

修士学位論文

論文題名

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occupational therapists' perspective:
mixed methods study

高齢者に対するアシスティブテクノロジー支援の実践に
影響する要因： タイ作業療法士の視点から-混合研究法

(西暦) 2022年 1月 6日 提出

東京都立大学大学院

人間健康科学研究科 博士前期課程 人間健康科学専攻
作業療法科学域

学修番号：20896712

氏名：Thawisuk Chirathip

(指導教員名： 井上 薫)

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抄録

本研究は、タイの作業療法士の視点から、高齢者向け支援技術サービスの実施に影響を与える要因を調査することを目的としている。混合研究法を用い、作業療法士がサービス実施に影響を与えると認識している要因を明らかにするためにアンケート調査を実施し、その背景を説明するために半構造化インタビューを実施した。作業療法士は、知識や経験といった要因が支援技術に対する意識や専門的能力の向上に貢献できると認識していた。また、クライアントの満足度に基づいて支援機器を活用しており、組織内での調整は支援の実施に関するフィードバックを受けることで、アドバイザーが意思決定をサポートしてくれると認識していた。一方で、支援機器サービスに利用可能な時間とリソースがどの程度あるか、また関連法や制度は、高齢者への支援機器サービス提供を可能とするかどうか大きく影響している。これらの課題に対処するためには、専門職への適切な教育や地域や多職種との連携が重要であることが示された。

キーワード: 福祉用具, 生活支援機器, 作業療法士, 高齢者, 介護

Factors influencing the implementation of assistive technology service for older adults from Thai occupational therapists' perspective: mixed methods study

Introduction

The world is facing with population aging phenomenon¹⁾. In 2022 Thailand is estimated to be a complete aged society²⁾. With an increase in age, some older adults might be restricted or limited in their occupational performance³⁾. To solve this issue, the use of assistive technology (AT) is a considerable choice because AT could assist older adults in developing their ability to perform daily activities safely and independently and contribute to their quality of life⁴⁾. However, the assistive devices need to be accompanied by the appropriate services⁵⁾.

In Thailand, people with disabilities (PWD) were the most prevalent among older adults, accounting for 20 percent of the entire elderly population⁶⁾. Thai older adult can receive assistive devices as the benefit of PWD if registered as a PWD or benefits under the universal health insurance system⁷⁾ as part of the intermediate care and long-term care service which were just established in 2015-2017⁸⁾. However, it was found that 41% of PWD who needed the assistive devices did not receive any devices, and 10% of those who received the devices from the government did not use the devices⁶⁾. The study from the perspective of PWD found that this might be results of the provided devices were not

suitable for use in daily activities, of the long waiting list, of insufficient information, and of a lack of follow-up⁹⁾. This could infer inadequate AT service for older adults. Many studies pointed out that every step of the AT service was important and contributed to the satisfaction of older adults¹⁰⁻¹²⁾. The inadequate AT service delivery could lead to abandonment and underutilization of the device¹¹⁾.

Trained health professionals are one of the key stakeholders in AT service¹³⁾. In Thailand, AT services are provided as part of rehabilitation, but in the absence of AT certified specialists¹⁴⁾ many professions fill this role. Occupational therapists (OTs) have similar skills to other professionals in this area of work, but the clinical reasoning and theoretical underpinnings of the profession are unique to the profession¹⁵⁾ make OTs understand the dynamic interplay among person abilities, occupation, and environment and context that influence occupational performance. Consequently, occupational therapists use AT both as a means to enhance occupational performance and as a means to an end, with AT opening new avenues for occupational engagement¹⁵⁾. This integrated perspective makes OTs an important member of an AT service¹⁶⁾. Although Thailand is struggling with the shortage of OTs and that therapists are responsible for serving multiple client populations, AT services continue to be provided¹⁷⁾.

In addition, a systematic review of factors influencing children's AT choices concluded that personal factors of professionals may influence service users and their families¹⁸⁾. Previous studies in Thailand surveyed AT adoption by older adults^{14,19)} and problems related to the service¹⁴⁾ but the factor influence to AT service from the perspective of an OTs who plays a crucial role in AT service for older adults is underexplored. As a result of the rapidly increasing aging population in Thailand, the significant role of the OTs should be considered to avoid AT abandonment and underutilization, thus, the to reveal factors that influence the implementation of AT services for older adults from OTs' perspective are useful to service development and strengthen the sustainability of using AT among the older adults in Thailand.

According to previous studies, the factors influencing the AT service can be divided into three levels: personal, organizational, and policy level²⁰⁻²⁵⁾. However, all these research were conducted in high-income countries, which had a higher proportion of access to AT than those of low and middle-income countries²⁶⁾. The previous research conducted only in the high-income country has limited to generalize the finding to other different contexts, and had only provided a partial view by using either quantitative or qualitative view. To gain a better understanding of those factors, there is a need to not only obtain quantitative results but to explain context of those results in more detail, especially in terms of detailed voices and OTs perspectives.

For this reason, the purpose of this research is to investigate the factors that influence the implementation of AT services for older adults from the OTs' perspective and explain how those factors influence the implementation of AT services for older adults.

Methods

Design

This study is conducted by using a mixed-method with explanatory sequential design in which begins by conducting a quantitative phase and follow-up on specific results with a subsequent qualitative phase²⁷⁾.

Participants

Inclusion criteria:

1. Licensed occupational therapist currently working in the organization that provides service for older adults.
2. Having experience involving AT service for older adults in the past 12 months.

In the Quantitative phase, the samples are the OTs currently working in occupational therapy (OT) institutions, one person per unit.

In the Qualitative phase, the samples are the occupational therapist who participated in the quantitative phase and are willing to participate in the interview.

Ethics

Ethics review and approval were secured from the Ethics Review Committee of Tokyo Metropolitan University (Acceptance number: 20079).

Phase 1: Quantitative phase

This phase aims to obtain information regarding the current practice of AT service and factors that influence AT service for older adults from OTs' viewpoint by using survey questionnaire. Researchers choose the questionnaire survey because this method is a cost-effective way to collect data from large numbers of the population and encourage more honest answers with anonymous²⁸).

Data Collection

The questionnaire was developed based on the conceptual framework and adapted from Measurement Instrument for Determinants of Innovations (MIDI) ²⁹). It comprises 30 items, including demographic data, familiarization with AT service, and factor influence AT service for older adults which are 3 domains: the personal level factors (10 items), the organizational level factors (10 items), and the socio-political context level (1 item). The response scales of range from 1 ('totally disagree') to 5 ('totally agree') and researchers left one open-ended question for the participant to fill in if they were interested to participate in the interview phase. The questionnaires were then translated into Thai and pilot used before spreading to the subject. In our sample, the internal

consistency of the questionnaire was good–excellent (total scale: $\alpha = .925$).

Afterward, the researchers were permitted to access the data regarding the list of OT institutions from the Occupational Therapy Association of Thailand. Then, researchers purposively selected the institutions based on inclusion criteria. Total 229 targeted institutions met the criteria and there was one participant for each targeted institution. Researchers developed an online questionnaire by using Google Form. The link and QR code to access the questionnaires and participant information sheet with cover letters were sent to prospective participants by post-mail from the 2nd of April to the 7th of May 2021. After two weeks, the researchers tracked participants to complete the questionnaire. Two weeks after the first tracking, researchers terminated the online questionnaire by closing the system.

Data analysis

Data were analyzed using the Windows version of the Statistical Package for Social Sciences (SPSS) 26.0. The normal distribution was assessed for all variables. Cronbach's alpha (α) was used to validate internal consistency of the questionnaire. Descriptive statistics (mean, range, standard deviation, and percentage) were used to evaluate the data from the questionnaire.

Phase 2: Qualitative phase

This phase intends to explain quantitative data from the survey. In addition, the researchers need to understand the perspective of Thai OTs on the influential

factors. Researchers used semi-structured in-depth interviews because this technique could bring information about an individual's experiences, attitudes, perceptions, and beliefs related to the research questions³⁰⁻³¹⁾ and allow researchers to gain insight into how individuals interpret and order the world³²⁾.

Data collection

The participants were recruited into this phase by filling their email into the questionnaire. Then, researchers randomly selected the participants and contacted each participant via email to make an appointment for a convenient time to conduct the interview. The interview guideline²⁷⁾ was used during the interview. The questions in the interview guideline were related to the three levels of factors including personal level, organizational level, and socio-political level. The interview was mocked before data collection.

After researchers contacted and determined the most convenient schedule for an interview, then the secured Zoom links for the interview session were sent for each participant via email. The interview took place around 45-60 minutes. This session was recorded in the form of a video. The data were transcribed verbatim. Then, the interview data were returned to the participants to retract, expound, or alter any of their statements.

Data analysis

In qualitative data analysis, the interview data were transcribed into Thai. Researchers used thematic analysis to analyze the textual data because this

method is useful for examining the perspectives of different participants, also highlighting the similarity and differences, and generating unanticipated insight³³⁾. This analytical process comprised six steps³³⁻³⁴⁾ including familiarization with data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report. Researchers analyzed the data based on the level of factor which allowed researchers to find the explanation for each variable from quantitative results. The primary author (CT) and fifth author (AK) performed initial coding separately. Then all researchers discussed and generated the themes together at several meetings. After thorough discussions, themes were reviewed and discussed with the research group and resulted in eight themes. During analysis, ALAS.ti version 9.0 was used to organize the data.

Results

Quantitative results

Demographics data

The survey was completed by 96 participants (42.0 percent response rate), of whom 29 (30%) were male, 66 (69%) were female, and 1 (1%) was non-binary gendered. The years of experience in OT service was that 1-5 years was 25%, 6-10 years was 27%, 11-15 years was 19%, 16-20 years was 19%, and over 20 years was 10%. The majority of the participants were working in

public institutions (89%), only 11% were working in private institutions.

Among ninety-six participants, only 4% perceived that they had good knowledge regarding AT service and 34% had enough knowledge. However, 45% of all participants perceived that they had mediocre knowledge and 16% perceived that the knowledge regarding AT service for older adults they have was inadequate.

Familiarization with AT service

In second part of the questionnaire, participants were asked about which part of AT service for older adults that they were involved in. Most of respondents were “recommendation to older adults about AT” (n= 93). Other parts that participants involved were “assessment for suitability” (n= 47), “instruction to health profession” (n= 43), “product training to older adult/caregiver” (n= 40), “assist older adults to apply for products” (n= 37), “design, adapt, make or build products” (n= 35), “recommending AT products to providers” (n= 33), “referring to other professionals for products” (n= 29), “managing risks relating to the use” (n= 27), “removing products when not required” (n= 12), “supplying the products” (n= 11), “assembling products” (n= 8), “follow-up and maintenance” (n= 4). However, none of them involved in prescribing products and assisting with fundraising.

Table 1: Factors that influence the implementation of AT services for older adults.

| Factors | Totally agree (%) | Agree (%) | Neutral (%) | Disagree (%) | Totally disagree (%) |
|--|-------------------|-----------|-------------|--------------|----------------------|
| Personal level | | | | | |
| Personal benefit /disadvantage | 19.8 | 51.0 | 22.9 | 5.2 | 1.0 |
| Outcome expectations | 14.6 | 59.4 | 21.8 | 4.2 | 0 |
| Professional obligation | 17.7 | 56.3 | 20.8 | 4.2 | 1.0 |
| Client satisfaction | 19.8 | 62.5 | 12.5 | 5.2 | 0 |
| Client cooperation | 15.6 | 50.0 | 28.1 | 6.3 | 0 |
| Experience | 31.3 | 51.0 | 12.5 | 5.2 | 0 |
| Descriptive norm | 9.4 | 64.6 | 18.8 | 7.3 | 0 |
| Subjective norm | 19.8 | 53.1 | 17.7 | 8.3 | 1.0 |
| Self-efficacy | 12.5 | 46.9 | 35.4 | 3.1 | 2.1 |
| Knowledge | 31.3 | 44.8 | 18.8 | 5.2 | 0 |
| Organizational level | | | | | |
| Formal ratification by management | 14.6 | 43.8 | 34.4 | 5.2 | 2.1 |
| Replacement when staff leave | 7.3 | 58.3 | 24.0 | 10.4 | 0 |
| Staff capacity | 11.5 | 42.7 | 31.3 | 10.4 | 4.2 |
| Financial resources | 27.1 | 43.8 | 17.7 | 10.4 | 1.0 |
| Time available | 21.9 | 54.2 | 13.5 | 10.4 | 0 |
| Material resources and facilities | 32.3 | 43.6 | 13.7 | 9.4 | 1.0 |
| Coordinator | 23.2 | 51.9 | 13.5 | 10.4 | 1.0 |
| Unsettled organization | 16.7 | 43.8 | 30.2 | 8.3 | 1.0 |
| Information accessible about the use of AT | 20.8 | 43.8 | 26.0 | 8.3 | 1.0 |
| Performance feedback | 18.7 | 56.3 | 18.8 | 6.3 | 0 |
| Socio-political context level | | | | | |
| Legislation and regulations | 20.8 | 33.3 | 34.4 | 11.5 | 0 |

Factors influence the implementation of AT services for older adults.

In the third part of the questionnaire, participants were asked how each factor influences AT services for older adults. Table 1 shows how much and what factors influence the implementation of AT services from OTs' perspective. On a personal level, 'clients' satisfaction' (19.8% totally agree, 62.5% agree), 'experience' (31.3% totally agree, 51% agree), and 'knowledge' (31.3% totally agree, 44.8% agree) were perceived as influential factors. At the organization level, influential factors were 'time available' (21.9% totally agree, 54.2% agree), 'material resources and facilities' (32.3% totally agree, 43.6% agree), 'coordinator' (23.2% totally agree, 51.9% agree), and 'performance feedback' (18.7% totally agree, 56.3% agree). Regarding the sociopolitical context level, there was one factor named 'legislation and regulations', among all respondents 20.8% totally agree and 33.3% agree that this factor influences the implementation of AT service for older adults.

Qualitative results

To explain the quantitative findings and provide an answer to the question of how Thai OTs perceive factors that influence the implementation of AT services for older adults, interviews were conducted by two male and three female occupational therapists. They are all employed by government agencies.

Table 2: Themes arose from thematic analysis

| Level of factors | Themes |
|------------------|--|
| Personal | <ul style="list-style-type: none">● Building professional competencies● Contributing to awareness of the OTs● Utilization of AT device based on client's centeredness |
| Organizational | <ul style="list-style-type: none">● Having an advisor to support decision making● Time available affect the capacity of AT service● Availability of resources affect the provision of AT |
| Sociopolitical | <ul style="list-style-type: none">● Determination of the supporting infrastructure● Determination of the availability of resources |

The individual interview participants had an average age of 32.8 years (SD = 6.7 years). They had between 4- and 20-years' experience of providing assistive technology as part of the occupational therapy service (mean \pm standard deviation = 10.1 years \pm 6.8). "How these factors influence the implementation of AT services for older adults?" participants were asked. Eight themes emerged as a result of the analysis (Table 2)

Part1: Personal level

According to the survey results, the respondents perceived that experience (82.3%), Knowledge (75.1%), and clients' satisfaction (82.3%) are the personal level factors that influence the implementation of AT services for older adults.

To explain this finding, three themes arose from the analysis of in-depth

interview data; building professional competencies, contributing to the awareness of OTs, utilization of AT devices based on client's centeredness.

Building professional competencies

Participants discussed the impact of knowledge and experience on AT services for older adults and emphasized the importance of knowledge in the assessment and referral process by recognizing the match between the client's capacity, activity, and resource. As P4 said:

P4: "I think knowledge is important in assessing a patient's ability. So, we will think about a device to help or to support them, allowing them to do that activity."

However, participants also considered the importance of the integration of experience and knowledge. In short, by integrating experience with knowledge, OT can increase the efficiency of AT adaptation. As P3 says:

P3: "Some senior OT, they are able to apply more quickly than someone with less experience or new graduates."

Contributing to awareness of the OTs

OTs reflect through interviews regarding the effects of their experiences on the decision-making process and identify the needs of clients. Opportunities for that OTs choose to provide AT services for clients were influenced by their knowledge and experience.

P5: "If they have a lot of experience they can identify the needs of the patients. This will give them more opportunities to provide AT to patients."

An OT's knowledge could affect the opportunity of AT services if the OTs sees the needs of the client through a holistic service process.

P1: "It depends on knowledge of OTs if we can see the patient holistically and find problems other than what the doctor ordered."

This was consistent with what P2 said about the importance of knowledge that could affect OT awareness. If the therapist lack knowledge of AT, they may not prioritize AT services within a limited time.

P2: "When we may not have enough knowledge, we may not give priority to it."

Utilization of AT device based on client's centeredness

OTs highlighted the influence of clients' satisfaction on the decision-making process. P4 stated the importance of client satisfaction that could impact the development of the service delivery process.

P4 "From Client satisfaction feedback, we will know that what the patient needs and what we give is consistent or not. Maybe we think this is the best thing for the patient, but when we provide it to the patient, they may say I'm not okay with this one."

The client's satisfaction was also influenced by the unmatched device and personal belief, the client may refuse or abandon the assistive device. As P1 stated;

P1: "Sometimes we are ready to provide the device but the patient doesn't accept it. This is one factor that we can't provide."

Despite the perception of client satisfaction as a barrier to providing AT service, OTs also reflected the influence of client satisfaction as feedback to improve the service provision. As P5 pointed out.

P5: "When they are pretended to satisfy with everything it turns out that if they have any problem, they won't tell us"

Part 2: Organizational level

Respondents perceived that the factors in organizational level were time available (76.1%), material resources and facilities (75.9%), coordinator (75.1%), and performance feedback (75.1%). The analysis of qualitative data revealed three themes to explain the finding; having an advisor to support decision making, time available affect the capacity of AT service, and availability of resources affect the provision of AT.

Having an advisor to support decision making

Participants were asked how coordinator and performance feedback would affect the implementation of AT services for older adults. Some OTs emphasized the importance of coordinators as consultants to assist in the decision-making process in selecting device. Inexperienced OTs needed to seek advice from experienced colleagues to assist in decision making. As P5 said:

P5: "I'm the youngest one. Most of the time, I would consult (my colleague). It's like having someone give you advice."

Furthermore, having coordinator and performance feedback were potential factors that could improve the AT service for older adults by having various perspectives for the recommendations of the device and making the device for older adults. As P4 and P2 stated;

In addition, coordinators and performance feedback are potential factors that can improve AT services for older adults by having various perspective on device recommendations and manufacturing. As shown in P4 and P2;

P4: "It allows us to make the device or recommended devices more suitable from a new perspective."

P2: "Sometimes I can't figure it out alone. If someone else comes to help, we can look at the other side as well."

Not only having a coordinator within the OT profession was perceived as support for decision making. Other professions were also involved in this process, as P4 mentioned how OTs collaborated with medical doctors in the process of providing AT.

P4: "This is OT's role here. That it (AT) may not be immediately provided, but we can create an idea about the device and discuss it with a doctor."

Time available affect the capacity of AT service

All participants stated that time was a barrier to the provision of AT services. In the situation of caseload, therapists had to manage their time by competing with

other priorities which could hinder the opportunity to provide AT service as P2 said;

P2: "For example, Friday is a stroke clinic, we will not be able to provide the full service in each case. It is done within a limited time. Time plays a part."

Congruent with what P4 reflected that, the disproportion of time and manpower could limited OTs to make an assistive device for the client on time.

P4: "Currently, with the number of staff, the time to provide the assistive device for patients will be less because we have to manage the staff"

Besides time limitation for the provision of ATs, the time also affected communication between teams. Providing AT services, especially in the community, uses a multidisciplinary approach in which many professionals work together. As a result, effective team communication was difficult within the length of time everyone had. As P1 said;

P1: "Communication between departments is quite difficult. Because our times don't match. If we want to do AT service well, we need to be able to communicate between the whole team."

Availability of resources affect the provision of AT

The availability of resources was important to the implementation of AT services. With the availability of resources, OTs could create, establish, or adapt assistive devices for older adults conveniently. As P4 has said;

P4: "We have a sewing unit in our department, so we can make some devices to support the patient, which makes our work or training the patient more convenient."

Some institutions support OTs with materials and devices, in this case, OTs could request those resources for older adults which could improve the accessibility to AT among the older adults.

P1: "If the hospital has sufficient resources, patients will access AT services more."

On the other hand, lack of resources was affecting the provision of assistive devices. As P2 has said;

P2: "Sometimes to make adaptive devices, we don't have these materials to make it, so we use other materials that we have. However, it may not be adaptable, which may not be suitable for this patient."

Part 3: Sociopolitical context level

Sociopolitical context level was perceived by 54.1% of total respondents as one domain of factor influence to the implementation of AT service which included the legislation and regulations. The data from interviews stated two themes to explain this finding; determination of the supporting infrastructure and determination of the availability of resources.

Determination of the supporting infrastructure

Infrastructure affects the usability of assistive devices by limits the opportunity for older adults to use assistive devices in the community. This could influence occupation therapists in deciding to provide an assistive device for each individual. As P1 stated;

P1: "In the case of using a wheelchair; a road, public transportation or elevator, and so on are not supported. Like some places, they do not follow the law so this affects the use of AT for the patient"

In comparison to developed countries, the accessibility to public service in Thailand is a limitation for AT users, before distributing the AT products OTs has to be concerned about this situation. As P2 said;

P2 "Accessibility to public service is not supported, unlike Japan or other countries where the policy to support persons with a disability or older adults has existed so they can access in various places. So, we have to be concerned"

Determination of the availability of resources

All of the participants highlighted the importance of the policy on AT service as a driving force for service provision. P3 explained how legislation and regulation factors as a policy could influence to the assistive technology service. The availability of funding and supporting materials were dependent on the policy which creates the opportunity for OTs to provide the AT service for older adults.

P3 "If there is the policy, funding will be available. Once you have funds, you can afford the resources."

The support of policy could drive the implementation of AT services for older adults by supporting the resources to be available to make or to distribute to older adults who needed. P4 reflected how the awareness of policymakers could influence the availability of resources.

P4 "For some years, we can reimburse more, the CEO sees the importance, there will be a lot of stock of resources. But if the CEO does not see how it is important, they will not allow to stock the material and so on. So, clients cannot get the device."

P4: "These policies are like a driving force from the organization or the larger sector, that is, if it is driven by them, I think the service or the making of these devices will have more support."

Discussion and implications

The purpose of this study was to identify and explain the factors that influence the implementation of AT services for older adults from the perspective of Thai OTs. The results of the mixed-methods study provide an explanation of the factors that influence the implementation of AT services for older adults. Knowledge, experience, client satisfaction, available time, coordinator, performance feedback, availability of resources and materials, and legislation

were perceived by participants as influential factors in implementing AT services for older adults.

In this study, most participants perceived that knowledge and experience were the factors that influence AT services for older adults; this finding is also consistent with previous research from other geographical contexts²¹⁻²²). These two factors contribute to the awareness and professional competency which are important to the provision of AT services. Competence is one of the criteria to affirm the quality of AT service, which means that OTs must have knowledge, skill, and experience mandatory to properly serve AT service³⁵). While awareness of the OTs regarding the AT is important as the initial step before uptake the AT as an intervention. Increasing awareness among the health profession is one of the solutions to improve AT service in low and middle-income countries³⁶). However, more than half of the respondents felt that their knowledge was insufficient for providing ATS to older adults. We suggested that additional education or training programs should be developed to build competencies and increase occupational therapists' awareness of providing ATS to older adults, as well as to strengthen occupational therapists' roles in this area.

Moreover, clients' satisfaction influenced OTs to consider the utilization of assistive devices in older adults' real-life situations. This demonstrates that the practice is based on a client-centered approach in which the client is central to the decision-making process when providing AT to meet the actual need of

older adults³⁷). For this reason, to provide AT for older adults, OTs should be concerned about their satisfaction with the device and service because it will contribute to the utilization of the AT¹¹).

Besides, several respondents mentioned the importance of coordinators and performance feedback in terms of advisors to help with decision making. Decision-making processes are used throughout the AT services process. AT Decision making is closely related to the evaluating and recommending AT for the user. When matching assistive devices to a person, OTs are usually concerned with the person, their abilities, needs, preferences and the opposite³⁸). According to McGrath²³), OTs in the UK have recognized that a coordinator is one of the facilitators of the AT service, providing educational support on the available AT and advice for older adults and other health professionals on AT. Therefore, appropriate coordinators and advisors are one of essential parts for AT service.

On the other hand, findings revealed that available time was perceived as a barrier factor limiting OTs' ability to provide AT services to older adults. Despite geographical and socio-political differences, time was cited as a limiting factor for AT services by OTs in different countries²²⁻²⁴). In the Thai context, this could explain the nature of occupational therapists who work in institutional settings and have to serve a variety of populations while managing a heavy workload³⁹). This lack of time limits the ability of occupational therapists to

provide some steps of ATS to older adults, as evidenced by the fact that the majority of Thai OTs who responded to the survey were only able to provide recommendations on AT, with the follow-up process was rarely served. Furthermore, data suggest that a lack of resources in the form of funding and materials can impact the implementation of AT services by limiting the ability to provide AT services. Previous research has found that in Thailand, most assistive devices provided to older adults were technically inadequate or mainly for mobility^{14,19}). This is an example of the consequences of inadequate resources. Recently, the Thai Ministry of Health has supported the provincial government's budget for medical rehabilitation services by establishing a rehabilitation fund to develop a service system and rehabilitation services for people with disabilities, older adults, and patients who need rehabilitation services in the community, including AT. In addition, a trained Village Health Volunteer (VHV), also known as health workers, provides health care services such as general health care, health promotion and rehabilitation in the community⁴⁰). This skill-mixed health workforce shared responsibilities between health professionals and caregivers by providing home-based care to those in need of care and coordinating with multidisciplinary health professionals⁴¹). A study by Chinchai and Khamwong³⁹) concluded that rehabilitation education and training of VHVs for home-based rehabilitation could improve the functional outcome of stroke survivors and that this strategy could reduce the cost and time

of home visits for occupational therapists who mostly work in the hospital. According to the position statement on occupational therapists and AT, OTs can promote long-term use of AT by educating others⁴²⁾ and Smith et al.³⁷⁾ suggested that to improve access to AT despite a shortage of providers, a skill-mix approach could facilitate person-centered service delivery by teaching basic AT skills through culturally and contextually relevant educational programs. This exhibit another solution for OTs facing time and resource constraints in hospitals: Training VHVs to improve basic AT service skills such as maintenance and adherence to processes, and working with the local government for resources, could alleviate the burden of time and resource shortages for Thai OTs.

Limitation

There are several limitations of this study. First, the number of respondents is fewer than was expected. This could be a result of the distribution procedure that we sent the questionnaire through the mail, some institutions have changed their address for this reason the mail could not reach them. Moreover, some institutions require ethical approval from their ethics committee before conducting the research. This affected the number of respondents. Secondly, in the qualitative phase, we noticed that the character of participants is homogeneous because all of the participants are from public institutions. Thus,

all the data that arose from this phase could reflect public institutions only. Future research would benefit from clustering random samples collected from a variety of OT institution – not only public hospitals but also private organizations – to acquire a wider understanding of the factor influence the assistive technology service for older adults in each type of institution or each geographical area.

Conclusion

In summary, this study examined the factors that influence the implementation of AT from the perspective of Thai occupational therapists at the personal, organizational, and sociopolitical levels. It is found that occupational therapists' knowledge and experience can contribute to awareness and professional competence in AT service for older adults, that client satisfaction influences occupational therapists' use of assistive devices from a person-centered perspective, and that having a coordinator and performance feedback within the organization can make occupational therapists feel that they have a consultant to help them make decisions during AT service. Availability of time, on the other hand, has an impact on the capacity of AT service for older adults. The availability of resources has an impact on the delivery of AT services. By determining the supporting infrastructure and availability of resources, laws and regulations affect the implementation of AT services for older adults. A training

program in this area is needed to improve occupational therapists' competence and awareness in AT service to older adults. In addition, to overcome the challenge of limited time and resources, occupational therapists could advocate for VHV's to be a part of the AT service for older adults in the community to ensure AT accessibility for older adults.

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Abstract

Occupational therapists play an important role in providing assistive technology services for older adults. However, there is some report on inadequate assistive technology service for older adults in Thailand. This study aims to investigate factors that influence the implementation of assistive technology services for older adults from the perspective of Thai occupational therapists. Mixed methods were used to explain the results: a questionnaire survey was used to collect the factors perceived by occupational therapists, and a subsequent semi-structured interview explained the factors using thematic analysis. Occupational therapists perceived that their knowledge regarding assistive technology service for older adults may not be enough. While the data from semi-structured interview revealed that knowledge and experience of the occupational therapists could contribute to the awareness and professional competence in assistive technology service for older adults. Occupational therapists are influenced to use assistive devices based on clients' satisfaction. Having coordinator and performance feedback within the organization, were identified as having advisors support their decision making. By contrast, the time available and resources determine the availability of assistive technology services for older adults. Regulations and legislation affect the provision of assistive technology services to older adults by determining what is allowed and permitted. Education or training programs are needed to increase awareness and competency of the

occupational therapists, and collaboration with other professions in the community section is needed to address the current challenges.

Keywords: Assistive product, Assistive device, Geriatrics, Occupational Therapy, Long-terms care