making recommendations for comfort. This might include identifying optimal positions (eg, sidelying or supine), use of pillows to support body parts, and bed mobility skill training.

Referral to Other Professionals

Other interventional approaches that may fall out of the scope of PT practice, may be helpful for improving sleep with older adults.

Pharmacotherapy

Sleeping medications may help improve sleep, especially when used along with better sleep habits. Sleeping pills are recommended for short-term use only. Common medications for poor sleep and their actions are listed in Table 3. Side effects include daytime sedation, drowsiness, dizziness, lightheadedness, cognitive impairment, incoordination, dependence, respiratory suppression, and rebound insomnia. Older adults taking sleep medications should be monitored closely for fall risks.

Cognitive Behavioral Therapy

Cognitive behavioral therapy (CBT) includes strategies that correct cognitive distortions about insomnia, improve sleep hygiene, address maladaptive behaviors, reduce stimuli that promote wakefulness, and incorporate relaxation training and/or biofeedback.[22,23] Patients can receive CBT from a trained therapist or through self-guided modules. Cognitive behavioral therapy has been found to be superior to medication use in short- and long-term management of insomnia in older adults to improve sleep efficiency, reduced sleep latency, and decreased time awake at night.

Continuous Positive Airway Pressure Machines

Used for sleep apnea, continuous positive airway pressure (CPAP) is a form of positive airway pressure that applies mild air pressure to keep the airways continuously open. When used properly, the therapy has been shown to reduce the number of respiratory events during sleep. Poor adherence is a common issue with CPAP. Reports suggest that up to 40% do not use the device prescribed throughout the entire night or even at all. Proper fit of the mask is essential to adherence and effectiveness. Newer devices are smaller, quieter, and more portable.

ADDITIONAL RESOURCES

In 2017, Siengusukon and colleagues published a seminal article in *Physical Therapy* that addressed the role of the PT in sleep health promotion.[10] The authors of this *GeriNotes* article highly recommend the Siengusukon article for PTs wishing to learn more. There are a variety of websites available for therapists, as well as for patients, clients, and their families (Table 4).

Poor sleep has been declared by the Centers for Disease Control as a public health problem in the Unites States. The effects of poor sleep range from poor cognition, increased risk for injury, to serious health consequences. Older adults are more likely to have sleep insufficiency. Physical therapists have a role in assisting their patients and/or clients to lead a healthy lifestyle including sleep health. To do so, PTs must be knowledgeable about sleep disorders, sleep assessment skills, basic sleep health management skills within their scope of practice (eg, sleep hygiene tips, exercise prescription, positioning for better sleep), and when to refer to other professionals for assessment and treatment.

Table 3. Sleep Medications Commonly Prescribed

Drug	Actions	Name Brand
Benzodiazapines	Prolongs total sleep time	Valium, Ativan, Xanax
Sedative/Hypnotics	Speeds up sleep onset	Sonata, Ambien, Lunest
Antidepressant (tricyclic)	Helps to stay asleep	Silenor
Melatonin agonists	Promotes sleepiness	Rozerem

Table 4. Helpful Websites for Learning More about Sleep Health

Source	Web Location
National Sleep Foundation	https://sleepfoundation.org/
American Academy of Sleep Medicine	https://aasm.org/
Centers for Disease Control and Prevention	https://www.cdc.gov/sleep/index.html
US Department of Health and Human Services	https://www.hhs.gov/blog/tags/sleep
National Institute Neurological Disorders and Stroke	https://www.ninds.nih.gov/Disorders/Patient-Caregiver-Education/Understanding-Sleep
UpToDate: Sleep Health	https://www.uptodate.com

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Older Adult Caregiver Issues: A Select Review of Current Literature

Meri Goehring, PT, PhD

INTRODUCTION

What does the current literature tell us about issues surrounding caregivers for older adults? This topic was chosen because of the increasing availability of relevant research in the literature. Specific articles that were either randomized controlled trials or systematic reviews of literature were chosen due to their strength of evidence.

Relevance of Topic

Why is research regarding caregivers important? Certainly, with longer life expectancies and the rapid growth of the older adult population, caregivers will be increasingly relied upon to maintain and/or improve the health and wellness of older adults. Some of the literature estimates that the proportion of the population that provide caregiving responsibilities can range from 10% to 50% and that family caregivers provide 70% to 89% of care for adults with chronic diseases.[1] It is expected that informal caregiving will be the largest source of long-term care services in the United States, increasing by 85% from 2000 to 2050.[2] The financial burden of being unable to work full time and/or cutting work to part-time can cause problems. Balancing caregiving responsibilities with work and other family responsibilities can be difficult. Additionally, a Canadian survey indicates that caregivers are often older adults themselves, which adds another layer of complexity when considering all the problems that caregivers may encounter.[3] It is likely that this is the case in the United States as well.

Selected Research

A keyword search using "caregiver" or "caregivers" and "older adults" revealed 29 articles of interest that have been published within the last 10 years. All were randomized controlled trials or systematic literature reviews. Twelve of these 29 articles were chosen for review and presentation based on the quality of research, importance of the topic, and study results. No specific, validated quality review formats were used. The rating of quality for each article was subjectively based on the author's interests and experience.

Article 1

A Descriptive Systematic Review of Physical Activity Interventions for Caregivers: Effects on Caregiver's and Care Recipients' Psychosocial Outcomes, Physical Activity Levels, and Physical Health[1]

This article provided a systematic review of 14 articles. Lambert and colleagues[1] found that physical activity interventions significantly decreased caregiver's distress and increased his or her well-being, quality of life, sleep quality, physical activity levels, self-efficacy for caregiving or exercise, and readiness for exercise. There were only 2 studies that considered the impact of physical activity on the care recipient, so no significant impact was found. Although this article cannot conclusively demonstrate that physical activity can benefit caregivers, it does provide an indication that efforts to provide caregivers education and/or the opportunity for more activity may provide important benefits.

Article 2

Family Caregiver Training Program (FCTP): A Randomized Controlled Trial[4]

The purpose of this study was to examine the effectiveness of a specific training program entitled the Family Caregiver Training Program on caregivers of people with dementia. This well-designed study included 36 caregivers; 18 in the intervention group and 18 in the control group. Individuals in the intervention group received the family caregiver training program (FCTP), a program including video and hands-on practice in areas of activities of daily living (ADLs) that lasted 3 hours. The control group received a 3-hour training session that included general information about dementia progression and an opportunity to ask questions. The study found that the FCTP is an effective method to educate caregivers in assisting with ADLs of individuals with dementia. This knowledge was maintained 3 months after testing. The quality of life scales that were administered to both groups provided evidence that although burden and depression remained unchanged, the quality of life in terms of physical health of the caregiver significantly improved in the group receiving FCTP. This research demonstrates that this type of training program can improve caregiver knowledge in how to assist an older adult with dementia safely with ADLs and may improve the caregiver's physical health.

Article 3

Long-Term Efficacy of Indicated Prevention of Depression in Non-Professional Caregivers: Randomized Controlled Trial[5]

In this study of 173 female caregivers with sub-clinical depressive symptoms, 89 women were randomly assigned to the intervention group and 84 to a control group. The intervention consisted of 5 sessions provided by psychotherapists trained in problem-solving therapy. Each therapy session was provided 1.5 hours, once a week. The intervention was offered close to the caregivers' homes and included about 5 participants in each group. Women assigned to the control condition were not subject to any intervention and did not receive any educational materials. However, they had unrestricted access to any type of treatment for their depressive symptoms (psychological, medical, or social services) available to them in their communities. Blinded interviews were performed at 1, 3, 6, and 12 months after the treatments were provided. The main finding of this study was that the intervention significantly reduced depression and the impact of this intervention was still present one year after the program was completed.

Article 4

Psychosocial Telephone Intervention For Dementia Caregivers: A Randomized, Controlled Trial[6]

This study of 250 distressed caregivers who were randomized into a treatment group receiving interventions of education, emotional support, providing problem-solving strategies, and resources in 16 calls over 6 months. The control group also received 16 calls over 6 months and were given nondirective support through empathetic and reflective listening and open-ended questions. Calls were made by trained psychotherapists; each caregiver was assigned one therapist who made the calls. Outcome assessments performed by therapists were blinded to group membership. Intervention provided to the treatment group resulted in significantly reduced symptoms of depression in the caregivers who also had less severe reactions to the depression behaviors of their care recipients.

Article 5

A Home-based Training Program Improves Taiwanese Family Caregivers' Quality of Life and Decreases Their Risk For Depression: A Randomized Controlled Trial[7]

In this large study of 108 caregivers, 55 were randomized into a treatment group and 53 into the control group. The treatment group participated in a nurse-led caregiver training program that emphasized identification of the causative stressors of behavioral problems of the person they cared for. Suggestions to modify the environment and to develop a daily schedule to reduce stress were included. Training was provided in the home for 2 to 3 hours for 2 sessions on 2 consecutive weeks. Phone calls were made to the caregivers once training was completed. The control group received print information regarding general information on dementia but no specific information on managing behavioral problems. Both groups received follow-up assessments at 2 weeks, 3 months, and 6 months after the training group sessions were completed. The results demonstrated that family caregivers who receive individualized home-based training have better health outcomes with reports of less bodily pain, less role disability due to emotional problems, better vitality, better mental health, and decreased risk for depression when comparted to those in the control group.

Article 6

Consequences of Clinical Case Management For Caregivers: A Systematic Review[8]

This systematic review of 12 articles looked at the outcome of clinical case management provided to caregivers of frail older adults and individuals with dementia. Seven of the articles identified at least one positive result for caregivers and there were no negative results of case management reported in any of the articles. The authors concluded that case management programs can benefit caregivers.

Article 7

Reducing Caregiver Stress With Internet-based Interventions: A Systematic Review of Open-Label and Randomized Controlled Trials[9]

Caregiver internet-based interventions were examined in this review of 24 articles. The results indicated that 9 studies demonstrated a reduction in caregiver stress, 9 were partially positive with mixed positive and negative results on caregiver stress, and 6 studies showed negative outcomes. The authors concluded that internet-based interventions were mostly an effective means to reduce caregiver stress; further studies using different technology delivery methods are needed.

Article 8

Effects of Modified 8-Week Reminiscence Therapy on the Older Spouse Caregivers of Stroke Survivors in Chinese Communities: A Randomized Controlled Trial[10]

Life satisfaction of stroke survivors as well as the burden, positive experience, and life satisfaction of older spouse caregivers was considered in response to an 8-week reminiscence therapy program. There were 75 older adult couples randomly assigned to 1of 3 groups. In one group, both the stroke survivor and spouse or caregiver received reminiscence therapy. In one group, only the spouse caregiver received reminiscence therapy. In the control group, only routine health education was provided. Reminiscence therapy provided consisted of 8 weekly sessions between 45 and 60 minutes each with a psychologist who helped participants to recall their memories on different topics. The topics included information in diaries, letters, old photographs, songs, and newspapers. The researchers found, in reminiscence therapy groups, the spouse or caregivers showed a significant positive short-term effect on caregiver burden. Additionally, the caregivers felt the experience was positive and the life satisfaction of the spouse or caregiver and stroke survivor were improved when compared to the control group.

Article 9

The Effect of Participation in Support Groups on Depression, Anxiety and Stress in Family Caregivers of People with Alzheimer's: A Randomized Clinical Trial[11]

The outcome of this study was surprising. The authors were attempting to determine the effect of participation in support groups on depression, anxiety, and stress level in caregivers of patients with Alzheimer's disease. It included 80 family caregivers randomized into a treatment group who participated in 8 session of 1.5- to 2-hour support group activities. The control group did not participate in the support group. Standardized questionnaires were given to both groups. The finding showed that participation in support groups showed no significant difference in caregiver depression, anxiety, and stress when compared to the control group. The authors state that these programs are ineffective, but that more studies are needed with larger sample sizes over a longer time period. Additionally, the authors indicate that sometimes caregivers of individuals with Alzheimer's disease may suffer irreversible mental and physical harm in the process of caregiving.

Article 10

The Impact of Individual Cognitive Stimulation Therapy (iCST) on Cognition, Quality of Life, Caregiver Health, and Family Relationships in Dementia: A Randomized Controlled Trial[12]

This research evaluated the efficacy of a home-based, caregiver-led, individual cognitive stimulation therapy (iCST) in improving cognition and quality of life for the person with dementia. The mental and physical health of the caregiver was also examined in a United Kingdom study. There were 134 individuals in the treatment group receiving iCST and 139 individuals in the control group receiving treatment as usual.

Caregivers in the treatment group were provided extensive training in the iCST program; they then provided delivery to the person with dementia for a period of 30 minutes, 2 to 3 times per week for 26 weeks. The results showed that individuals with dementia receiving the iCST did not benefit in terms of cognition or quality of life when compared to the individuals with dementia in the control group. However, the individuals with dementia receiving iCST reported a better relationship quality with their caregiver and the caregiver delivering the iCST reported a better quality of life.

Article 11

A Randomized Controlled Trial of a Home-based Training Programme to Decrease Depression in Family Caregivers of Persons With Dementia[13]

This study performed in Taiwan was designed to look at the effect of a caregiver training program on the depressive symptoms of caregivers. One hundred and sixteen family caregivers were randomly assigned to a treatment group of 57 participants and a control group of 59 participants. The treatment group received a home-based training program with telephone consultation. The control group received written educational materials and social telephone follow-up. Caregiver depression was measured via self-reported questionnaires before intervention, at 2 weeks, then at 3, 6, 12, and 18 months after intervention. The caregiver training program consisted of 2- to 3-hour sessions biweekly for 2 weeks followed by monthly consultation via telephone. Nurses provided training to include identification of problem behaviors, exploration of environmental stimuli, behavioral consequences, and intervening strategies including a behavioral management strategy. Caregivers who received individualized family caregiver training were less likely to be consistently depressed during the 18 months following the program.

Article 12

Long-term Effects of a Dyadic Psycho-educational Intervention on Caregiver Burden and Morbidity in Partners of Patients With Heart Failure: A Randomized Controlled Trial[14]

This study was designed to determine the effects of a psycho-educational intervention on caregiver burden after 24 months. There were 155 caregiver and heart failure patient pairs that were randomized into a treatment group and a control group. The treatment group received a 3-session psycho-education program provided by a nurse. The control group received standard care including patient education. There was no significant difference in any measure of caregiver burden or morbidity between the intervention and control groups after 24 months. The total caregiver burden was found to be increased in both groups compared to baseline. The researchers indicated that to improve outcomes more targeted caregiver interventions may be needed.

CONCLUSION

These articles provide information regarding some of the issues facing caregivers of older adults. However, additional well-controlled studies are needed in this area. The take home message here is that the physical therapist may need to consider screening caregivers for depression when appropriate. The physical therapy professional should be able to recognize when referrals may be needed for the caregiver, as well as client, social, and/or mental health issues and be familiar with available resources. Although the research is inconsistent in caregiver benefit from support groups and education, the preponderance of available evidence demonstrates that education and additional support will reduce the burden of care and improve caregiver quality of life.

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Depression and Anxiety

William H. Staples, PT, DPT, DHSc

Physical therapists (PTs) are inconsistent regarding cognition, anxiety, and depression screening, possibly because screening tools were traditionally considered the domain of other health care disciplines, or because therapists perceive their cognitive health training to be inadequate.[1] Additionally, productivity requirements may limit the perceived time available to perform screenings for mood disorders.

Generalized anxiety disorder (GAD) is the most common anxiety disorder among older adults. Anxiety disorders in this population are frequently associated with traumatic events such as a fall or acute illness. Based on diagnostic interview data from the National Comorbidity Study Replication (NCS-R), an estimated 19.1% of US adults had any anxiety disorder in the past year.[2] Past year prevalence of any anxiety disorder was higher for females (23.4%) than for males (14.3%).[2] An estimated 31.1% of US adults experience an anxiety disorder at some time in their lives.[2] More than mood is affected. Anxiety in older adults increases the risk of physical disability, memory problems, and reduced quality of life as well as increasing the risk of death. Generalized anxiety disorder seldom occurs alone. Up to 90% of patients with this disorder also have symptoms of another mental health problem, such as depression, dysthymia, bipolar disorder, or substance abuse.[2]

Generalized anxiety disorder is characterized by persistent and excessive worry about a number of different things. People with GAD may anticipate disaster and may be overly concerned about money, health, family, work, or other issues. Individuals with GAD find it difficult to control their worry. They may worry more than seems warranted about actual events or may expect the worst even when there is no apparent reason for concern.[3,4] Anxiety can negatively affect therapy interventions. When the anxiety level is lowered with appropriate treatment, people with GAD can function socially, have full and meaningful lives, and are better able to benefit from physical therapy. Many with GAD may avoid situations or activities such as therapy, exercise, or even walking outdoors. Some people can have difficulty carrying out the simplest daily activities when their anxiety is severe. This is why it is imperative that PTs know how to screen for mood disorders.

Community-based mental health studies have revealed that the point prevalence of depressive disorders in the world's elderly population varies between 10% and 20% depending on cultural situations.[5] Depression is more than just feeling sad or blue. Depression is a common but serious mood disorder that needs treatment. Depression can cause severe symptoms that affect how people feel, think, and handle daily activities, such as sleeping, eating, working, and exercise. Depression is less prevalent among older adults than among younger adults but can have serious consequences. Over half of cases represent a first onset in later life. Although suicide rates in the elderly are declining, they are still higher than in younger adults and more closely associated with depression.[6] Depressed older adults are less likely to have affective symptoms and more likely to display cognitive changes, somatic symptoms, and loss of interest than are younger adults.[6] Risk factors leading to the development of late life depression likely comprise complex interactions among genetic vulnerabilities, cognitive diathesis, age-associated neurobiological changes, and stressful events.[6] Insomnia is an often overlooked risk factor for late life depression and inquiring about hours of sleep should be asked during an evaluation when a mood disorder is suspected. Self-critical thinking may exacerbate and maintain a depressed state.[6]

Depression in older adults may be difficult to recognize because they may

show different symptoms than younger people. For some older adults with depression, sadness is not their main symptom. They may have other, less obvious symptoms of depression, or they may not be willing to talk about their feelings. Therefore, clinicians may be less likely to recognize that their patient has depression. Sometimes older people who are depressed appear to feel tired, have trouble sleeping, or seem grumpy and irritable. Confusion or attention problems caused by depression can sometimes mimic dementia or other brain disorders. Medical conditions, such as heart disease, stroke, or cancer, may cause depressive symptoms. Lastly, older people may be taking medications with side effects that contribute to depression.[7]

The most common signs of depression that therapists should be aware of include[7]:

- persistent sad, anxious, or "empty" mood;
- feelings of hopelessness, guilt, worthlessness, or helplessness;
- irritability, restlessness, or having trouble sitting still;
- loss of interest in once pleasurable activities, including sex;
- decreased energy or easily fatigued;
- moving or talking more slowly;
- difficulty concentrating, remembering, making decisions;
- difficulty sleeping, early-morning awakening, or oversleeping;
- eating more or less than usual, usually with unplanned weight gain or loss;
- thoughts of death or suicide, or suicide attempts;
- generalized aches or pains, headaches, cramps, or digestive problems without a clear physical cause and/or that do not ease with treatment; and
- frequent or easily elicited crying.

Perusal of this list should guide the PT to see how significantly a diagnosis of depression may affect the rehabilitation process. Any prolonged (more than 2 weeks) exacerbation of these signs should be investigated by screening.

Can and should PTs screen for these mood disorders? Absolutely, this should be done and there are several tools at our disposal. The Geriatric Depression Scale (GDS: 15 Short Form and 30 question), patient health questionnaire (PHQ-2) (two question depression test) or PHQ-9 (nine questions) and the Geriatric Anxiety Scale (GAS), are easy to find on line. A small amount of training and practice can make these screening tools easy to adapt to regular patient-client interactions. There are also free apps available that will assist with scoring.

Physical therapists can also help fight depression simply by screening for the illness. Often, during a course of physical therapy for another condition, PTs can recognize when a patient shows signs of depression. Chronic pain is a leading cause of depression; PTs can help a person alter his or her behaviors to reduce pain in daily life. Physical therapists can also refer to specialists who can guide patients to treatments that can help alleviate symptoms that are not alleviated with physical procedures. Very often, depressed patients suffer from psychosomatic conditions that are not caused by physical injury or disease. The ability to recognize that the source of pain is not physical in origin can be crucial to help patients have a better outcome. Individualized courses of exercise therapy have shown strong results in combating depression.[8-13] Endorphins released by the brain during exercise have been shown to reduce pain and improve mood. Exercise also helps people whose depression is linked to issues with poor self-esteem or body image. There is evidence to suggest that the addition of cognitive-behavioral therapies, specifically exercise, can improve treatment outcomes for many patients. Psychologists consider exercise as a behavioral intervention that has shown great promise in alleviating symptoms of depression.[8]

Geriatric Depression Scale – Short Form

The Geriatric Depression Scale-Short Form (GDS-SF) is a set of 15 items from the 30-item original GDS that were found to correlate most highly with the total score.[14] The 30-item GDS is a list of yes or no questions that were designed to assess symptoms associated with mood disorders. The assessment is administered via interview or via a self-report paper and pencil instrument. The participant circles the appropriate response. The parent scale was developed because many of the screening measures available were not sensitive, in that they contained items measuring physical change. Although these are symptoms commonly seen in younger adults who are depressed, their presence in older adults occurs even when a mood disorder is not present. Reliability coefficients have been found to be at 0.77.[15] The value of this scale with persons over the age of 60 has been demonstrated in multiple clinical populations. Using a cut-score of 5 for the GDS-SF, sensitivity rates of 79% and specificity of 94% have been obtained.[15]

Patient Health Questionnaire-2

The PHQ-2 asks 2 questions that inquire about mood during the last 2 weeks. If the response to both is "no," the screen is negative and depression is not suspected. This test has a sensitivity of 96% and a specificity of 57%. If response is "yes" to either question, there is a good likelihood of depression.[16] The 2-question case-finding instrument is a useful measure for detecting depression in any level of care. This test has similar test characteristics to other case-finding instruments but is less time-consuming and easy to score. Haggman et al[17] recommended using the 2-item depression screening test with people with low back pain; PTs were not able to accurately identify symptoms of depression through their normal course of treatment. Administration of this screening test would enable referral for more appropriate management.

Geriatric Anxiety Scale

The GAS is a 30-item inventory for older adults. The assessment is administered via interview or via a self-report paper and pencil instrument. The participant will fill in the appropriate box with the appropriate number. Twenty-five (25) items assess common anxiety symptom domains (eg, cognitive, somatic, and affective) and 5 items measure worry. This is an instrument with demonstrated reliability (Cronbach's α =.9 for the entire scale) and validity (convergent correlations with other anxiety scales range from 0.68 – 0.84).[18]

Depression, anxiety, and dementia are associated with higher 30-day readmissions after hospitalization for heart failure, acute myocardial infarction, and pneumonia, according to new research.[19] Mental health conditions are underdiagnosed among many people. It may be that undetected mental health condi-

tions also have an impact on re-admissions.[19] Early screening by home health or outpatient therapists may prevent re-hospitalization and save the health care system millions of dollars. Among the 160,169 individuals hospitalized for one of these conditions between 2009 and 2011, 29.4% had a recorded psychiatric condition, including most commonly, 15.8% with depression, 11.3% with substance use disorder, and 7.1% with anxiety.[19] The rate of 30-day all-cause re-admission was 32% higher among individuals with a psychiatric condition (21.7%) than among individuals without a psychiatric condition (16.5%, $p < 0.001$).[19] Several studies have shown that co-morbid psychiatric illnesses are associated with increased re-admission rates.[19] Careful monitoring after discharge and improving medication compliance (which is often poor in adults with mental disorders) may be the key. The other main issue is that often there is no routine mental health screening: physicians, with limited time allowed per visit, may not detect underlying mental health problems. Those people are then discharged and return to their communities with no support whatsoever.[19]

Physical therapists need an increased awareness of underlying mental health issues that includes potential referral to a social worker, psychologist, or psychiatrist if needed. After all, 'there is no health without mental health,' as Dr. Brock Chisholm, the first Director-General of the World Health Organization, said more than a decade ago.

Physical therapists should recognize they are qualified to perform cognitive health screenings but may need additional training to use findings to enhance interventions and outcomes in the provision of care. More research is needed to determine which screens are most relevant for PT use and to examine the effect of cognitive health screening on therapy outcomes.

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Unique Concerns of the LGBT Aging Population (Patients)

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The lesbian, gay, bisexual, transsexual (LGBT) older adult population is rapidly growing and health disparate: approximately 2.7 million U.S. adults aged 50 and older currently self-identify as LGBT and/or engage in same-sex behavior or have had romantic relationships with members of the same sex, including 1.1 million aged 65 and older. These figures are projected to double by the year 2060. All LGBT adults over the age of 65 were born at a time when same consensual same-sex activity was still illegal in all 50 states, and they have experienced monumental change.

Although the acronym "LGBT" is applied to lesbians, gay men, bisexual men and women, and transgender people, these groups are distinct, and they also comprise subgroups based on race, ethnicity, geographic location, socioeconomic status, age, and other factors.[1] Therapy providers who are familiar with terms used by the LGBT communities are better able to provide these patients with quality care. A Glossary of Terms for Health Care Teams has been created by the National LGBT Health Education Center, and is summarized in Table 1.

Today's older LGBT adults were born, and most came of age, before the 1969 Stonewall Inn Riots; considered the start of the modern Gay Liberation Movement.[2] The pre-Stonewall era was a time in which homosexuality was criminalized and considered a mental illness. Prejudice, stigma, violence, and discrimination prevailed throughout the social fabric and institutions of the U.S. sexual minorities, especially gay men, were perceived as "interested in seducing innocent others" into their gay lifestyles.[2] This social environment led many LGBT individuals to conceal sexual and gender minority identities and remain "in the closet." Ironically the oldest LGBT members of the Silent Generation have often faced less victimization, but this is coupled with a lower sense of positive sexual identity.[3]

Many LGBT seniors share the same concerns about aging as all older Americans, including other minority populations. Those in the LGBT community have the added worry about the potential for discrimination based on their sexual orientation or gender identity in the areas of health care and long-term care. Studies of LGBT older individuals are typically not large enough to provide data into the influence of this great diversity on the lives of LGBT people at these different intersections.[3] As a result, these fears have often created behaviors that prevent LGBT seniors from receiving the best medical services. An alarming 21% have not told their doctors about their sexual orientation of gender identity, and 15% expressed fear accessing health care services outside of the LGBT community. Many LGBT seniors feel that the LGBT community has addressed identity, employment, housing, and marriage, and now the time is needed to address aging.

There are significant health disparities among LGBT older adults including increased disability rates, chronic conditions, and mental distress. However, there are very few studies that have identified effective intervention approaches for reducing mental health or mobility-related disparities in the LGBT aging population.[4] There is a shift in the theoretical framework for addressing health disparities in LGBT older adults from an emphasis on minority stress theory, toward factors that facilitate resilience such as identity affirmation and social suport networks.[4]

Concerns within the LGBT community about long-term care are significant, particularly for gender expansive individuals. Majorities cite concerns about neglect, abuse, refused access to services, or harassment. The possibility of being forced to hide one's identity as a condition of receiving care is a concern for just under half of the lesbian, gay, and bisexual individuals and for 70% of transgender and gender expansive seniors.[3]

UNIQUE DISPARITIES

As a group, LGBT older adults experience unique economic and health disparities. The LGBT older adults may disproportionately be affected by poverty and physical and mental health conditions due to a lifetime of unique stressors associated with being a minority. They may be more vulnerable to neglect and mistreatment in aging care facilities. They may face dual discrimination due to their age and their sexual orientation or gender identity. Generational differences and lack of legal protection may cause older LGBT adults to be less open about their sexuality. Social isolation is also a concern because LGBT older adults are more likely to live alone, more likely to be single, and less likely to have children than their heterosexual counterparts. In the absence of supportive families and children, they rely on age-based support systems. This lack of family support systems may result in early institutionalization. Senior housing, transportation, legal services, support groups, and social events are the most commonly needed services in the LGBT community. Three out of 4 adults aged 45 and older who are lesbian, gay, bisexual or transgender say they are concerned about having enough support from family and friends as they age. Many are also worried about how they will be treated in long-term care facilities and want specific LGBT services for older adults.[5] All of these considerations can be compounded by intersections of sex, race, and other social context issues facing other older adults. Fredriksen-Goldsen[3] found that older LGBT adults are more likely than heterosexuals to smoke, drink excessively and report depression, and engage in unprotected sex. Such risk factors create greater risk for premature mortality.

The LGBT older adults tend to have more economic insecurity due to the legacy of discrimination's effect on lifetime income; they have earned less throughout their lifetime and have forfeited tax breaks afforded married heterosexual couples.

Half of all people living with HIV are over the age of 50, the majority of those older adults with HIV identify as LGBT.[6] People with HIV are living longer; LGBT older adults are still contracting the virus. For the latter group, medical providers often fail to routinely test for HIV due to misconceptions about the sexual activity of LGBT older adults. Additionally, LGBT older adults often fail to seek out HIV tests and delay treatment when diagnosed, due to fear of discrimination.

The National Health, Aging, and Sexuality Study: Aging with Pride,[6] the first national longitudinal project designed to better understand the health and well-being of LGBT adults aged 50 and older, finds that this population faces very high levels of lifetime victimization and discrimination. Encountering such serious adversity increases their risk of significant social and health disparities and reflects the historical and social context of their lives. The LGBT older adult study participants face higher rates of disability, mental distress and social isolation, and they often fear accessing services.

GEOGRAPHY

Older LGBT Americans live in cities and towns of all sizes. Just under one-third of those surveyed live in big urban cities, while the rest reside in suburbs, medium-sized cities, or small towns and rural areas. Eighty-three percent of LGBT seniors report that they live in at least a somewhat LGBT-friendly community; including many in smaller or rural areas. Survey responses suggest that community size is less important than LGBT-friendliness with regards to living in a supportive community.

Nevertheless, the share of residents with access to LGBT community resources is significantly higher in bigger cities compared to smaller and more rural areas. However, health and senior services still lag everywhere for this population. Just 48% of big city residents surveyed and as few as 10% of rural and small town residents say they have access to LGBT senior services in their community.[5]

MARRIAGE

Same-sex couples do not "partner" at the same rate by gender. Survey data shows gay men age 45-plus are far more likely to be single (57%) and live alone (46%) than lesbians, 39% of whom are single and 36% live alone.[8] When asked about their social support network, gay men report being less connected than lesbians on every relationship type tested, from friends, to partners, to neighbors. Transgender or gender expansive individuals are also less likely to be connected to sources of social support. Although more than half (53%) of transgender or gender expansive survey respondents have children or grandchildren, this group is least likely to say they consider gay or straight friends, family or neighbors part of their personal support network, putting them at increased risk of isolation now and as they age.[8]

ETHNICITY AND DISABILITY

Like all people in general, LGBT older adults are diverse with regard to many characteristics, such as gender, race/ethnicity, socioeconomic status, residential region, religiosity, and disability status. However, they share experiences of exposure to past and current stigma and prejudice and resiliency related to their sexual orientation or gender identity.[9]

As with most minority groups, there is internal variability. Disparities exist even among subgroups within the LGBT community, some struggling with their health more than others. For instance, Hispanic and African-American LGBT older adults are more likely to report having HIV than their white counterparts. Hispanic LGBT adults are more likely to report asthma, diabetes and visual impairment. African-American LGBT older adults are more likely to be obese and have high blood pressure. Native American LGBT older adults are less likely to report cancer than whites but more likely to report poor physical health, disability, obesity, asthma, and cardiovascular disease. Asian/Pacific Islander LGBT older adults are more likely to have visual impairment, but less likely to be obese or have cancer.[6,7]

There are also disparities in life experiences between transgender and non-transgender older adults. Transgender older adults experience high rates of discrimination in the work place and in health care settings, and experience high rates of lifetime verbal and physical abuse.[10] In terms of health, transgender older adults have poor mental and physical health outcomes compared to non-transgender older adults When compared to their LGB cisgender counterparts, transgender older adults report higher rates of internalized stigma that is associated with psychological distress, depression, and poorer health. A higher proportion of transgender older adults are at higher risk for poor physical health and disability compared to non-transgender adults.[11-13]

Another ongoing health issue for older LGBT adults is HIV. Thanks to the success of anti-retroviral drugs, people with the disease are living longer, and those aged 50 and older make up 45% of all Americans living with diagnosed HIV, according to the Centers for Disease Control. Yet as patients with HIV age, health disparities continue. A recent study reported that those with HIV have about a 50% to 100% higher risk of heart attack or stroke compared with people who are negative for HIV, partly because doctors were less likely to prescribe them cholesterol-lowering drugs or aspirin.[12,13]

POSITIVE PROGRESS

The LGBT older adults are also resilient. Most feel good about belonging to their LGBT communities and are satisfied with their lives. They also engage in wellness activities and moderate physical exercise. Almost 1 in 4 regularly attend spiritual or religious activities. The emphasis on a "youth culture" has led some gay men to stay in a multi-aged community rather than moving to a senior only community. On the other hand, lesbians more readily enjoy the socialization of a senior environment. The LBGT Boomers however do not want to "go back into the closet" in order to have safe housing or health care services, but they will if they feel unsafe due to their identity.

IMPACT ON HEALTH CARE

Yet, even though many educational accreditation bodies address the need for culturally competent practice in health and human service settings, practitioners

across disciplines often lack adequate knowledge and skills for culturally relevant and effective practice with LGBT populations within diverse settings.

The LGBT population is frequently marginalized, often disregarded, and still regularly faces openly prejudiced or bigoted attitudes.[14] By assuming heterosexuality, health care organizations, groups, and providers continue to force aging members of the LGBT community back into the shadows, denying their existence. Often, this group of aging adults does not have their specific, distinctive needs met which negatively impacts life opportunities, well-being and health-related aging.[15]

The survey found high demand for long-term care providers who actively welcome the LGBT community and demonstrate awareness and knowledge of the specific needs of LGBT adults as they age.[8] The LGBT seniors feel more comfortable with providers who are specifically trained in LGBT patient needs (88%), use advertising to highlight LGBT-friendly services (86%), have some staff members who are LGBT themselves (85%), or display LGBT-welcoming signs or symbols in facilities and online (82%).[8] Concerns within the LGBT community about long-term care are significant, particularly for gender expansive individuals. Majorities cite concerns about neglect, abuse, refused access to services, or harassment. The possibility of being forced to hide one's identity as a condition of receiving care is a concern for just under half of lesbian, gay, and bisexual respondents and for 70% of transgender and gender expansive respondents.[4,16]

FINDING SUITABLE HEALTH CARE PROVIDERS

Despite concerns about prejudice affecting future quality of care, most LGBT survey respondents are relatively satisfied with their current health care. Eighty-seven percent (87%) of respondents have at least a good relationship with their health care provider.[4] Finding suitable providers by midlife and beyond may have taken some trial and error that included a negative experience; such experiences, in fact, could be a source of their concerns about the quality of care they would receive in an emergency health situation or if they find themselves in need of long-term care in the future.[4]

Fortunately, such attitudes are changing. A recent survey of aging services providers shows that a growing number of respondents would welcome LGBT elders, but these services lack the proper training. Resources such as the federally funded National Resource Center on LGBT Aging have been created to provide training and tools to aging providers, LGBT organizations, and LGBT older people themselves, ensuring that this community increasingly will be able to age with the dignity and respect all deserve.[17] Providers must be aware that ignoring differences is not necessarily respecting differences.[18]

Providers are encouraged to be aware and to practice accepting body language, as expressed "shock" in response to a LGBT client will possibly alienate and create a barrier in developing a therapeutic relationship. The inclusion of diverse sexual orientations and gender identities on intake forms and in initial interviews or assessments is a positive introduction to a practice or facility. If a form cannot be changed, use the opportunity to conduct a person-centered interview and ask questions in a manner that is respectful to the person being served. This empowers the perspective patient to share a narrative or history rather than answer questions requiring a one-word or "yes" or "no" response. Too often, questions that relate to sexual orientation and gender identity are heteronormative and cisgender focused.[18-20]

The Minnesota-based nonprofit Training to Serve[21] identified the following 10 actions a senior service organization can take to signal an LGBT-welcoming environment:

1. Include LGBT topics or clients in newsletters.
2. Offer LGBT-related resources to clients or families.
3. Update assessment forms to include LGBT welcoming language.
4. Post non-discrimination policies that specifically include sexual orientation and gender identity.
5. Provide sensitivity training on LGBT aging to staff, volunteers, and leadership.
6. Advertise in LGBT periodicals or publications.
7. Include LGBT people in marketing materials.
8. Develop LGBT-specific materials from your organization.
9. Use LGBT-recognized visual cues, such as a rainbow flag.
10. Participate in LGBT community events through attendance or sponsorship.

SUMMARY

Individuals identifying as LBGT are an acknowledged large percentage of the rapidly increasing population of older Americans. Health disparities and challenges have faced this population throughout their lifetimes. Physical therapists can play an active role in developing a welcoming environment in their clinic and whole person-specific treatment programs to optimize movement and improve the human experience for this group of older adults.[22] Recognition of the health disparities and challenges that have faced this population throughout their lifetime, the physical therapist can play an active role in developing a welcoming environment in their clinic and help to reduce the health disparities for this group of older adults.[22]

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Managing Persistent Pain Among Older Adults: Geriatric Physical Therapists Should Be Leading the Charge

Corey B. Simon, DPT, PhD

In 2013, I presented my first Section on Geriatrics (henceforth AGPT) scientific platform presentation at CSM, on the topic of age differences in persistent post-operative pain influences. I remember the excitement of presenting among fellow clinicians and researchers whose passion and purpose were like mine – to optimize physical therapy management for older adults. The session certainly lived up to my expectations. However, I also remember feeling a bit perplexed. My perplexity arose from the relative lack of presentation: 3, if I remember correctly, about persistent pain. Defined as pain lasting greater than 3 months, persistent pain is more prevalent and costlier than many age-related diseases.[1] Accumulating research points to persistent pain as a major contributor to downstream health risks.[2,3] Moreover, physical therapists (PTs) rival geriatricians for the primary health professionals in contact with seniors expe-

riencing persistent pain. If a profession *should* be leading the charge for better geriatric persistent pain management, shouldn't it be PTs?

Fast-forward to CSM 2014, a half-dozen or so AGPT platforms were on pain in general among older adults. Twice as many pain presentations in two years suggested an exponentially positive future trend. Unfortunately, it appears we are not much better than 5 years ago. Eighteen AGPT platform presentations were presented at CSM last year, only two investigated pain. Of the 77 AGPT platforms presented since 2015, only 16 (21%) were specific to geriatric pain, and only 5 studies had pain as a primary outcome measure. Articles published in the *Journal of Geriatric Physical Therapy* are slightly more representative of pain content; approximately 33% in the past 5 years. However, during the same timeframe, geriatric pain content has been significantly less in other physical therapy journals: approximately 4% and 7% in *Physical Therapy* and the *Journal of Orthopaedic & Sports Physical Therapy*, respectively. Now admittedly, many factors influence dissemination of scientific content: competition, quality, and timing, just to name a few. It is also quite possible other conference presentation formats (ie, educational sessions or posters) were about geriatric pain. It appears to be a safe assumption that persistent pain among older adults is under-studied and subsequently under-disseminated in our profession. The potential consequence of outdated or incorrect information about persistent pain is suboptimal physical therapy treatment.

Persistent pain has become a public health crisis. Nearly 40 million U.S. adults experience pain most to all days,[4] and older adults represent the greatest contingent afflicted as over half report pain at any one time.[5] The annual health care costs associated with pain are over $500 billion – more than heart disease, cancer, or diabetes.[6] The prevalence and cost of persistent pain in older adults rises consistent with geriatric population growth.[7-9]

In addition, as the geriatric population rises, so too does the prevalence and cost of persistent pain among older adults.[7-9] If such numbers and forecasts did not already concern you, consider that many current interventions used to combat persistent pain are suboptimal, costly, and incur further health risks for older adults.

Low back pain is the most disabling health condition in the world and more problematic for older adults than younger or middle-aged adults.[10-12] Despite a multitude of treatment options, over half of older adults experience low back pain 3 months after seeking care, and only quarter of which return to their practitioner.[13] It is estimated that 40% to 77% of older adults with low back pain continue to experience symptoms a year after initially being seen for treatment.[14,15] A seminal study by Martin et al[16] found exponential increases in spine-related health expenditures over an 8-year period, a portion of which was attributed to increased spinal injections and surgery. Despite increased expenditures, no improvement in self-reported health status or disability was reported.[16] Similarly, early diagnostic imaging among older adults with low back pain has been associated with higher health care expenditures but no better long-term outcomes.[17] Even joint arthroplasty, which can be effective for knee and hip-related osteoarthritic pain, is suboptimal for up to 34% of older adults.[18]

Why are existing treatments suboptimal? A conventional answer is that traditional pain management is based on peripheral patho-anatomy. An abundance of studies among older adults with persistent pain conditions (eg, low back pain, hip and knee osteoarthritis) have shown *weak to non-existent* associations between patho-anatomical changes and clinical pain intensity.[19-26] Of particular note is a 2015 systematic review investigating age group differences in spinal neuro-imaging findings. Unsurprisingly, the review found abnormal spinal patho-anatomy to increase with age, such that disk degeneration and disk bulge prevalence among 80-year-old adults was 96% and 84%, respectively.[27] However, the shocking component of this review was that it only involved *asymptomatic individuals*. Subsequently, authors concluded, "*that many imaging-based degenerative features may be part of normal aging and unassociated with low back pain*."[27]

Acute tissue injury such as sprain, fracture, or disc insult activates nocioceptors within the field of injury. Acute pain is vital for human survival, it provides a warning of immediate harm and becomes a boundary of protection during tissue healing. Persistent pain is not the same as acute pain and persists after the tissue is healed. Persistent pain *can exist in the absence of peripheral tissue injury altogether.* Persistent pain is a biopsychosocial condition with centrally-mediated factors.

A multitude of centrally-mediated factors likely contribute to persistent pain. I would like to highlight two: pain-related psychological distress and pain processing. Pain catastrophizing and pain-related fear are two constructs of psychological distress that are consistently associated with persistent pain and disability.[28-31] Among older adults with persistent pain, psychological distress has been associated with pain, disability, walking speed, and falls risk.[32,33] Specific to pain processing, senescent changes are believed to occur with age such that older adults experience greater facilitation of pain and demonstrate a poorer capacity to modulate pain.[34-36] This phenomenon is related to 'central sensitization,' or increased central pain pathway response after injury.[37,38]

Common clinical presentations reinforce the likelihood of centrally-mediated influences. For example, older adults rarely present with pain isolated to one region. Some older adults report pain in as many as 6 anatomical regions.[39] Widespread pain has been previously attributed to central mechanisms, including but not limited to, neuroinflammation and central sensitization.[38] Older adults with persistent pain often present with symptoms commonly referred to as neuropathy: burning, prickling, cold insensitivity, and/or allodynia. Despite traditional perception of osteoarthritis as an inflammatory condition, recent work has suggested that older adults with osteoarthritis actually present with symptoms indicative of neuropathic pain.[40]

Geriatric PTs should lead the charge for better management of persistent pain. Despite being one of the first health care professionals to manage persistent pain among older adults, geriatricians are often inadequately trained in the biopsychosocial influences of persistent pain.[41] Geriatric PTs have the opportunity for proficiency in understanding biopsychosocial influences and for skills to address them. This includes rehabilitation in-

terventions with demonstrated efficacy such as pain modalities,[42] therapeutic exercise,[43] and psychologically-informed physical therapy interventions.[44] Persistent pain has major health consequences for older adults, including increased risk for falls[33,45,46] and increased risk for downstream mobility disability.[2,3]

Fortunately, fall prevention and optimized mobility are both a priority and area of expertise among geriatric PTs. Geriatric PTs have knowledge of age-related systems senescence and comorbidities, as well as time to diagnose, treat, and prevent pain conditions and consequences. Geriatric PTs would appear positioned to be the ideal health care professionals to manage persistent pain.

The Academy of Geriatric Physical Therapy and its members must take the initiative to position ourselves as leaders of chronic pain management. Suggested tasks are to:

(1) support education of current and future therapists in geriatric persistent pain content;
(2) foster more collaboration between pain scientists, geriatric researchers, and clinicians; and
(3) promote dissemination of pain research in physical therapy journals and professional conferences.

Effective management of persistent pain presentations can and need to become second nature for all geriatric PTs. This will have profound positive repercussions for our profession, our clients, and us as we join the aging population.

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Social Determinants of Health Impact
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EDITOR'S NOTE: As a provider in a health center or other health care organization, becoming familiar with terms used by lesbian, gay, bisexual, transgender (LGBT) communities can help you provide these patients with the highest quality care. Space limitations prevented publishing of a comprehensive glossary in this issue. There is an excellent source that is updated frequently that may help you with this module. Go to: lgbthealtheducation@fenwayhealth.org.

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Individualized Efficacious Treatment Approaches in Parkinson Disease (PD):

Do Certification Protocols "Blind Us" from the Best Treatment Methods for our Patients?

Carole Lewis, PT, DPT; Valerie Carter, PT, DPT

Many high-quality intervention studies have been published showing efficacy of exercise-based approaches for treating persons with Parkinson (PWP) disease in the past decade. Yet, clinicians will often use one treatment approach because they have been certified in that approach despite little evidence of its efficacy. It is important to critically analyze and incorporate current and new evidence-based treatment strategies to individualize and ultimately enrich our approach to improve outcomes and quality of life for our patients with PD.

Patients with PD benefit from a well-rounded treatment approach that includes the retraining of skilled movements that target specific disease caused deficits: bradykinesia, rigidity, retropulsion, festination, and/or freezing of gait as well as decreased strength, endurance, and aerobic capacity. Research shows, even in the early stages, PWP will have a decreased 6-minute walk distance as compared to their age-matched norms.[1] Hackney and Earhart[2] also showed that the dance of tango with its emphasis on larger than normal steps (targeting improved amplitude), backward stepping (targeting retropulsion), turning and twisting (targeting rigidity) improved mobility for PWP better than the waltz or the fox trot. This article will explore evidence surrounding several interventions published within the last two years that target decreased aerobic capacity as well as reduced balance and decreased coordinated movements found in PWP.

Pole-striding has been shown to be effective for PWP since the Baatile et al[3] study demonstrated the efficacy of an 8 week, 3 times per week program that improved function and quality of life. A more recent study showed that using walking poles changes gait mechanics.[4] When persons with PD use walking poles they have an increased walking speed, stride length, and decreased reaction forces.[4] Krishnamurthi et al[5] showed that using walking poles may also reduce the risk of falls.

Therapists will often use canes held horizontally to drive reciprocal arm movements thatare typically decreased in PWP. Evidence does not exist to support this technique. However, Yoon et al[6] showed that by adding one-pound weights on both wrists, arm swing amplitude increased as well as pelvic rotation, cadence, speed, stride length, and swing time.

Another intervention used forced voluntary exercise by way of a tandem bike.[7] The person on the front of the bike pedaled at a rate 30% faster than the person with PD on the back of the bike. Both improved aerobically. The forced group (persons at the back) had greater improved motor function and hand dexterity. This program was 3 times per week for 8 weeks. In this study, participants built up to the forced speed, 60-minutes duration, and always had a 10-minute warm up and cool down.[7] McGough et al[8] in a similar study, used a motorized bike set at 75 rpm. The participants tried to overpower the bike; if they could not, the motor kicked in like riding a tandem bike. The McGough[8] study used the same protocol as Ridgel[7] and found similar results.

Patients with PD have difficulty with balance and coordination when turning. Yang et al[9] used a clock turning strategy to reduce turning time and festination/freezing of gait. Participants were instructed to turn their feet like the hands of a clock at each quarter hour. For example, in the starting position both feet are pointing to 12:00. The next position would be to have the left foot at 12:00 and the right at 3:00. The next position would be to have both feet at 3:00 and so on. Scores improved on the Timed Up and Go Test (TUG).

Sparrow et al[10] used interventions based on Horak's framework in a 12-week, 90-minute program that was performed bi-weekly. The study found improvements on fall rate and balance tests from the experimental to control groups.[10] Some of the exercises:

- Heel raises, calf stretch, Hip abduction and flexion, push-up, planks
- Reach every direction, Step every direction, OLST, lunges, sit-to-stand, or squats
- Foam standing, ball toss, incline stands
- Gait with dual task, varied speed, stops, turns, backward walking

The most recent study reviewed was a small study involving only 16 patients.[11] One group of 8 patients got usual physical therapy and the other received blind folded balance training (BBT). All received 10- to 45-minute

sessions over 2 weeks. Activities that the BBT group did were:

March in place on 10 cm foam; March 2 minutes, arms extended next to wall; Turn 90° for each 1-minute session; treadmill training (1-minute eyes open, 4 minutes eyes closed. Speed increasing from 1 to 3 km/hour). The therapist told the patient if they were forward facing or turning while performing the above activities. The BBT group did better in gait parameters.

Every person with PD has a unique variety of PD-caused deficits. These change across disease severity and need to be addressed with a highly individualized and prescriptive daily exercise approach. There is no evidence for a one size fits all exercise protocol that will work effectively for every PWP; it is not ethical to use one. Fortunately, there are many different types of evidence-based, patient-centered interventions that can help a physical therapist to design a highly effective, disease and client specific, exercise-based intervention. Take off those blinders, think outside the "certified protocol" box. Enrich your treatment repertoire for patients with PD through efficacious techniques highlighted in recent high-quality research.

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