



Filipino Physical Therapists' Practice and Perspectives on Non-Treatment Physical Activity for Older Adults

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Abstract

Introduction: Studies have already investigated the practice of physical therapists (PTs) in promoting non-treatment physical activity (NTPA). However, these were done in the context of mostly western settings or were not specific to older adult practice. It is still unclear if a similar level of practice and perspectives on NTPA promotion exists in a setting where physical therapy is more associated with rehabilitation than health promotion, such as in the Philippines. Therefore, this study aimed to describe Filipino PTs' knowledge of WHO physical activity (PA) guidelines and their use of behavioral change techniques (BCTs) and theories when promoting PA in older adults. This study also explored factors that potentially influenced their engagement in PA promotion.

Methods: Filipino PTs who were handling or interested in handling older adult clients from March to April 2020 answered an online/printed survey.

Results: More than half of 72 respondents were unaware (59.72%) and most were unable to recall the WHO guidelines (98.61%) correctly. Respondents used a limited range of BCTs when promoting PA. While some (66.66%) were aware of at least one behavior change theory, a number were unfamiliar with all (33.33%) and only a small proportion reported regular use in practice. A number of factors and respondent characteristics were found to have a statistically significant positive relationship with PA promotion.

Discussion: Study results can serve as preliminary basis for programs that improve promotion of NTPA on older-adult clients by Filipino PTs, specifically regarding knowledge on WHO PA guidelines and their use of a wide range of BCTs and theories. This can potentially place them at the forefront of addressing this health concern in the aging population.

Keywords: physiotherapy, behavior change, older adults, sedentary behavior, Philippines

Introduction

The World Health Organization (WHO) recommends that adults aged 65 and above engage in a physically active lifestyle to improve fitness, reduce the risk of acquiring non-communicable diseases, mental health illnesses, and cognitive decline, as well as improve sleep and adiposity levels (World Health Organization, 2020). This involves at least 150-300 minutes of moderate-intensity or 75-150 minutes of vigorous-intensity aerobic activity or an equivalent combination of both, engagement in multicomponent physical activity (PA) that emphasizes functional and strength training of moderate intensity at least three days per week, and muscle strengthening activities of at least moderate intensity involving major muscle groups at least two days per week (WHO, 2020). However, despite the rising campaign to promote PA in older adults, only a small percentage of this population meets these recommendations (Hallal et al., 2012; Pizzol et al., 2019).

A widely known subset of PA is exercise, which refers to planned, structured, and repetitive activities geared toward improving or maintaining physical fitness (Dasso, 2018). While health professionals such as physical therapists (PTs) prescribe exercise for older adults, these are often targeted toward addressing an existing condition or rehabilitation goals. In terms of meeting PA recommendations, exercise alone may not be enough, thus requiring additional non-treatment physical activity (NTPA). Non-treatment physical activity refers to physical activity used to improve general health, as opposed to rehabilitating an ailment (Kunstler et al., 2019a). In older adults, NTPA may include activities that augment exercises that target physical fitness, manage existing conditions and comorbidities (e.g., hypertension, diabetes, osteoporosis), and reduce the risk of developing health conditions and adverse events such as falls. NTPA may be prescribed regardless of the presence or absence of a condition. These activities are typically done outside contact time with health professionals, in their preferred schedule, and as independently as possible. For older adults, engaging in NTPA, such as walking, sports, gardening, and domestic work, has been found to facilitate improved health-related quality of life (Koolhaas et al., 2017). Because the goal is to change their lifestyle, the health professional's role will not only involve prescribing NTPA but also using interventions that facilitate behavior change (Kunstler et al., 2018a; Ariie et al., 2021).

While all health professionals are expected to promote an active lifestyle among their clients, PTs have been argued to be in an ideal position to promote physical activity (Rethorn et al., 2021). PTs are knowledgeable and experienced in understanding the impact of aging on movement and applying exercise physiology and prescription concepts in practice. These are key competencies for promoting NTPA in older adults. Physical therapy sessions also involve multiple contact hours with clients, which is ideal for encouraging health behaviors like physical activity. A systematic review found that NTPA interventions led by PTs doubled the odds of adults achieving recommended PA levels, increasing PA in the short and medium term (Kunstler et al., 2018a). However, despite this, it has been found that PTs are not adequately involved in this area of health care or feel that they are not adequately equipped to do so (Abaraogu et al., 2019; Freene et al., 2017; McMahon & Connolly, 2013).

The benefits of an active lifestyle are lost when PTs are unable to deliver such interventions due to inadequate knowledge and skills. Knowledge of WHO PA guidelines for older adults is critical because it serves as the basis for identifying an older adult's NTPA needs and determines the outcome of interventions. In addition, the use of behavior change techniques (BCTs) and behavior change theories also positively impact the provision of interventions for NTPA (Kunstler et al., 2018b; Kunstler et al., 2019a; Ariie et al., 2021). BCTs cover a wide range of techniques, including the use of goals and planning, antecedents, regulation, feedback, and covert learning, among others (Michie et al., 2013). On the other hand, behavior change theories provide a means to understand factors that influence and moderate change in human behavior (Davis et al., 2014). Such theories include the Theory of Planned Behavior, the Transtheoretical Model, the Social Cognitive Theory, the Information-Motivation-Behavioral Skill Model, and the Self-Determination Theory (Davis et al., 2014). These theories inform specific strategies to promote changes in behavior toward health (Webb et al., 2010). For instance, a website that presented a contextualized message following the theory of planned behavior was used to increase physical activity among healthy adults (Spittaels et al., 2006). Another example is an online intervention that followed the social cognitive theory and used social networks to influence PA behavior (Bandura, 1986; Carr et al., 2008). However, despite the value of BCTs and behavior change theories in the promotion of NTPA, a systematic review in 2018 found low use of BCTs and attributed this to limited experience and knowledge (Kunstler et al., 2018b). Studies also revealed that a majority of PTs are not aware of the PA recommendations (Freene et al., 2017; Shirley et al., 2010).

Furthermore, a number of factors can possibly influence the provision of NTPA interventions by PTs. For example, it is known that a PT's physical activity level is associated with how often they promote NTPA (Aweto et al., 2013; Kunstler et al., 2019b). Also, a study done in Australia found that PTs are more likely to address the physical inactivity of patients with musculoskeletal conditions if they do not prioritize other patient concerns (e.g., pain) over NTPA, and they are working in a setting where NTPA intervention is valued, supported, and compatible with daily practice (Kunstler et al., 2019b). It was also proposed that external factors such as insurance coverage and support from government agencies encourage NTPA promotion (Kunstler et al., 2019b). On the other hand, barriers to NTPA promotion among PTs include lack of time and training and client attitudes (McMahon & Connolly, 2013).

Studies have already looked into the knowledge of PTs in terms of the PA recommendations, their use of behavior change theories and BCTs, and determinants for their practice in this area. However, these were done in the context of mostly western countries or settings where PTs were able to act as autonomous/first-contact practitioners. For example, studies on BCT use were mostly from European countries, and the need to further investigate this in other settings was previously highlighted (Kunstler et al., 2018b). It is still unclear if a similar level of awareness of knowledge, skills, facilitators, and barriers to NTPA promotion exists in a setting where physical therapy is associated more with rehabilitation than health promotion, such as in the Philippines. In addition, the current Philippine law requires a prescription from a physician prior to the provision of PT services, which has a huge impact on how Filipino PTs design and make decisions in their plan of care (Rotor & Capio, 2017). Furthermore, existing studies were not specific to PTs handling older adults. While existing literature enhanced understanding of this area, it also highlighted how NTPA promotion behavior is multifaceted and requires a context-specific analysis. Thus, studying these factors is important to fully understand what encourages and prevents Filipino PTs from providing NTPA intervention for their older adult clients. Factors and considerations unique to geriatric PT may also emerge when focusing on PTs practicing in the older adult population.

To address these gaps, this study aimed to determine the practice and perspectives (i.e., related knowledge and influential factors) of Filipino PTs in NTPA promotion in older adults. Specifically, the study aimed to:

- (1) Describe the knowledge of Filipino PTs on WHO PA guidelines for older adults,
- (2) Describe the use of behavioral change techniques (BCTs) and theories by Filipino PTs when promoting NTPA in their older adult clients, and
- (3) Explore factors that potentially influence Filipino PTs' engagement in NTPA promotion among their older adult clients.

Methods

Study Design

The study used a descriptive cross-sectional survey design. The self-reported survey obtained data regarding Filipino PTs' knowledge of WHO recommendations on PA for older adults, the use of BCTs and behavior change theories, and factors that served as facilitators or barriers to their engagement in NTPA promotion.

Participants

The target sample size was 166 based on a sample size calculation for logistic regression (RStudio v1.2.1335 with R v3.6.1 + power Mediation package v0.2.9) with the data from the study by Kunstler et al. (2019b) and accounting for possible attrition. PTs that handled older adult clients (≥ 65 years old as defined by WHO) regularly (> 2 per week) from March to April 2020 were invited to answer the survey. Those willing to handle older adult clients but currently not doing so were also eligible. PTs that were not practicing at the time of data collection were excluded. Through convenience sampling, recruitment was done at various sites, including hospitals, home health, and/or outpatient clinics throughout the Philippines, and professional special interest groups. Publicity materials were distributed via social media while invitation through electronic mail was sent through the mailing list of the national PT organization. Data collection started in March 2020 but had to be concluded early by April 2020 following the COVID-19 pandemic restrictions and major changes in the local PT practice at that time.

Data Collection

The study protocol was registered under the University of the Philippines Manila Research Ethics Board (UPMREB 2019-476-01) to ensure ethical standards are followed throughout implementation. Respondents either accessed the questionnaire through a link to the online form or personally answered a printed version. The questionnaire was adapted from the Determinants of NTPA promotion and BCT use survey by Kunstler et al. (2019a) and Kunstler et al. (2019b). Permission was given to adapt their questionnaire for the purpose of this study. Prior to data collection, the questionnaire was pilot-tested and revised to ensure usability.

Pilot Testing

Seven licensed PTs were invited for the pilot testing of the printed questionnaire, while two were invited for the online version through convenience sampling. There were no criteria used to identify respondents for pilot testing other than being a licensed PT at the time of pilot testing. After answering the initial version of the questionnaire, the participants were asked for feedback regarding their experience. The comments mainly focused on improving the formatting and length of the questionnaire. Based on this, adjustments were made to

reword some options under the demographics section, improve the placement of 5-point Likert scales on the printed forms, reorganize information for clarity, and reduce the questionnaire length to minimize respondent fatigue.

Final Version of the Questionnaire

The questionnaire had four sections that focused on different components of the study objectives: a.) demographic information and knowledge of WHO 2010 PA recommendations, b.) determinants of NTPA promotion, c.) BCTs, and d.) behavior change theories. The first section of the questionnaire gathered demographic information from the participants. This section also asked respondents to describe guidelines for physical activity in older adults based on what they currently knew at the time. Responses to this question were assessed using the methodology used by Freene et al. (2017) to allow comparison of findings. To be considered a complete answer, respondents must have mentioned all three components of the WHO 2010 PA recommendations for older adults (WHO, 2010). In addition, the correctness of the duration, intensity, and frequency specified in the provided recommendation/s was considered. The WHO 2020 PA guidelines were not yet available at the time of data collection, so the 2010 version was used. The 2010 guidelines are summarized in Table 1.

Table 1

2010 World Health Organization Physical Activity Recommendations

Type of physical activity	Recommendations
Aerobic physical activity	Older adults should engage in at least 150 minutes of moderate-intensity aerobic physical activity throughout the week or at least 75 minutes of vigorous-intensity aerobic physical activity throughout the week or an equivalent combination of moderate- and vigorous-intensity activity.
Muscle-strengthening activities	Older adults should engage in strengthening exercises that involve major muscle groups. This should be done on two or more days a week.
Balance exercises	Older adults with poor mobility should perform physical activities to enhance balance and prevent falls on three or more days per week.

The second section of the questionnaire was developed by Kunstler et al. (2019b) based on the Determinants of Implementation Behavior Questionnaire (Huijg et al., 2013; Kunstler et al., 2019b). The questionnaire followed the Theoretical Domains Framework, which proposed 18 behavioral domains found to influence physical activity intervention implementation among PTs (Table 2) (Kunstler et al., 2019b). It consisted of 63 questions with at least two questions corresponding to each of the behavioral domains. Each question was rated by the participant using a 5-point Likert scale (i.e., strongly disagree, somewhat disagree, neither agree nor disagree, somewhat agree, strongly agree). The questionnaire was found to have at least good internal consistency (Kunstler et al., 2019b). Scores per domain were averaged and used for analysis.

The third section was originally an adapted 50-item questionnaire from the study by Kunstler et al. (2019a) that used a case study involving a patient and a PT. However, after pilot testing, this section was modified to an essay-type question that asked respondents to describe the approaches/techniques they have been using in the clinic with as much detail as possible. This was done to minimize respondent fatigue, which was a major concern that emerged during the pilot testing.

Lastly, the respondents answered questions regarding their familiarity and use of common behavior change theories, as well as their perceived confidence in the benefit and incorporation of these theories in their practice. Theories include the Theory of Planned Behavior, the Transtheoretical Model, the Social Cognitive Theory, the Information-Motivation-Behavioral Skill Model, and the Self-Determination Theory based on the most used theories from the systematic review by Davis et al. (2014). Respondents rated their answers using a 5-point Likert scale (i.e., never, sometimes, about half the time, most of the time, always). Prior to taking the questionnaire, the research aims and general content were provided. Answering the survey was considered as providing consent.

Table 2

Behavioral Domains That Influence Non-Treatment Physical Activity Intervention Implementation

Domain	Domain definition	Example items
Behavioral regulation	Anything aimed at managing or changing objectively observed or measured actions	“I have a clear plan how I will deliver this intervention.” “I have a clear plan how to deliver this intervention when patients are not motivated.”
Beliefs about capabilities	Acceptance of the truth, reality, or validity about an ability, talent, or facility that a person can put to constructive use	“For me, delivering the content of the intervention is easy.” “For me, performing the initial assessment of physical activity levels is easy.” “I am confident that I can deliver this intervention even when there is little time.” “I am confident that I can deliver this intervention even when patients are not motivated.”
Beliefs about consequences	Acceptance of the truth, reality, or validity about outcomes of a behavior in a given situation	“If I deliver NTPA, it will be effective.” “If I deliver NTPA, my patients will be appreciative.”
Goals	Mental representation of outcomes or end states that an individual wants to achieve	“Addressing other patient problems are a higher priority than delivering this intervention.” “Addressing other patient problems are more urgent than delivering this intervention.”
Innovation ^a	Any characteristics of the innovation that discourages or encourages the development of skills and abilities, independence, social competence, and adaptive behavior	“It is possible for me to tailor this intervention to my patients' needs.” “This intervention is well-suited to daily practice.”
Innovation strategy ^a	Any characteristics of the innovation strategy that discourages or encourages the development of skills and abilities, independence, social competence, and adaptive behavior	“My workplace provides sufficient intervention materials to support implementation and delivery.” “My workplace provides training to deliver this intervention.”
Intentions	A conscious decision to perform a behavior or a resolve to act in a certain way	“I intend to deliver this intervention in the next three months.” “My intention to deliver this intervention in the next three months is strong.”
Knowledge	An awareness of the existence of something	“I know how to deliver this intervention.” “I know exactly what is expected of me.”
Nature of the behavior ^c	The nature of the aggregate of all responses made by an individual in any situation	“Delivering NTPA is something I do automatically.” “Delivering NTPA is something I often forget.”

Negative emotions ^b	A complex negative reaction pattern involving experiential, behavioral, and physiological elements by which the individual attempts to deal with a personally significant matter or event	“When I deliver NTPA, I feel nervous.” “When I deliver NTPA, I feel pessimistic.”
Optimism	The confidence that things will happen for the best or that desired goals will be attained	“In my work as a PT, in uncertain times, I usually expect the best.” “In my work as a PT, overall, I expect more good things to happen than bad.”
Organization ^a	Any characteristics of the organization that discourages or encourages the development of skills and abilities, independence, social competence, and adaptive behavior	“I can count on support from the management of my workplace when things get tough.” “The management of my workplace is helpful when delivering this intervention.”
Patient ^a	Any characteristics of the patient that discourages or encourages the development of skills and abilities, independence, social competence, and adaptive behavior	“Patients receiving NTPA are motivated to do it.”
Positive emotions ^b	A complex positive reaction pattern involving experiential, behavioral, and physiological elements by which the individual attempts to deal with a personally significant matter or event	“When I deliver NTPA, I feel cheerful.” “When I deliver NTPA, I feel comfortable.”
Skills	An ability or proficiency acquired through practice	“I have been trained in delivering this intervention.” “I have experience delivering this intervention.”
Social influences	Those interpersonal processes that can cause individuals to change their thoughts, feelings, or behaviors	“Most people who are important to me think that I should deliver this intervention.” “Professionals with whom I work are helpful with delivering this intervention.”
Socio-political context ^a	A coherent set of behaviors and displayed personal qualities of an individual in a social or work setting	“Government and local authorities provide sufficient support to deliver interventions like this.” “Primary health care is sufficiently oriented towards disease prevention.”
Social/professional role and identity	Any characteristics of the socio-political context that discourages or encourages the development of skills and abilities, independence, social competence, and adaptive behavior	“Delivering this intervention is part of my work as a PT.” “It is my responsibility as a PT to deliver this intervention.”

Note. Domains and corresponding definitions are based on the Theoretical Domains Framework (TDF) as mentioned in Huijg et al. (2014).

^aComprises the “Environmental context and resources” domain of the original TDF.

^bComprises the “Emotions” domain of the original TDF.

^cCovers the “Memory, attention and decision processes” domain in the original TDF

Statistical Analysis

Data was analyzed using R v4.1.2 (R Core Team, 2018). Descriptive statistics was used to summarize respondent demographics and responses to the survey. Responses to the third section asking about BCTs were analyzed and classified by the research team according

to the 13 BCT clusters in the Behavior Change Technique Taxonomy (BCTTv1) (Michie et al., 2013). Each survey response was independently read and analyzed by two research team members who completed the BCTTv1 classification course (BCT Taxonomy Training, n.d.). Classifications were then compared for agreement, and another member of the team resolved conflicts whenever appropriate. Frequencies were then used to determine which techniques were most mentioned.

To answer the third objective, mean scores of each domain from the determinants of the NTPA promotion section and relevant demographic characteristics of the respondents (i.e., age, years in practice, additional qualifications, and level of physical activity) were correlated with whether the respondents regularly encouraged their clients to do NTPA or not. The scoring of questionnaires was reversed if the question referred to a negative response (i.e., questions 3, 6, 23, 39, 40, 42, 48, 51, 54, 55, and 60). Spearman's rho was computed and correlations that generated a p-value of < 0.05 were considered statistically significant. The magnitude of correlation was interpreted using suggested cut-off values from existing literature: 0.00-0.25 = little to no relationship, 0.25-0.50 = fair relationship, 0.50-0.75 = moderate to good relationship, and > 0.75 = good to excellent relationship (Portney & Watkins, 2009).

Results

Respondent Characteristics

There were 72 respondents to the questionnaire. The mean age of the respondents was 28.11 ± 5.75 , with over half of the sample being female (41/72, 56.94%). The average years of PT practice was 5.05 ± 4.43 years. Most respondents handled between 6 to 15 clients per week (20/72, 27.78%). It was also reported that more than half of the clients they see weekly were older adults (37/72, 51.39%). On the other hand, three respondents (4.17%) were not currently seeing clients at the time of data collection, but they signified intent to do so in the near future. Most respondents handle clients in an outpatient clinical setting (66.66%).

In terms of additional qualifications related to promoting NTPA, over half of the respondents reported that they did not have additional qualifications (e.g., at least 10 hours of educational classes) in psychology (49/72, 68.06%) and health promotion (40/72, 55.56%) aside from their undergraduate BSPT degrees. On the other hand, the proportion of respondents who reported having additional qualifications in exercise science (32/72, 44.44%) was similar to those that did not (35/72, 48.61%).

Almost half of the respondents (31/72, 43.06%) did not meet WHO recommendations. A smaller proportion only partially met the recommendations (24/72, 33.33%), while the rest (17/72, 23.61%) reported fully meeting the guidelines. Lastly, more than half of the respondents reported that they regularly encourage their older adult clients to engage in a physically active lifestyle (42/72, 57.97%). The respondent characteristics are summarized in Table 3.

Table 3

Respondent Characteristics

Variable		n	%
Age (n = 72)	20-29	52	72.22%
	30-39	14	19.44%
	40-49	6	8.33%
Sex (n = 72)	Female	41	58.94%
	Male	30	41.67%
	Prefer not to answer	1	1.39%
Work Setting (n = 72)	Inpatient care ^a	2	2.78%
	Outpatient care ^b	48	66.66%
	Both inpatient and outpatient	1	1.39%
	Home-based care ^c	10	13.89%
	Combination ^d	9	12.5%
	Not specified	2	2.78%

Patients seen weekly (n = 72)	0	3	4.17%
	1-5	16	22.22%
	6-15	20	27.78%
	16-25	15	20.83%
	26+	18	25.00%
Years practicing physical therapy (n = 71)	0-2	27	37.5%
	3-5	22	30.56%
	6-10	9	12.5%
	11-15	10	13.89%
	16+	3	4.17%
	Did not specify	1	1.39%
Qualifications in exercise science (n = 72)	Yes	32	44.44%
	No	35	48.61%
	Unsure	5	6.94%
Qualifications in health promotion (n = 72)	Yes	29	40.28%
	No	40	55.56%
	Unsure	3	4.17%
Qualifications in psychology (n = 72)	Yes	13	18.06%
	No	49	68.06%
	Unsure	10	13.89%
Physical activity level (meeting 2010 WHO PA recommendations for adults) (n = 72) ^e	Did not meet	31	43.06%
	Partially met	24	33.33%
	Fully met	17	23.61%
Frequency of NTPA promotion (n = 71)	Never	0	0.00%
	Rarely	2	2.82%
	Sometimes	5	7.04%
	Often	23	32.39%
	All of the time	41	57.75%

Note. NTPA = Non-treatment physical activity,

^aInpatient care - physical therapy takes place in a facility while patient is admitted to the hospital

^bOutpatient care - physical therapy service is offered in a facility outside the hospital setting other than the patient's home

^cHome-based care - physical therapy service is provided in the home of the patient

^dCombination - the clinician is involved in a combination of two or more settings

^eTo be classified in the 'fully met' category, respondents must have reported at least 5 days of engaging in aerobic exercise AND 2 days for strengthening exercises.

Knowledge of Filipino PTs on WHO Physical Activity Guidelines for Older Adults

The majority of the respondents were unaware of WHO 2010 PA guidelines for older adults (43/72, 59.72%). When asked to provide details, only one was able to specify recommendations correctly, while the rest were either unable to recall (55/72, 76.38%) or could not provide complete and/or correct parameters (16/72, 22.22%).

Use of BCTs and Theories

After classifying the responses according to BCTTv1, the most frequently reported technique was the use of natural consequences (n = 25). This was followed by use of social support (n = 18), feedback and monitoring (n = 17), goals and planning (n = 16), and shaping knowledge (n = 16). The rest of the techniques mentioned are detailed in Table 4. Some respondents reported the use of BCTs but provided examples that did not correspond to any technique (6/72, 8.3%). Furthermore, a number of respondents reported that they do not use BCTs at all (12/72, 16.66%).

More than half of the respondents reported familiarity with at least one behavioral change theory (48/72, 66.66%), with a proportion (24/72, 33.33%) being unfamiliar with all five theories. Among the theories specified, respondents were most familiar with the Social

Cognitive (28/72, 38.89%) and Self-Determination (28/72, 38.89%) theories. A low proportion of the respondents reported regular use of these theories in evaluating/understanding PA behavior (6/56, 10.71%) and providing PA interventions (8/56, 14.29%). Regarding integrating these theories into their practice, most respondents were confident that this is beneficial either most of the time (19/56, 33.93%) or all the time (19/56, 33.93%). However, some were confident in using these theories on their older adult clients about only half of the time (18/56, 32.14%).

Table 4

Frequencies of Reported Behavioral Change Techniques

BCTs	Number of times reported	Example responses
Natural consequences	25	“Providing patient education regarding overall benefits of physical activity” “Explain the disadvantages and possible consequences of inactivity”
Social support	18	“Encouraging my elderly patients to continue engaging in social activities within their community.”
Feedback and monitoring	17	“... doing [giving] proper feedback to correct error [sic] in their [older adult clients] exercises.”
Goals and planning	16	“Including them [older adult clients] in goal setting, reminding them of the goal, encourage them when exercise is hard.”
Shaping knowledge	16	“I give them [older adult clients] general exercise handouts with some demo/return demo, suggestions for alternatives for resistance, or modifications.” “Giving my patients HEP [home exercise programs] to do when at home. Using photos, written instructions and sometimes videos so they can easily review them when at home.”
Comparison of behavior	13	“...There are times that I have it video recorded by their caregiver so they can administer the exercises at home.” “Try to schedule [sessions of] our older patient together with either acute or chronic conditions, [so that] when they see the level of improvement or the motivation of one patient, other patient [sic] also get motivated.”
Repetition and substitution	13	“Habit formation” “Teaching the patients as well as the caregivers/family relatives the exercises done in the clinic which can be also done at home.”
Reward and threat	8	“[using] a reward system, whenever our goals are met.” “Use of positive reinforcement and reward especially to patients with behavioral problems”
Antecedents	5	“Making use of facilitators and helping PTs overcome barriers identified through modification that are applicable”
Comparison of outcomes	3	“Knowledge of benefits and risks”
Regulation	3	“Lessen the stress, problems” “I make a written list of exercises for them to use at home”

Identity	2	"Clarifying goals, clarifying their understanding/ knowledge about their lifestyle" "... [obtaining] an overview of their self-efficacy"
Self-belief	2	"Promoting self-efficacy... encouraging patients to set goal [sic] and monitor progress, and foster self-efficacy."
Associations	1	"Numbered/prioritized list that is written in the room of the patient to remind his goals"
Scheduled consequences	0	
Covert learning	0	

Factors That Potentially Influence NTPA Promotion of Filipino PTs Among Older Adult Clients

Table 5 summarizes the responses to the section of the questionnaire focusing on the determinants of NTPA promotion. Mean scores for each domain revealed that the sample agreed the most with statements from the following domains: Social/professional role and identity, Positive emotions, and Intentions. On the other hand, they agreed the least with statements from the following domains: Negative emotions, Socio-political context, and Innovation strategy. Eleven out of 18 domains correlated with regular NTPA promotion: intention, knowledge, beliefs about capabilities, social/professional role and identity, social influences, innovation strategy, behavioral regulation, innovation, organization, positive emotion, and nature of behavior. Regarding respondent characteristics, age and years practicing as PT were also found to be related to the frequency of NTPA promotion. These correlations were statistically significant ($p < 0.05$).

Table 5

Determinants of NTPA Promotion

TDF Domain	n	Mean \pm SD
Social/professional role and identity	72	4.59 \pm 0.63
Positive emotions	71	4.12 \pm 0.72
Intentions	70	4.07 \pm 0.98
Knowledge	72	4.05 \pm 0.75
Beliefs about consequences	72	3.98 \pm 0.64
Optimism	72	3.98 \pm 0.75
Social influences	72	3.87 \pm 0.90
Innovation	72	3.77 \pm 0.62
Skills	72	3.69 \pm 0.88
Behavioral regulation	72	3.62 \pm 0.86
Beliefs about capabilities	72	3.58 \pm 0.73
Nature of the behavior	72	3.54 \pm 0.85
Organization	66	3.47 \pm 1.04

Patient	71	3.42 ± 0.80
Goals	71	3.39 ± 0.99
Innovation strategy	65	2.96 ± 1.17
Socio-political context	72	2.62 ± 1.05
Negative emotions	71	2.22 ± 0.85

Note. TDF - Theoretical Domains Framework by Huijg et al. (2013)

The magnitude of the rho values for domains and respondent characteristics ranged from 0.24 to 0.37, which may be considered a small to fair relationship (Portney & Watkins, 2009). Intention ($r = 0.37$), knowledge ($r = 0.35$), and beliefs about capabilities ($r = 0.34$) had the highest correlation coefficients with the regular NTPA promotion. The correlation results are detailed in Table 6.

Table 6

Correlation Between Promotion of NTPA and Key Demographic Characteristics/Behavioral Domains

	Variable	Spearman's ρ	p-value
TDF Domain	Intention	0.37	0.002*
	Knowledge	0.35	0.003*
	Beliefs about capabilities	0.34	0.004*
	Social/professional role and identity	0.31	0.008*
	Social influences	0.28	0.019*
	Innovation strategy	0.28	0.024*
	Behavioral regulation	0.27	0.024*
	Innovation	0.25	0.034*
	Organization	0.25	0.042*
	Positive Emotions	0.24	0.047*
	Nature of the behavior	0.24	0.049*
	Skills	0.20	0.096
	Optimism	0.18	0.135
	Beliefs about consequences	0.12	0.317
	Socio-political context	0.12	0.335
	Patient	0.05	0.672
Negative Emotions	-0.17	0.166	
Goals	-0.18	0.134	

Demographic characteristics	Years practicing as PT	0.33	0.005*
	Age	0.31	0.009*
	Additional qualifications in psychology	0.15	0.225
	Additional qualifications in health promotion	0.06	0.596
	Additional qualifications in exercise science	-0.07	0.554
	Level of physical activity	-0.004	0.973

* $p < 0.05$

Discussion

The study results imply three key things: a.) Filipino PTs have an apparent lack of knowledge regarding the WHO PA guidelines for older adults, b.) there is limited use of BCTs and theories in practice, and c.) various factors potentially influence this practice in clinics. This is the first study that aimed to determine the practice and perspectives of Filipino PTs handling older adult clients in terms of NTPA promotion. While the results are not yet definitive, they already offer useful insights that may serve as a starting point in addressing these practice gaps.

A proportion of respondents did not regularly encourage their older adult clients to engage in NTPA, implying the need to further strengthen its integration in routine care. This is consistent with previous research stating that not all PTs regularly promote PA (Jadhav et al., 2021; Kunstler et al., 2019b; Rethorn et al., 2021). In general, PTs accepted their role in PA promotion (Freene et al., 2017; Jadhav et al., 2021; West et al., 2021), and specifically for those handling older adults, this was deemed important in having a lasting impact on health beyond the treatment period (Ariie et al., 2021). However, it is now observed that recognition of its importance does not always translate into implementation in clinical practice. While the study did not ask the respondents about their thoughts on how frequently they promoted PA, the rest of the findings in terms of their knowledge of WHO PA guidelines, use of BCTs, theories, and potential influencing factors, may partly explain this observation.

Knowledge of Filipino PTs on WHO PA Guidelines for Older Adults

First, the study results imply the need to address the knowledge of Filipino PTs regarding the WHO PA guidelines for older adults. This concern was previously highlighted in a systematic review on healthcare professionals (Albert et al., 2020) and studies specific to PTs (Barton et al., 2021; Freene et al., 2017; Jadhav et al., 2021; Lowe et al., 2017; Shirley et al., 2010). These studies either looked at WHO PA recommendations throughout the lifespan (Jadhav et al., 2021) or guidelines specific to adults (Barton et al., 2021; Freene et al., 2017; Lowe et al., 2017; Shirley et al., 2010). While some participants reported a degree of awareness, only one was able to recall the contents of the guidelines correctly and completely. This implies a disconnect between perceived and actual knowledge of PA recommendations observed previously in other studies on PTs (Barton et al., 2021; Lowe et al., 2017). Previous literature has also pointed out how less experienced therapists in terms of years of practice were more aware of the guidelines due to the evolving physical therapy curriculum and better recall due to recency of learning (Jadhav et al., 2021). However, this study's sample was composed of a larger number of less experienced PTs yet most of them could not adequately recall the guidelines. There is a need to further understand the reason for this knowledge gap. One possible reason is that health promotion for older adults has just been explicitly included in the revised Philippine BSPT curriculum. According to the Philippines Commission on Higher Education memorandum order 55, article IV, section 7.7, graduates of the new curriculum must be able to "promote health and improved quality of life through practice of the profession" among the clients across the lifespan (Commission on Higher Education, 2017). It is thus important to determine whether PTs from this curriculum have adequate knowledge regarding the WHO PA guidelines. Furthermore, while WHO has been very active in its campaign for awareness and use of the guidelines, especially with the 2020 update, there is a need to determine why these are unable to reach Filipino PTs adequately. While PTs can still promote NTPA despite a lack of knowledge in this area (Jadhav et al., 2021; Lowe et al., 2018; West et al., 2021), using the guidelines will still be advantageous in ensuring success. It serves as a benchmark for identifying older adults who need assistance incorporating physical activity into their routines. It is also a sensible target for goal setting. Lastly, it helps ensure that the volume, intensity, and type of physical activity are optimized for older adult clients to fully enjoy the benefits of an active lifestyle.

Use of BCTs and Theories by Filipino PTs When Promoting NTPA to Their Older Adult Clients

In terms of BCTs, not all respondents reported use and those that did only specified a limited range of techniques. This is similar to PTs in musculoskeletal practice who were found to have low use of BCTs as well (Kunstler, 2018b; Kunstler, 2019a). The most commonly reported techniques in this study were also highlighted in previous literature, although not specific to those working with older adults. (Eisele et al., 2020; Kunstler et al., 2018b; Kunstler et al., 2019a). These techniques include the use of natural consequences, social support, feedback and monitoring, goals and planning, shaping knowledge, repetition, and substitution, as well as reward and threat. Potential reasons for the low use of BCTs argued in existing studies such as limited experience and knowledge (Keogh et al., 2015) must be explored in the context of Filipino PTs handling older adults. Furthermore, the respondents seemed to rely more on discussing natural consequences while goals and planning were more prominently used in existing literature involving Australian and German cohorts (Eisele et al., 2020; Kunstler, 2019a). This may mean that Filipino PTs are comfortable educating older adult clients about the benefits of PA and/or consequences of being inactive and prefer to do this over setting goals specific to changing PA behavior. To add, oftentimes, older clients are referred to Filipino PTs primarily due to the need to address underlying medical conditions and rarely explicitly towards prevention and health promotion. This may potentially explain why PT clinicians also tend to overlook setting goals specific to PA promotion. Further investigation is warranted to confirm this. Other factors contributing to the low use of BCTs should also be further understood and addressed. These may include perception of BCT effectiveness and client-specific factors such as readiness to change. This is important because using a wide range of BCTs may be the key to successful PA promotion initiatives for older adult clients (Kunstler et al., 2018b; Kunstler et al., 2019a).

In addition to BCTs, awareness and use of behavior change theories may also need more attention. Existing literature has highlighted how use of theories can help address the lack of cohesion in approaches to PA promotion in practice (Lowe et al., 2018). Theories can also guide clinical decisions, especially in challenging situations such as handling unmotivated clients (Eisele et al., 2020; Kunstler et al., 2018). While most of this study's respondents were confident that theories will be helpful, confidence in integrating this into their practice was low. Limited focus on using behavior change theories in the Philippine PT curriculum and continuing professional education opportunities may be a potential reason for this. Also, the use of theories may not be part of what is expected in routine care. These should be explored to determine whether Filipino PTs need more training and experience in the deliberate use of behavior change theories in clinical practice.

Factors That Potentially Influence Filipino PTs' Engagement in NTPA Promotion Among Their Older Adult Clients

Lastly, results identified potential influential factors affecting NTPA promotion of Filipino PTs among their older adult clients. Consistent with previous literature on healthcare workers in general as well as specific to PTs handling clients across the lifespan and those with musculoskeletal conditions, there was a relationship between the frequency of promoting PA with knowledge, environmental features that discourage and encourage the development of skills related to it (innovation and innovation strategy domains), nature of the behavior (e.g., automaticity of the behavior), and positive emotions (Kunstler et al., 2019b; Rethorn et al., 2021). Results also support previous findings from healthcare workers in general where there were associations between PA promotion and social/professional role and identity (e.g., part of their work as PT), beliefs about capabilities (e.g., promoting NTPA is easy), intention to deliver the intervention (e.g., intention to deliver the intervention in the next three months), social influences (e.g., having co-workers that are helpful in promoting NTPA), and behavioral regulation (e.g., having a clear plan how to do it) (Albert et al., 2020). However, there are also inconsistencies. The positive relationship of NTPA promotion with the domain of organization (e.g., support from the workplace in delivering NTPA promotion) was not observed in other studies. In addition, the goals domain was deemed a significant factor affecting the promotion of NTPA and PA in general (Kunstler et al., 2019b; Rethorn et al., 2021), but this relationship was not statistically significant in this study.

Regarding demographic characteristics, results suggest that older PTs with more years of practice correlated with more frequent NTPA promotion. While no study has definitively established the link between age and promotion of NTPA yet, more years of practice were found to increase the odds of promoting PA in a sample of PTs in the US (Rethorn et al., 2021). This is in contrast to a survey study in the UK that did not find an association between these two variables (Lowe et al., 2017). On the other hand, a shorter working experience was associated with more frequent PA promotion in a sample from Nigeria (Aweto et al., 2013). Furthermore, in another qualitative study, those new to their career or role perceived PA promotion as a secondary or non-core aspect of their job (West et al., 2021). This study also found no relationship between the PT's PA level and frequency of NTPA promotion consistent with previous literature (Lowe et al., 2017). However, other studies disagree with this (Aweto et al., 2013; Kunstler et al., 2019b; Rethorn et al., 2021). It is still unclear whether these differences are due to the unique needs of older adult care, the Philippine context, or both. Differences in sample size and survey methodology can also account for these differences. Further studies may help clarify this.

Implications to Practice

While more research is needed to understand the complexities of NTPA promotion of Filipino PTs among their older adult clients, the findings of the study can already inform the design of initiatives aimed at supporting this area of practice. There is a need to ensure that Filipino PTs are well-equipped by addressing apparent gaps in terms of knowledge of WHO PA guidelines and the use of BCTs and theories. Access to updated and comprehensive information and training was identified in previous studies (Arie et al., 2021; West et al., 2021) and should be ensured for Filipino PTs. Without these opportunities, practitioners may rely more on experience instead of using a systematic and evidence-based approach to NTPA promotion in older adults. Filipino PTs also need to be more confident in integrating these approaches into routine care. There is also a need to ensure that the undergraduate BSPT curriculum is able to adequately support the development of these knowledge and skills related to NTPA promotion.

Integration of promotion of NTPA in routine care for older adult clients can still be improved as well. Maximizing the growing literature on such initiatives for older adults (Taylor et al., 2021) by adopting these to the local context may be an efficient way to achieve this. This is important because literature has already highlighted the promising benefits of such programs (Grande et al., 2019). In addition, building an environment that supports the promotion of NTPA is equally as important. This may be done while keeping the factors identified by this study in mind. For example, work demands can be further improved by exploring whether potential barriers found in previous literature (e.g., priority on high client turnover, lack of time, lack of financial support from the government and insurance companies, client expectations, and competing priorities in terms of client problems) (Kunstler et al., 2019b; Rethorn et al., 2021; West et al., 2021) also exist in the Philippines. In addition, there is also a hypothesized tension between a PT's identity as a rehabilitation provider and a health promoter (Rethorn et al., 2021). Filipino PTs must also recognize that PA promotion goes beyond merely providing advice on the benefits of being active and/or the risks of inactivity. Additionally, specific to older adults, misconceptions about their ability to safely engage in at least moderate-intensity physical activity may potentially exist and require action. In the Philippines, older adults are culturally seen as individuals needing protection and care. The emphasis on the current curriculum and providing professional educational programs may address this. Lastly, having an explicit policy or statement that emphasizes the role of Filipino PTs in promoting PA in their older adult clients may also help push this forward.

Limitations

The findings of this study should be interpreted in consideration of some limitations. First, the small sample size limits the generalizability and statistical power of the results. It is possible that some of the correlations may have been missed or overestimated due to the limited number of respondents. The survey used was also unable to explore other factors that have been recently discovered to predict the odds of PA promotion in PTs, such as routine screening for PA (Rethorn et al., 2021). While it was based on a reliable and valid survey, the final version of the questionnaire survey was not tested for reliability and validity. Lastly, the study results also do not account for potential changes due to the COVID pandemic in terms of knowledge, use of techniques, and influencing factors for NTPA promotion in older adult PTs.

Conclusion

This study aimed to determine the practice and perspectives of Filipino PTs in non-treatment physical activity promotion in older adults. Results showed that the promotion of NTPA in older adults was not regularly done in practice. The data also highlighted how awareness and knowledge of Filipino PTs on the WHO PA guidelines and their use of BCTs and theories can still be improved. Potential factors that influence their ability to do this were also explored. Further understanding and addressing these gaps will allow them to better promote physical activity among their older adult clients. The results may be used as preliminary basis for programs that aim to empower Filipino PTs to assume their role in addressing this public health concern, especially since they are considered to be in a prime position to guide older adult clients in changing this behavior.

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Conflict of interest statement

The authors report that there are no competing interests to declare.

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