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The International Journal of Public Health and Health Sciences (IJPHS) aims to publish original articles and contributions relevant to public health and medical sciences. IJPHS is published by the Praboromajchanok Institute for Health Workforce Development (PBRI), Ministry of Public Health, Thailand. It is a non-profit, peer-reviewed, open-access, international, scientific journal that publishes articles in areas of health sciences disciplines. The scope of the IJPHS is broad, covering the following categories: original articles, reviewed articles, special articles, case reports, correspondence, and others in the fields of public health, medical sciences and related allied health, especially the following areas:

- Health policy and management, health care and services
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Editorial Statement

Praboromarajchanok Institute, Ministry of Public Health (PBRI-MoPH) is a higher educational institution whose main mission is to produce and develop health care personnel, according to the needs of the Thai Ministry of Public Health (MoPH). We develop the next generation of health personnel to serve the people, especially in rural areas. The institute is responsible for producing graduates by developing new knowledge, research, and public service in health. PBRI aims to create a body of knowledge and health innovations to improve the health of the community and society. PBRI also publishes the International Journal of Public Health and Health Sciences (IJPHS) to provide researchers a forum in which to share their health research innovations.

The editors here at IJPHS would like to share efforts at PBRI to address non-communicable diseases, which are growing public health problem in the developing world. The developing world often faces the double challenge of infectious diseases that have not yet been eliminated, plus the increasing prevalence of NCDs.

Recently, PBRI has organized a project to promote community health by providing public health promotion services to control chronic NCDs. Chronic NCDs present a serious disease burden for Thailand. Indeed, back in 2000, the 53rd World Health Assembly and the United Nations (UN) identified nine Global Targets for non-communicable diseases (NCDs) outlined health problems needing prevention and control. By 2017, the global health community had identified 5 disease groups (cardiovascular diseases, cancer, respiratory diseases, diabetes and mental disorders) with 5 main risk factors (tobacco, air pollution, harmful use of alcohol, unhealthy diets and insufficient physical activity) that define problem management for NCDs (Division of Non-Communicable Diseases, 2022). This has been coined as the 5x5 NCD Agenda. PBRI is applying the 7-Color Ping Pong Life Traffic Policy as a primary tool for monitoring diabetes and hypertension control. This policy includes screening patients for NCDs along with health promotion activities to emphasize the participation of individuals. The activities encourage individual awareness by setting health-building measures with 3 items (diet, exercise, mood) and encouraging decreases in 3 areas (reduce alcohol, smoking, and obesity) to support changing health behaviors.

PBRI utilizes the strengths of its institutions, which have affiliated colleges scattered in every region of Thailand. PBRI also has built close relationships with many communities. PBRI has expertise to drive community capacity building (PBRI Model) within community health promotion projects. Health sciences graduates can harness the PBRI Model to deliver quality service to their communities throughout Thailand. Their efforts can help Thailand meet the Sustainable Development Goals (SDGs) (Thianthavorn V., & Chitiang N., 2022).

PBRI also has created a project-based development tools to address the Covid-19 pandemic called “Solving the national crisis, COVID-19, 1 College: 1 Province: 1 sub-district.” PBRI is training village health volunteers (VHVs) to proactively prevent and closely monitor the spread of COVID-19 using a smartphone application tool for surveillance of the epidemic. This same tool will be taught to nursing assistants and public health assistants in their one-year program in 2022-2023.

In order to achieve the project goals, PBRI prepares teachers with knowledge about promoting population's health and creating a healthy community for reducing the incidence of NCDs. This theme is integrated in the teaching and learning and or academic services. PBRI also designs and creates innovative applications using community and local wisdom to promote health using the PBRI model. It also develops research proposals for applying external funding from national and international funding agencies by using the strategy to develop and capacity building in research skills that are in line with the context of PBRI model project. PBRI also publishes and disseminate research findings, as well as proposes useful national and international policy.

The editorial board of IJPHS sincerely hope that the members, faculty members, researchers, industrious students, medical, nursing and public health personnel as well as PBRI alumni who are interested in obtaining more detail from original articles, reviews, and other to use or transform research information into teaching and research fields. In this issue, IJPHS consisting of five interesting topics covering public health and medical sciences. You can download articles in the journal at the website <https://www.tci-thaijo.org/index.php/ijphs>.

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Transtheoretical Model (Stages of Change) and Its Potential Applications to Psychiatric and Mental Health Nursing Practice

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Abstract

Over the years, mental health challenges have always been a significant concern for the healthcare system. More recently, global events including the COVID-19 pandemic and its impacts on society have increased the burden and stress on the healthcare system and its management of mental health issues. This article offers a fresh perspective on the possibility of integrating the Transtheoretical Model (Stages of Change) in Psychiatric and Mental Health Nursing Practice alongside the already existing nursing concepts, approaches and interventions. This model has already been widely used in behavioral studies and in the management of chronic diseases. In the field of mental health nursing, this is yet a concept that needs further exploration. The use of the Transtheoretical Model highlights the shared responsibility and commitment to change by the client and the mental health practitioner such as the nurse. According to the elements of the Transtheoretical model, when a client's self-efficacy, commitment, and readiness to change are taken into consideration, this is more likely to lead to treatment and recovery success that is long-term and more permanent, thereby preventing relapses. Of all the elements of the Transtheoretical model, this article highlights the six stages of change, ways to identify an individual's stage of change and the appropriate nursing approaches as well as the pros, cons, and opportunities for further research.

Keywords: Transtheoretical Model of Change, Stages of Change, Mental Health, Psychiatry, Nursing

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Introduction

The World Health Organization (WHO) reported that mental disorders continue to be a burden globally with various effects on economy, human rights, and overall health and wellbeing (World Health Organization [WHO], 2019). With the rapid changes in society these days, including the ongoing COVID-19 pandemic, the transitions to online jobs and education, disruptions in travel, and more, have caused a surge in mental health issues such as anxiety and depression. The WHO organization also expressed that the current health systems have yet to adequately and efficiently respond to mental health concerns. There is also a wide gap between treatment and provision of mental health services worldwide (Wainberg, et al., 2017). Not to mention, currently healthcare workers, particularly nurses, may also have their own mental health needs. As a response to these, the WHO has emphasized the delivery of integrated mental health services focused on promotion and prevention (World Health Organization [WHO], 2019).

Generally, nurses' roles in psychiatric and mental health nursing include the provision of health promotion and maintenance, health education on self-care activities to patients, families and communities, conducting crisis intervention, as well as administering and monitoring psychobiological interventions. While advanced nursing practitioners provide psychotherapies and integrative therapies, develop programs, conduct referrals, and perform procedures (Scheydt & Hegedus, 2021). Nurses as frontline health care practitioners, also play a key role in mental health screening, mental health evaluation and mental health triaging (American Psychiatric Association, 2022).

Over the years, nurses have faced various challenges when faced with psychiatric patients seeking help. Most of the time people are reluctant to seek help in the early stages of the illness and receive attention and treatment only in its late or emergency stages. Cases like this can

eventually bring a toll to nurses' overall health and limit their capacity to provide care (World Health Organization [WHO], 2019). The current healthcare system highlights the burden placed on nurses' and other healthcare practitioners' shoulders with regard to psychiatric patients' mental health treatment and recovery particularly in emergency settings. The focus of successful recovery in patients lies on the nurses' knowledge, skills, attitude, and expertise—thus causing distress and frustration on nurses—and less on patients' commitment, and readiness to change and receive help (Gabrielsson, Sävenstedt, & Olsson, 2016). Leaning on the essence of 'therapeutic nurse-patient relationships', it is this article's aim to present an alternative way of approaching psychiatric and mental health patients through highlighting the shared responsibility, accountability, and efforts between nurses and patients using the Transtheoretical Model of Change with the intention of alleviating the burden on nurses while at the same time increasing patient compliance and commitment to change.

To our knowledge, there is currently minimal literature exploring the potential application of the Transtheoretical Model (TTM) also known as the Stages of Change Model in psychiatric and mental health nursing. The Transtheoretical Model was known by the works of Prochaska and DiClemente in 1983 (DiClemente & Prochaska, 1983) and by Prochaska and Velicer in 1997 (Prochaska & Velicer, 1997). According to TTM, in order to support a change in behavior, it is the role of health professionals to align the individual with the appropriate stage of change and provide a tailored intervention approach (Prochaska & Velicer, 1997). This model highlights the core concepts as follows: six stages of change, ten processes of change, self-efficacy (Bandura, 1977), and decisional balance. Of these constructs, this article will be focusing on the six stages of change (pre-contemplation, contemplation, preparation, action, maintenance, and termination) and its

application as a potential guide for psychiatric and mental health nursing interventions.

An examination of the existing research databases such as SCOPUS, PubMed, CINAHL, Google scholar and Web of science searching for Transtheoretical model (TTM) and health, TTM and nursing, and TTM and psychiatric nursing in the last ten years, revealed a considerable amount of findings for the use of TTM in the field of behavioral change, minimal literature in its applicability to nursing interventions, while scarce in its use in psychiatric and mental health nursing.

Behavioral studies have shown the varying application of using TTM in successfully changing and maintaining patient behaviors including dietary and quit smoking behaviors (Hashemzadeh, Rahimi, Zare-Farashbandi, & Alavi-Naeini, 2019), improve interprofessional collaborative practice (Keshmiri, et al., 2017), and increase the amount of physical activity among University students (Ting Liu, Kueh, Arifin, Kim, & Kuan, 2018). In a study conducted in Brazil, it was found that Transtheoretical Model of Change as an innovative technique can help change behavior particularly on adhering to non-pharmacological treatment of hypertension in the primary care settings (Nascimento, et al., 2021). Moreover, in a systematic review, the use of TTM showed

remarkable improvements in the self-care behaviors of patients with hypertension (Arafat, Hasriani, & Sjattar, 2021). In psychotherapy outcomes, a meta-analysis of specific disorders such as eating, mood, and substance and alcohol disorders showed better outcomes when clients have increased readiness to change (Krebs, Norcross, Nicholson, & Prochaska, 2018). In one of the nursing studies that incorporated TTM, the most used nursing intervention was “counseling” delivered using Information Communication Technology (Lee, Ae Park, & Ha Min, 2015).

It is important to note, however, that these studies involved interventions targeted toward the management of lifestyle problems such as smoking, physical inactivity, and dietary changes and minimal on psychiatric and mental health conditions and the role that nurses play in therapy outcomes. From these literature findings, it can be inferred that there is much room for exploration in the use of TTM in psychiatric and mental health nursing practice. Considering that TTM has been found efficient in changing behavior and in managing chronic physical conditions, it is highly likely that in addressing stage-matched mental health problems, TTM can also be used considering mental health problems’ chronic nature and need for behavioral changes for its prevention and management.

Transtheoretical Model’s Stages of Change and Potential Nursing Approach in Psychiatric and Mental Health Nursing

The next paragraphs consist of three sections 1. Identifying an individual’s stage of change, 2. Proposed stage-specific nursing approaches, and 3. Pros and cons of

integrating the Transtheoretical Model of Change in psychiatric and mental health nursing practice.

1. Identifying an individual’s stage of change

The following screening tools or measures of readiness for change can be used to assess which stage the person is at. Then, a nurse can effectively match the nursing approach with the stage of change the patient is in. The University of Rhode Island Change Assessment (URICA) by Prochaska and DiClemente can be used to assess the client’s problems and their desire for change in a general manner (DiClemente & Hughes,

1990). URICA is a self-report tool for adults with 32 items and 4 subscales (Precontemplation, Contemplation, Action, and Maintenance) to measure the stage of change. For more specific concerns such as alcohol and other drug use, the “Stages of Change Readiness and Treatment Eagerness Scale” (SOCRATES) can be used (Miller & Tonigan, 1996). This 19-item instrument

yields three scale scores: Ambivalence, Recognition, Taking steps.

Qualitatively, individuals who are ready for change will come forward, seek help, and express one's readiness to interventions. In nursing, a similar concept is employed when assessing the "Insight" section of the Mental Status Examination

(MSE), which is a common tool to assess a person's cognitive functioning and behavior (Voss & Das, 2021). 'Insight' refers to an individual's capacity to understand that his or her behavior is a possible psychiatric illness, and may affect themselves and/or other people. 'Insight' also refers to whether or not a client views treatment as helpful.

2. Proposed stage-specific nursing approaches

Once the particular stage is identified, the following proposed nursing approaches indicated in Table 1 can be employed. In each stage, common psychiatric and mental health nursing concepts including self-

awareness, therapeutic communications and relationships, and therapeutic milieu (Hartley, Raphael, Lovell, & Berry, 2020), can be threaded through and carefully tailored for each stage (see Table 1).

Table 1: Proposed Nursing Approaches for Patients with Mental Health Challenges According to the Transtheoretical Model

Stage	Description (Raihan & Cogburn, 2021)	Proposed nursing approaches for patients in this stage based on interventions for effective nurse-patient relationships (Hartley, Raphael, Lovell, & Berry, 2020)
Stage 1 Precontemplation	There is a considerable lack of awareness as to one's personal behavior and how it can create negative consequences to self and others. There is no readiness for change. Thus, change in this stage is perceived as highly disadvantageous.	Conduct self-awareness activities, nursing health education, and provide mental health screening tools, provide resources to the client such as hotline numbers and help-centers that are accessible anytime the person is ready to seek help.
Stage 2 Contemplation	People begin to consider changing in the future, possibly in the next 6 months. There is a considerable awareness that one's behavior may be causing negative consequences to self and/or others. Although ambivalent, the person now weighs the pros and cons of behavior change.	Conduct one-on-one conversations directed to clarifying beliefs and aligning values. It would be helpful also to expose the patient to people who have successfully created changes in their lives by making decisions to change one's behavior. It is important at this stage to provide psychological space to the patient, so the decision comes from them. Pushing them to change may cause them to back down and resort back to the earlier stage.
Stage 3 Preparation (Determination)	People are now ready to act and create change in their lives, possibly within the next 30 days. They begin to take steps toward changing behavior as they begin to believe that this can lead to a healthier life.	Offer options, support, and resources to patients in relation to the change that they are ready to make. Medical interventions such as pharmacotherapy and psychotherapy may now be appropriate. Allow them to visualize how their lives would be different as a result of the behavioral changes.
Stage 4 Action	People have been creating changes in their behaviors within the last 6 months and continue to take action toward behavior and lifestyle changes.	Provide follow-ups and positive reinforcements to actions taken to change behavior. Continue the provision of options, support, resources, as well as nursing and medical interventions.

Stage	Description (Raihan & Cogburn, 2021)	Proposed nursing approaches for patients in this stage based on interventions for effective nurse-patient relationships (Hartley, Raphael, Lovell, & Berry, 2020)
Stage 5 Maintenance	People have sustained the changes in behavior for some time already and put effort into keeping this change and preventing any relapse from occurring.	Continue to provide follow-ups and positive reinforcements to actions taken to change behavior. Continue the provision of options, support, resources, as well as nursing and medical interventions. It would be helpful to assign a treatment and/or accountability partner who could be a healthcare practitioner or a former patient turned healthcare volunteer to help sustain the behavioral changes.
Stage 6 Termination	People have created a new sense of self, have adapted new behaviors totally different from the earlier stages.	Positive reinforcement can be used in this stage. These fully recovered (former) patients can now be used as resource speakers during nursing health education sessions and as accountability partners to recovering patients, when warranted.

3 The Pros and Cons of Integrating the Transtheoretical Model of Change in Psychiatric and Mental Health Nursing Practice

Since the use of the Transtheoretical Model of Change is a relatively new concept to be integrated in psychiatric and mental health nursing practice, it is important to note its potential pros and cons. The initial use of this model can be time and energy consuming. Therefore, nurses will have to spend more time with patients in every stage of change, as well as in customizing a specific intervention to match an individual's needs. This also requires additional training and specialization for nurses working in the mental health field. Since nurses will be working closely with, and possibly on a one-on-one basis with individuals, there is an increased risk of transference and countertransference. Also, this process may have limited applicability for psychiatric emergency cases whereby the person poses a potential risk to oneself and/or to others. In cases like this where patients have limitations in making choices for oneself considering their lack of insight, the healthcare practitioner has increased responsibility, instead, to make executive life-saving decisions on behalf of the client. Moreover, additional efforts and patience is required in this approach considering the possible non-linear progression of clients and that the time

spent for each stage is unpredictable (Steele, 2023) . Furthermore, more efforts need to be directed to standardize the measures to be used in general and particularly in psychiatric and mental health nursing practice for identifying the specific stage the client is currently in as well as the corresponding practice guidelines (Raihan & Cogburn, 2021).

Advantages include creating empowered individuals who are committed and dedicated to create changes in their behaviors and lives. It is possible that long-term and more permanent positive changes can occur whereby clients can become future models of change, with reduced chances of relapse. Ultimately, if clients achieve more sustained change, this can eventually lessen the overall burden to the healthcare system, including the burden placed on the shoulders of the healthcare workers and family caregivers. Recovered clients can even help in facilitating change in other individuals who are ready to seek help and receive interventions. There can also be a more efficient utilization of human, information technology, and other resources as we match an individual's stage of change with a more

tailored intervention to match specific needs.

Summary and Recommendations for Further Research

This article presents a novel approach to psychiatric and mental health nursing care through the possible integration of the Transtheoretical Model (Stages of Change) alongside already existing, main mental health concepts such as self-awareness, therapeutic nurse-client relationships, and therapeutic milieu among others. In this integrated approach, the commitment, self-efficacy, and readiness to change of the individual is taken into consideration by identifying the stage of change that the client is in to match the intervention/approach with their specific needs and readiness. In this way, there is a shared responsibility between the individual and the nurse/healthcare practitioner.

Opportunities for further research include conducting a pilot study integrating

TTM in the nursing care of clients with mental health conditions. Second, researchers can formulate a nursing-centered stages of change screening tool that can be efficiently integrated in nursing practice. Third, researchers may conduct studies to identify if there are any gender differences in the use of TTM in mental health nursing. Fourth, researchers should explore the potential application of TTM to clients below 18 years of age and to those with limitations in speech and comprehension. Fifth, nurses may consider TTM's applicability to psychiatric emergency cases, if any, after stabilizing physiologic needs and ensuring the safety of patients and others around. Sixth, is to explore the implications of the other elements of TTM to nursing practice not highlighted in this article as follows: process of change, decisional balance, and self-efficacy.

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*Original article**Received: Apr. 8, 2022**Revised: May 20, 2022**Accepted: May 30, 2022**Published: June 7, 2022***Caregivers of Older Adults with Chronic Illnesses and Coping Strategies and Quality of Life: A Convergent Mixed Methods Study**Rungnapha Khiewchaum¹, Sarisa Wongprakod², Chanjira Hinkhaw¹,
Yosapon Leaungsomnapa¹¹Phrapokklao Nursing College, Faculty of Nursing, Praboromarajchanok Institute²Phrapokklao Hospital**Abstract**

Objectives: This study aims to develop a comprehensive understanding of coping strategies, quality of life (QoL), and its associated factors among caregivers of older adults with chronic illnesses. **Methods:** A convergent mixed methods approach was used. This study was conducted in a tertiary level hospital in Chanthaburi province, which is located in the eastern region of Thailand from February 1 to July 31, 2021. In total, 57 patient-caregiver dyads completed the Thai version of coping, and adaptation processing scale-short form (TCAPS-SF) to assess their coping strategies and the World Health Organization Quality of Life Assessment in Thai (WHOQOL-BREF-Thai) to assess their quality of life were measured. A sample of 57 caregivers participated in semi-structured face-to-face interviews. Data were analyzed using qualitative content analysis and correlation analysis. **Results:** The caregivers' mean age was over 40 years. Correlation analysis showed that the coping strategies had a moderate association with quality of life (QoL) ($r = 0.344$, $p < 0.01$). From qualitative findings, threatening coping factors (including avoidance state and alcohol drinking) and four enhancing coping factors (including community as assistance, self-encouraging activity, religious commitment, and positive perspective) were generated. The mixed analysis confirmed that coping strategies are associated with QoL. **Conclusions:** Caregivers of older adults with chronic conditions experience caregiving challenges resulting from their coping strategies that impact caregivers' QoL. Collaborative efforts are needed to create multifaceted interventions and programs to enhance caregivers' coping strategies as transitional care from hospital to home.

Keywords: Caregivers, Mixed-method designs, Quality of life, Coping strategies, Older adults

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Introduction

The global population aged 60 years or over numbered almost 962 million in 2017, which is more than twice as large as the population in 1980, in which there were 382 million people aged 60 years and older worldwide (United Nations, 2017). In addition, the number of older adults is expected to double again by 2050, which would be about nearly 2.1 billion (United Nations, 2017). The health status of older adults includes healthy and unhealthy persons. Older adults with unhealthy non-communicable diseases (NCD) may become dependent persons because of cognitive and functional impairment. They need to be cared for by family caregivers or non-family caregivers with many responsibilities. Caregiving tasks include assisting the dependent older person with activities of daily living, managing symptoms, providing emotional support, and coordination of care (Sklenarova et al., 2015). The caregivers' needs may be unmet, if caregivers cannot address these caregiving roles. As a result, the caregivers may struggle with caregiving issues and emotional problems (e.g., stress, depression, or anxiety).

One study showed that 69.1% of caregivers who cared for older adults with cancer and 54.1% of cancer patients were screened as positive for distress because of unmet needs of caregivers and older adults' symptoms (Sklenarova et al., 2015). A previous study reported that symptoms of depression were correlated with more unmet needs in both caregivers and older adults (Black, Johnston, Rabins, Morrison, Lyketsos, & Samus, 2013). Studies reported that 33% of caregivers needed help in accessing patients' information (e.g., alternative therapies, diagnosis, treatment, care, and rehabilitation) (Sklenarova et al., 2015; Li, Xia, Wang, Zhang, Liu, & Wang, 2017; Bierhals, Santos, Fengler, Raubustt, Forbes, & Paskulin, 2017). In addition, caregivers' needs are related to caregiving performance of instrumental-support activities (e.g., suctioning, dressing, bathing, toileting, medication care, and transfer), caregivers fear that they are failing their dependent, and financial expenses

(Rodrigues, Marques, Kusumota, Santos, Fhon, & Fabrício-Wehbe, 2013). Especially during the hospitalization period and the first month at home, not only do caregivers faced with sudden life changes, but they must rapidly learn the caregiving roles and how to perform new tasks depending on their dependent's needs (Bakas, Jessup, McLennon, Habermann, Weaver, & Morrison, 2016). After older adults are discharged, the needs of caregivers include emotional and psychological needs, supportive health care resources, and access to health services (Bierhals, Santo, Fengler, Raubustt, Forbes, & Paskulin, 2017).

However, on average, caregivers rated 22.4% of the presented needs as not met. The unmet needs of caregivers led to caregiving challenges (Sklenarova et al., 2015). A previous study reported that symptoms of depression were correlated with more unmet needs in both caregivers and older adults (Black, Johnston, Rabins, Morrison, Lyketsos, & Samus, 2013). Similarly, the needs of caregivers that may not be met include caregivers' limited understanding of diseases, as well as insufficient education, training caregiving tasks, and support in addressing the older adults with impairment (Bakas, Jessup, McLennon, Habermann, Weaver, & Morrison, 2016). The statistics on unmet needs of caregivers showed that 57% of caregivers of cancer patients had caregiving problems about the patients' physical or mental decline. Furthermore, 44.6% of caregivers reported managing concerns about recurrent cancer (Sklenarova et al., 2015). In addition, unmet caregiver needs are related to caregiver preparation, promoting the patient's function, and adapting to a caregiving role (Bakas, Jessup, McLennon, Habermann, Weaver, & Morrison, 2016). When caregivers encounter caregiving issues and unmet needs, they need to use several methods (e.g., coping strategies or problem solving) to maintain the quality of caring for older adults with chronic illnesses.

Caring for an older adult with chronic illness can be stressful and lead to negative emotional impacts for caregivers. Coping

strategies have a mediating role in consequence of caregiving-related stress, and they are used in managing stress for people (Lloyd, Muers, Patterson, & Marczak, 2019). Roy (2008) has defined and categorized different domains of coping strategies. Generally, coping is a behavior being expressed based on physical and psychological processes. Coping strategies used by caregivers when they care for older adults with chronic illnesses are considered caregiving-behavioral expressions. Using emotion-focused coping strategies (e.g., acceptance) has been related to lower levels of depression and anxiety in caregivers who care for persons with dementia (Li, Cooper, Bradley, Shulman & Livingstone, 2012). However, when caregivers use dysfunctional coping strategies, caregivers may feel increased burden and greater impact on their quality of life (QoL) (Lloyd, Muers, Patterson, & Marczak, 2019).

Caregivers are the backbone of the services provided to patients with chronic illnesses. However, caregiving tasks are known to reduce caregivers' QoL because caring for older adults with chronic conditions can be stressful. These responsibilities frequently symbolize a significant long-term burden (Kim, Spillers,

& Hall, 2012). Older adults' disability on hospital admission, length of stay (LOS), and disability and the length of stay in the hospital places undue strain on the caregivers and affects their quality of life. (Cramm, Strating, & Nieboer, 2012). In addition, caregivers' experience with caring for dementia patients is strongly correlated with their QoL (Takai, Takahashi, Iwamitsu, Oishi, & Miyaok, 2011). Similarly, the experience of wife caregivers is identified as a combination of anger, helplessness, guilt, and isolation. Caregivers lose freedom because they have less time for recreational and social activities, which impacts their QoL (Kumar, Matreja, Gupta, Singh, & Garg, 2012). Moreover, female and single caregivers have significantly higher QoL than male and married caregivers, especially if the LOS of older adults with chronic illnesses is shorter than six months (Ogunlana, Dada, Oyew, Odole, & Ogunsan, 2014). Supportive care needs can reduce the caregiving burden and improve the QoL of caregivers (Rha, Park, Song, Lee, & Lee, 2015). Early caregiver interventions directed at older adults' symptoms and caregiver support can also increase caregivers' QoL (Wadhwa, Burman, Swami, Rodin, Lo, & Zimmermann, 2013).

Objectives

To develop a comprehensive understanding of coping strategies and associated factors among older adults with chronic illnesses caregivers. The specific research question included:

- 1) What are the levels of coping strategies and QoL of caregivers of older adults with chronic illnesses? (Quantitative)
- 2) What is the relationship of QoL with coping strategies? (Quantitative)

Materials and Methods

A convergent-mixed method (Qualitative and quantitative) was appropriate to address the research questions. Sufficient weightage was provided to qualitative and quantitative phases as merge data (Creswell, 2015). For this methodology, qualitative and quantitative data were collected and analyzed simultaneously to conclude whether the results

- 3) What factors do caregivers of older adults with chronic illnesses identify as associating with their coping strategies? (Qualitative)

- 4) To what extent do the quantitative data about levels of coping strategies converge with or diverge from the qualitative data about caregivers' perceived factors affecting their coping strategies? (Mixed methods)

from each data source converged with or diverged from the other (Creswell & Plano Clark, 2018). This approach examined the relationships among coping strategies and caregiver factors and then provided context and meaning to the findings from participants' narrative reports of the whole experience of caring for older adults with chronic illnesses.

Setting and sampling

Data were collected in three intermediate care units in Prapokklao hospital Chanthaburi, Thailand, between February and July 2021. Convenience sampling was used to enroll the participants. A trained research assistant described the overview of the research and asked caregivers to participate and about their availability. The inclusion criteria were: a) being family caregivers (e.g., spouse, child, relative, and friends); b) being non-family caregivers who care for older adults with chronic illnesses for at least one month and live with older adults

at home before data collection; c) being willing to sign the informed consent form; d) no cognitive impairment. The Six-item Cognitive Impairment Test (6-CTT), ranging from 0 to 28 (high values mean cognitive impairment), was used to assess caregivers' cognitive status before interviewing caregivers. Fifty-seven caregivers were interviewed and their data were analyzed: 20, 20, 17 patient-caregiver dyads were from 1st intermediate unit, 2nd intermediate unit, and 3rd intermediate unit, respectively.

Data collection procedures

After providing informed consent, relevant caregivers were asked to participate in an individual, face-to-face narrative semi-structured interview (Durante et al., 2021). Qualitative enrollment was suspended after reaching the data saturation (at the 50th interview), which confirmed the Saunders criteria of theoretical saturation (Saunders et al., 2018). Interviews were performed by a

trained registered nurse. For the quantitative period, those caregivers who agreed to be interviewed were required to complete the questionnaires. Data were collected according to the time availability of the caregivers. A quiet area where the caregiver could be comfortable was used for the interview.

Ethical considerations

This study conformed with the Belmont Report and International Conference on Harmonization in Good Clinical Practice (ICH-GCP). The study was also approved by the Ethical Committee

Prapokklao hospital (COA no. 010/64). The informed consent forms were signed by caregivers before collecting data. Participation in this study was totally voluntary and unpaid.

Data collection instruments

A semi-structured interview guide was developed for an interview. There were two sections based on a literature review about caregivers. Two sections of qualitative questions included: 1) demographic data and 2) caregiving situation (e.g., coping strategies in caring for older adults with chronic illnesses, caregiving problems, and caregiving goals). The content validity index (CVI) of the caregiving-situation tool was used to evaluate the accuracy of the content of a questionnaire. In addition, the questionnaire was assessed by five nursing experts: 1) two senior professional nurses; 2)

two professional nurses; 3) an advanced practice nurse (APN). The CVI of this questionnaire was 0.85.

The quantitative variables coping strategies and QoL were measured using valid and reliable data collection instruments. The Thai version of coping and adaptation processing scale-short form (TCAPS-SF) was constructed based on the Roy adaptation model (Roy, 2008) and Roy's nursing model of cognitive processing (Chayaput, 2004; Roy, 2008; Roy & Andrews, 1999). This questionnaire assessed three modes of coping, including physiologic-physical, self-

concept, and interdependence (Chayaput & Roy, 2007). There were 27 items in the questionnaire, which were divided into four domains: 1) resourceful and systematic (eight items), 2) physical and fixed (six items), 3) positive and knowing (seven items), and 4) alert processing (six items). This measurement was used in caregivers who cared for disabled patients. The Cronbach's alpha correlation coefficient of the overall questionnaire in this study was equal to 0.88, and that of each domain ranged from 0.83 to 0.88 (Khiewchaum, Ngmkum, Kittitontkul, 2013)

The World Health Organization Quality of Life Assessment in Thai

Data analysis

We conducted a qualitative content analysis of the interview data using the seven-step process of Mayring (2014). Codes and categories were developed to help discussion among the research team. The structuring analysis of Mayring was completed. The category assignment was addressed before coding the text. The categories were based on those found in literature related to the study topic. Therefore, the outcome of this analysis is found in the conclusion of this article's text. Results were grouped in each category. Coding rules were prepared and combined by a research team.

Results

Demographic information

Demographic information of caregivers who accomplished both interviews and quantitative data and the older adults with chronic illness that they cared for are found in Tables 1 and 2. There were two groups of caregivers, including family caregivers and non-family caregivers. Family caregivers' mean age was over 40 years, and non-family caregivers' mean age was over 50. Half of the

(WHOQOL-BREF-Thai) was developed from WHOQOL-BREF. It includes four domains: 1) physical domain; 2) psychological domain; 3) social relationships; 4) environment. In addition, this questionnaire consists of 26 questions, the lowest score is 26, and the highest score is 130. There are three categories of QoL score: 1) low quality of life (26-60 score); 2) moderate quality of life (61-95 score); and 3) high quality of life (96-130 score). Cronbach's alpha correlation coefficient of the overall questionnaire in this measurement was equal to 0.8406, and reliability was 0.6515 (Mahatnirunkul et al. 1997).

The quantitative data were analyzed in SPSS 24.0 using descriptive statistics (e.g., mean and standard deviation). Pearson's correlation coefficient was used to determine the relationship between factors and outcome variables. In the mixed method analysis, the merging integration technique was used in comparing the qualitative and quantitative data after divided analysis. The quantitative and qualitative data were merged using joint displays to apply mixed meta-inferences (Dickson & Page, 2021).

family caregivers and non-family caregivers were 18-54 years old with no disease. Most of the caregivers were female. More than 60% of the relationship between caregivers and older adults were child-parent relationships. Fifty-seven percent of caregivers reported that they participated often in their religious commitment.

Table 1. Demographic information on family caregivers and non-family caregivers who are caring for older adults with chronic illnesses (n = 57)

Demographic information	Family caregivers (n=53, 97%)	Non-family caregivers (n=4, 3%)
Age (Years), Mean (SD)	44.02 (14.67)	52.75 (2.22)
Gender (n, %)		
Female	44 (83)	4 (100)
Male	9 (17)	0 (0)
Education level (n, %)		
Elementary	1 (1.9)	0 (0)
Junior high school	14 (26.4)	2 (50)
Senior high school	11 (20.8)	1 (25)
Vocational school	9 (17.0)	1 (25)
Vocational Diploma	3 (5.7)	0 (0)
Bachelor's degree	2 (3.8)	0 (0)
Master's degree	12 (22.6)	0 (0)
Doctoral degree	1 (1.9)	0 (0)
Not enough	26 (49)	1 (25)
Marital status (n, %)		
Single	11 (20.8)	1 (25)
Married	36 (67.9)	2 (50)
Widowed/Divorced	4 (7.5)	1 (25)
Separated	2 (3.8)	0 (0)
Religious commitment (n, %)		
Often	30 (56.6)	2 (50)
Intermediate	11 (20.8)	1 (25)
Less	11 (20.8)	1 (25)
None	1 (1.9)	0 (0)
Relationship to patients		
Spouse	6 (11.3)	0 (0)
Sibling	1 (1.9)	0 (0)
Child	33 (62.3)	0 (0)
Relative	13 (24.5)	0 (0)
Other	0 (0)	4 (100)
Caregiving time		
Hour/day, Mean (SD)	12.83 (7.07)	0.5 (1.00)
Day/week, Mean (SD)	6.4 (1.59)	1.75 (3.50)

Table 2. Demographic information on older adults with chronic illnesses that were cared for by family and non-family caregivers (n = 57)

Demographic information	Family caregivers (n=53, 97%)	Non-family caregivers (n=4, 3%)
Age (Years), mean (SD)	75.79 (10.60)	78.75 (9.74)
Gender (n, %)		
Female	21 (39.6)	0 (0)
Male	32 (60.4)	4 (100)
Marital status (n, %)		
Single	3 (5.7)	0 (0)
Married	39 (73.6)	4 (100)
Widowed/Divorced	5 (9.4)	0 (0)
Separated	6 (11.3)	0 (0)
Diagnosis (n, %)		
Pneumonia	13 (24.5)	0 (0)
Respiratory failure	3 (5.66)	0 (0)
Heart disease	7 (13.20)	0 (0)

Demographic information	Family caregivers (n=53, 97%)	Non-family caregivers (n=4, 3%)
Diabetes	3 (5.66)	0 (0)
Stroke	5 (9.43)	1 (25)
Renal failure	1 (1.88)	1 (25)
Plural effusion	1 (1.88)	0 (0)
Multiple conditions	16 (30.18)	2 (50)
Other	4 (7.55)	0 (0)

Quantitative findings

Quantitative descriptive results are presented in Table 3. The mean coping strategies score was 83.47 (SD =1.06), indicating participants had a coping strategy start level in Table 4. The mean score for QoL was 88.70 (SD =1.64), which showed that caregivers had high levels of QoL. Pearson's correlation analysis was performed on a

sample of 57 caregivers in Table 5. The correlation analysis showed that the TCAPS-SF scores (coping strategies) were moderately associated with the WHOQOL-BREF-Thai score, which assessed quality of life ($r = 0.344, p < 0.01$).

Table 3. Quantitative results from questionnaires on coping strategies and quality of life among interviewed caregivers (n=57)

Variables	Mean Score	Median	Minimum	Maximum
TCAPS-SF ¹	83.47	85.00	61.00	103.00
WHOQOL-BREF-Thai ²	88.70	89.00	69.00	116.00

¹Thai version of Coping, and Adaptation Processing Scale-Short Form (TCAPS-SF)

²World Health Organization Quality of Life Assessment in Thai (WHOQOL-BREF-Thai)

Table 4. Level of TCAP-SF and WHOQOL-BREF scores of caregivers of elderly with chronic illness (n=57)

Level	TCAP-SF ¹ (n, %)	WHOQOL-BREF ² (n, %)
High	52 (91.2)	21 (36.8)
Moderate	5 (8.8)	35 (61.4)
Low	0(0)	1 (1.8)

¹Thai version of coping, and adaptation processing scale-short form (TCAPS-SF)

²World Health Organization Quality of Life Assessment in Thai (WHOQOL-BREF-Thai)

Table 5. Pearson correlation coefficient and p-value for correlation between TCAPS-SF and the WHOQOL-BREF-Thai

Variables	TCAPS-SF ¹	WHOQOL-BREF-Thai ²
TCAPS-SF	1	0.344**
WHOQOL-BREF-Thai		1

** $p < 0.01$

¹Thai version of Coping, and Adaptation Processing Scale-Short Form (TCAPS-SF)

²World Health Organization Quality of Life Assessment in Thai (WHOQOL-BREF-Thai)

Qualitative findings

Interviews created 75 pages of transcriptions. The time length of the interviews ranged from 15 to 45 minutes.

Themes

The qualitative data were grouped into two key categories: 1) threatening coping factors, including avoidance state and alcohol drinking, and 2) enhancing coping factors,

including community assistance, self-encouraging activity, religious commitment, and positive perspective.

Threatening coping factors

Avoidance state. When family members need to be caregivers, they have negative caregiving experiences that affect their physical and emotional well-being.

The caregivers feel suffering, frustration, and burden concerning their

family and personal situation. Caring for older adults exceeded their capability to maintain their balance life. One of the caregivers stated that:

"I cannot care for dad because I also need to care for my little daughter. My younger sister is single; she was able to care for dad better than me."

(1st intermediate unit, daughter, 5)

Alcohol drinking. The caregivers have caregiving frustration. They thought that there was no family support, and thus they felt lonely and stressed. Also, they could not address big caregiving challenges. They also could not do

anything to balance the circumstance. Consequently, caregivers would like to temporarily stop thinking about caring for their older parents by consuming alcohol.

"I knew it was my duty, but it is a big problem because we have no money to care for my mom. Usually, I drink alcohol; that is my best friend when I could not address mom's problems."

(2nd intermediate unit, son, 10)

Enhancing coping factors

Community obligation. Community obligation is one of the caregiver factors that enabled caregivers to find both physical support (e.g., helping to manage for older adults, and caregivers can take a break) and psychological support (e.g., talking to relieve their stress) to help them care for older adults.

In addition, community assistants (e.g., family members, friends, relatives, neighbor, or healthcare providers) help motivate caregivers and the help of community assistants, the caregiving activity can be more evenly distributed and there is not reliance on only one caregiver

"I am lucky because I have my sibling and family that support me in caring for my dad." (1st intermediate, sibling, 15)

"My older sister supported me by expending money on caring for our dad. I could find out and hire a caregiver to help me care for my mom because I cannot do it by myself."

(3rd intermediate, daughter, 8)

"When I have caregiving issues, I could consult nurses or physicians."

(2nd intermediate, spouse, 11)

Self-encouraging activity.

Caregivers noted that self-comforting activities are a temporary caregiving solution because they take a break from a stressful situation and

they can relax. Trivial or recreation activities included talking with family, watching TV, listening to music, gardening, or fishing.

"When I am stressed, I want to hang out outside my home, such as fishing."

(1st intermediate, daughter, 7)

"I like to listen to songs that help me release my stress, and I feel bored and exhausted when I care for my dad every day. I want a little time to have personal time."

(3rd intermediate, daughter, 19)

Religious commitment.

Thai caregivers use religious principles when they have a crisis or stressful challenge. Using Buddhist principles could support or guide

caregivers to maintain their lives in caregiving situations.

*"I use **THAMMA** to release my stress because my dad died two years ago, and I don't see my mom die."*

(2nd intermediate, daughter, 9)

"It is a life cycle; if my brother dies, I am ok."

(3rd intermediate, sibling, 5)

Filial outlook.

In Thai society, caring for older parents is a family responsibility. It is imposed on adult children as a caregiving duty because of a sense of filial values, cultural commitment, and family duty. However, if children ignore caring

for their parents or have no requital activities, they become bad children.

"It is my responsibility because my mom perfectly nurtured me. So, I should reciprocate."

(1st intermediate, daughter, 14)

Mixed methods analysis

Qualitative and quantitative data provided a greater understanding of the factors related to coping strategies. The quantitative findings showed that WHOQOL-BREF scores were significantly associated with coping strategies ($p < 0.05$). The qualitative themes confirmed the quantitative findings and expanded on the

results. Integrated qualitative and quantitative data were produced. There were four confirmed findings and two expanded results. Finally, the quantitative data did not identify complete coping enhancing factors. Table 6 reported a joint display of factors associated with coping strategies based on the integrated analysis.

Table 6. Joint display integrating quantitative and qualitative data to depict factors affecting coping strategies among caregivers (n=57) of older adults with chronic illness

Quantitative	Qualitative	Mixed meta-inferences
WHOQOL-BREF ¹ score had a moderate association with coping strategies score ($r = 0.344$, $p < 0.01$)	Community obligation. Caregiving challenges and uncertain situations increase caregivers' hopelessness and powerlessness. Caregivers need to keep community relationships (e.g., friends, partners, neighbors, or healthcare providers) because it could increase their motivation and ability in caring for older adults. Also, community networks' physical, emotional, and financial support could help caregivers maintain their lives in caring for older parents in long-term care. Self-encouraging activity. Caregivers would like to have little personal time to relax from crises leading to negative feelings (e.g., loneliness, powerlessness, fatigue). Self-care and comfortable	Confirmed. Hopelessness, distrust, and financial issues affect their well-being. Continuous fluctuations in caregiving situations could increase both physical and emotional problems for caregivers, impacting older adults. Therefore, effective caregiving maintenance could be supported by community partners to preserve caregivers' physical, emotional, and social well-being and quality of care after older adults are discharged. Confirmed. Caregivers designing self-care and comforting actions (talking to friends, fishing, or cleaning house) by themselves could increase their personal satisfaction during uncertain situations.

Quantitative	Qualitative	Mixed meta-inferences
	activities might relieve their negative emotions.	These strategies can help maintain their balance in life and improve physical, psychological, social, and environmental well-being.
	Religious commitment. Thai caregivers use the Four Noble Truths (Dukkha, Samudaya, Nirodha, and Magga) to guide their lives when they experience suffering many times. While they could not avoid or do anything about it, they have to accept the challenges of caregiving and keep going.	Expanded. Caregivers experienced overwhelming caregiving issues. Some felt loneliness and powerlessness. Some caregivers would like to find out effective coping strategies that could permanently address their feelings (e.g., depression, anxiety, or fatigue). Using Buddhist principles and meditation could change caregivers' negative thoughts and feelings. Thai caregivers could learn to see that they have or occur difficulties in their own lives. Using Buddhist rules could guide their emotions and control negative thoughts, increasing caregivers' physical and emotional well-being.
	Filial outlook. In Asian culture, being a child means completed obedience and caring for one's parent for a lifetime. The child needs to take the best possible care of an older parent. Caregiving responsibility might be filial conduct in Thai culture. Therefore, caregivers, especially adult children, accept this responsibility and maintain this duty as a child	Expanded. Quantitative data did not include a filial factor related to coping strategies or QoL. However, the qualitative results suggested that a greater sense of filial perspective in Eastern culture promoted coping strategies and increased physical and psychological well-being in caregivers.
	Avoidance state. Caregivers need to play a caregiving role that is unplanned. They thought caring for older adults with severe chronic conditions was suffering and a burden. They took to escape from difficult thoughts and feelings.	Confirm. Caregiving situations being uncertain and fluctuating might affect caregiver coping and adaptation due to lack of caregiving experience as novice caregivers . Those caregivers felt caregiving responsibility increased their exhaustion and burden, and they could not address it. They chose negative coping by avoiding their caregiving work. It impacted family relationships. If caregivers often used this strategy, causing social problems.
	Alcohol consumption. When older adults need to have someone caring for them, family members might become caregivers. Caregiving work creates a huge burden. It can also result in physical and emotional problems. their stress. Alcohol consumption was selected to escape and avoid unpleasant problems.	Confirm. Caregivers perceived that the caregiving situation was a crisis. Caring for older adults causes stress and exhaustion. Caregivers would like to relieve their stress. Caregivers drank alcohol because drinking helped to alleviate their negative feelings.

¹World Health Organization Quality of Life Assessment in Thai (WHOQOL-BREF-Thai)

Discussion

This study reported a comprehensive understanding of factors affecting coping strategies of caregivers of older adults with chronic illnesses from the Eastern region of Thailand. The mixed analysis confirmed that

major factors affecting caregivers' QoL were coping strategies which included avoidance state, alcohol consumption, community obligation, self-encouraging activity, religious commitment, and filial outlook.

Both the qualitative and quantitative findings supported these factors. The qualitative results provided an additional understanding of the factors that could not have been accomplished through only quantitative findings.

While caregiving issues increase hopelessness and powerlessness in caregivers, having effective coping strategies helped address caregiving challenges. Previous research has not looked at this complex relationship between many factors: community obligation, self-encouraging activity, religious commitment, filial outlook, avoidance state, and alcohol consumption. Previously, these factors have been insufficiently conceptualized in the coping strategies of caregivers of older adults with chronic illnesses. Therefore, future research could examine and understand the meaning and association of these factors toward coping strategies for elderly with chronic conditions based on the findings of this study. A greater understanding of threatening coping factors could describe the conceptual basis for creating approaches to foster and improve caregiver coping strategies. A previous study demonstrated that caregivers of the elderly with prostate cancer who used avoidance type coping had worse QoL because of behavioral and emotional disengagement (Kumar, Kaur, & Reddemma, 2015; Rodríguez-Pérez, Abreu-Sánchez, Rojas-Ocaña, & Del-Pino-Casado, 2017; Matovu & Wallhagen, 2020). Therefore, there should be a future study to examine how alcohol consumption, which is a negative coping strategy, affects the quality of life of caregivers.

Moreover, our study provided and expanded some understanding about the possible targeted areas to improve coping enhancing factors of caregivers of older adults with chronic illnesses. As positive factors, community obligation related to

social support was studied. A previous study noted that caregivers using socially supportive coping could deal with caregiving situations because social support assisted them with instrumental caregiving tasks (e.g., suctioning, feeding, or dressing) and for emotional reasons (Anjos et al., 2015). Likewise, factors influencing the coping patterns of primary informal dementia caregivers included having domestic assistants was associated with increasing QoL. (Tay, Seow, Xiao, Lee, Chiu, & Chan, 2016; Yuan et al., 2021). A previous study reported that proving spiritual support can improve physical and mental well-being. Yet deprivation of emotional and social support can impact physical and mental health resulting from cultural values and norms (Xie, Cheng, Tao, Zhang, Robert, Jia, & Su, 2016).

However, less research has examined how religious commitment and filial perspective are related to coping strategies of caregivers of older adults with chronic illnesses. Therefore, future research should examine the relationship between religious context and filial attitude with coping strategies in caregivers of older adults with chronic illnesses. Also, the research could emphasize developing and evaluating interventions based on negative and positive coping strategies used by caregivers. Healthcare providers can utilize community networks to prepare and teach caregivers about caregiving instruments, nursing skills, and caregiving knowledge during the transitional period from hospital to home. Current research demonstrated that using telehealth (e.g., telemedicine or telenursing) was beneficial and feasible because increasing caregivers' skills and knowledge can improve coping strategies (Graven, Glueckauf, Regal, Merbitz, Lustria & James, 2021).

Conclusions

Caregivers of older adults with chronic illnesses experienced uncertain and fluctuating situations impacting their coping and adaptation leading to poor QoL. This study demonstrated that threatening coping

factors such as avoidance state and alcohol consumption lead to negative adaptation. However, positive coping factors (including community obligation, self-encouraging activity, religious commitment, filial

outlook) improves caregivers' coping strategies. Future research should build transitional care interventions and program to

improve caregivers' coping strategies and QoL by targeting the factors identified in this study.

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*Original article**Received: Jan. 28, 2022**Revised: May 20, 2022**Accepted: May 25, 2022**Published: June 7, 2022***The Effectiveness of the Group Psychological Counseling Model to Enhance Psychological Well-Being of Elderly in Yala Province, Thailand**Ubontip Chaisang¹, Nitipat Mekkhachorn², Niwat Chaisang¹, Thitika Kimse¹
¹Sirindhorn College of Public Health, Yala, Faculty of Public Health and Allied Health Sciences, Praboromarajchanok Institute²School of Educational Studies, Sukhothai Thammathirat Open University**Abstract**

This mixed-method study aimed to evaluate the effectiveness of the group psychological counseling model for enhancing psychological well-being of elderly in Yala Province, Thailand. The experimental group consisted of 8 elderly people selected by multi-stage and purposive sampling. Research instruments comprised; psychological well-being questionnaires for the elderly people with the reliability of 0.77, the psychological counseling model with the IOC ranged from 0.60 – 1.00, and items for a focus group discussion. Data were analyzed by using Friedman and Wilcoxon signed-rank test including content analysis. The findings revealed that the mean scores of psychological well-being of the elderly were higher after participating in group counseling and the follow up were 4.11, 5.13 and 5.29, respectively. The mean scores Psychological well-being of the elderly were different between before counseling, after participating in group counseling and the follow up ($\bar{X} = 14.250$, $p < .001$). Focus group report of the elderly who attended the group counseling model showed that they were satisfied with the group counselling model as they had opportunity to freely express and exchange their ideas within the group members and satisfied with the model and applied to living well. The study found group psychological counseling model results in a statistically significant and influences the level of psychological well-being of the participants for enhancing psychological well-being of elderly in Yala Province, Thailand. The study findings could be utilized as the baseline data for enhancing psychological well-being of elderly in the community to develop the plan for improving the quality of life of the elderly. Furthermore, the findings could be used for developing the guideline for providing the service which met the needs of the elderly.

Keywords: Psychological counseling model, Well-being, Elderly group**Corresponding author:** Ubontip Chaisang, E-mail: ubontip20@hotmail.com

Introduction

Thailand's demographic structure is changing to an aging society since 2005, where the proportion of the population aged 60 years and over reaches 10 percent, increasing at a faster rate of more than 4 percent per year and is moving towards an aging society. The proportion of the population aged 60 will reach 20 percent in 2021, which will be the ultimate aging society when the proportion of the population aged 60 and over reaches 28 percent by 2031. (Foundation of Thai Gerontology Research and Development Institute, 2016). There are various aspects appear to come along with the increasing numbers of elderly, for instance, socio-economic and health issues, due to the fact that chronic health conditions related to age lead the most elders to be dependent people. Also, the chronic diseases affect routine and daily life of these elders. Eventually, elderly abandonment may occur and will be the big issue in the future (Pisutthipa, M. 2011).

Psychological well-being plays an important role since it reveals individual perception and environment (Ryff & Keyes, 1995). According to the survey of the Foundation of Thai Gerontology Research and Development institute (TGRI), improving individual psychological well-being is essential, especially in Thai elderly group as their level of psychological well-being is low comparing with other groups. The results of the survey illustrated that the means score of psychological well-being in one-third of Thai elders was lower than the means score of all age group (Foundation for Thai Elderly Research and Development Institute Annual Report, 2014). In addition to the survey, Thai elders dwelling in the Southern Border Provinces have been facing with the non-peaceful situation that could be occurred at any given moment and cannot be rule out. These are one of the main causes affecting quality of life including mental health of the elders in this area (Thongdee, J., Rongmuang, D. & Nakchattree, C., 2013).

The situation of elders in the Southern Border Provinces is considered according to the socio-economic context of the area. Most elders usually have to stay alone during the daytime in weekdays in their residential areas. Many of them still have burden on taking care of their grandchildren, Some of which still work themselves for living (Yala Municipality, 2013). The life context including their health conditions could affect the mental health of these aged people leading them feeling worthless. For these reasons, promoting psychological well-being for elders in this area is essential to prevent upcoming mental health issues that could be occurred in this aged group (Wongpanarak, N., 2013).

Psychological counselling is the process that could help people with mental health issues. Group counseling is the process that could help clients having mental issues by counseling in the form of group. Health providers as counselors provide opportunity to their clients to freely express their feeling. They also provide important information regarding the way to release stress, coping or addressing with the emotional consequences (Wongthim, S., 2011). Consequently, this approach could help clients especially elders in Yala Province, Thailand to continually develop their mental health. These elders not only have physical and mental health issues from their health conditions, but also have physical and mental health consequences from the non-peaceful situation. These problems seem very complicated to address (Rattanadilok, P, 2013).

For these reasons, the researchers intend to study regarding the effectiveness of the group psychological counseling model for enhancing psychological well-being of elders in Yala Province, Thailand. The results could be applied to institutes that have a role in caring elderly people as the way to care this group of people. Also, the findings could be continued as health innovation for caring elders in the future.

Research objectives

To evaluate the effectiveness of a group psychological counseling model for

enhancing psychological well-being of elders in Yala Province, Thailand.

Research methods

The current study applied mixed-method approach consisting of quantitative and qualitative study. With regard to quantitative study, a quasi-experimental design was used to compare means between before experiment, after experiment, and follow-up period (4 weeks after experimental termination). The 8 participants attended in the experiment 9 sessions, 90 minutes per session and were evaluated psychological well-being 3 sessions mentioned earlier. Data were collected in June-August 2017. For the qualitative approach, focus group discussion was used only in the follow-up period (4 weeks after experimental termination). Research instruments were 1) Psychological well-being evaluation form adopted from

concept of psychological well-being (Ryff, 1989; Ryff & Keyes, 1995) and 2) questionnaires with rating scale and 6-point Likert Scales which the researcher has developed to suitable for the context of the elderly in the southern border provinces of Thailand Based on the Riff and Keyes concept of mental health (Ryff, 1989; Ryff & Keyes, 1995) and contextual studies in the researcher's area 3) Group interview questions, and 4) the group psychological counseling model with model evaluation form - 32 questionnaires - for evaluating the model. The Item Congruence (IOC) of the model was between 0.60 – 1.00 and the reliability coefficients was 0.77.

Population and sampling

Target population in this study was people aged 60 years old and older dwelling in Yala Province, Thailand. The 8 participants participated in the study were selected by using multi-stage random

sampling and purposive sampling. The inclusion criteria including elders considering health condition and those who were willing to participate in the study.

Table1 Group Psychological Counseling Model

Steps in the counselling process	Themes in counselling	Objectives	Counselling theory and framework
Create a group	Orientation “Glad to meet you”	To enhance positive relationship and trust between counsellors and group members as well as among group members by providing information regarding psychological well-being and advantages of attending in the project.	Client-Centered Counseling 1. Unconditional positive regard 2. Empathy listening 3. Clarifying
Create a group	Promoting psychological well-being for elders in terms of building good relationship with others and attentive listener “Magic umbrella”	To enhance positive relationship between counsellors and group members and to provide the essential information leading the member to find themselves.	1. Transactional Analysis 1.1 Questioning technique 1.2 Identifying technique 1.3 Structural analysis techniques 1.4 Explanation 2. Client-Centered Counseling 2.1 Empathy listening 2.2 Reflection technique

Steps in the counselling process	Themes in counselling	Objectives	Counselling theory and framework
Breaking the ice	Promoting psychological well-being for elders in terms of building positive relationship with others and focusing on creating a trust. "Having a trust and come together"	To enhance awareness of a group member regarding the importance of trust and learning the way to trust others.	1. Transactional Analysis 1.1 Examples of context clues 1.2 Explanation 1.3 Interpretation techniques 2. Client-Centered Counseling 2.1 Questioning technique 2.2 Summarizing technique 3. Gestalt therapy using role play
Breaking the ice	Promoting psychological well-being for elders in terms of being autonomy "I am confident in myself"	To enhance awareness of a group member regarding the importance of being yourself. The member could learn about how to open mind with others, how to be yourself, and how to understand yourself.	1. Theory of existentialism 1.1 Building self-awareness 1.2 Explanation 1.3 Questioning technique 2. Gestalt therapy using Round Robin 3. Client-Centered Counseling using unconditional positive regard
Action	Promoting psychological well-being for elders in terms of ability to adjust environment "Empty chair"	To enhance awareness of a group member regarding the importance of adjusting environment. The member could learn about how to adjust him/herself with the different environment and understand the world that we live in differently.	1. Gestalt therapy using the Empty Chair Technique 2. Client-Centered Counseling 1) Listening technique 2) Summarizing technique
Action	Promoting psychological well-being for elders in terms of thinking for the future "life expectation"	To enhance awareness of a group member regarding the importance of life expectation including understanding the meaning of life	1. Theory of existentialism 1.1 Literacy techniques 1.2 Questioning technique 2. Client-Centered Counseling 2.1 Summarizing technique 2.2 reflection of feeling
Action	Promoting psychological well-being for elders in terms of having life goals "Follow the dream"	To enhance the group members for having awareness and considering their life goals including learning about how to create their life goals and thinking of prosperity of life.	1. Theory of existentialism using interpretation techniques 2. Group counselling using reflection of feeling 3. Gestalt's model of imaginary
Action	Promoting psychological well-being for elders in terms of individual development "Open mind for the new experience"	To enhance awareness of self-efficacy and individual development for learning and opening the new experience leading to individual development	1. Theory of existentialism 2. Literacy techniques 3. Questioning technique 4. Client-Centered Counseling using reflection of feeling
Experimental termination	Post training	To provide opportunity for group members to think and summarize their experiences, and advantages from participating in the group counseling model. Also, to think about the implication for their daily life. Moreover, the researchers evaluated the psychological well-being of the participants after attending the program for the study findings.	1. Client-Centered Counseling using reflection of feeling 2. Theory of existentialism 2.1 Questioning technique 2.2 Literacy techniques

Data analysis

1. Friedman and Wilcoxon signed-rank test were used to compare the evaluation of mental status of the participants participated in the study during the time before participation, follow-up period, and after participation.

2. Content analysis was used in order to analyze the collected data from note-taking, observation and focus group discussion.

Research ethics

This study was approved by Research Ethics Committee of Sirindhorn College of Public Health, Yala. The IRB approval number is 094/2559. During the time of data collection, the researchers conserved a right of a participant who gave information and was interviewed.

The researchers initially introduced themselves and, then, explained a study method, the research objectives of this study, measures taken to ensure confidentiality including data protection, and the risk and benefits of the study.

Results

Table 2 Comparing means of psychological well-being of the participants between before experiment, after experiment, and follow-up period

Item	Means of psychological well-being					
	Before experiment		After experiment		Follow-up period	
	\bar{X}	SD	\bar{X}	SD	\bar{X}	SD
1	4.5	1.33	5.16	1.00	5.13	0.99
2	4.87	1.17	5.61	0.72	5.71	0.65
3	4.34	1.10	5.21	0.66	5.34	0.63
4	3.95	1.23	5.13	0.66	5.34	0.71
5	4.00	1.79	5.05	1.09	5.21	1.09
6	3.50	2.17	4.92	1.10	5.21	1.04
7	3.55	1.18	4.97	0.79	5.24	1.00
8	4.21	1.49	5.00	1.04	5.16	1.00
Overall means	4.11	1.43	5.13	0.88	5.29	0.88

The table 2 shows that the mean score of the psychological well-being of the participants after the experiment ($\bar{x}=5.13$)

and in the follow-up period ($\bar{x}=5.29$) were higher than before the experiment ($\bar{x}=4.11$) at 0.05 level of significance.

Comparing the mean score of the psychological well-being between before the experiment, after the experiment, and during the follow-up period

The results from data analysis revealed that means of psychological well-being of participants between before the experiment, after experiment, and during the

follow-up period were statistically significant ($\bar{X} = 14.250$, $p < .001$) as showed in table 3.

Table 3 Comparing means of psychological well-being between before experiment, after experiment, and follow-up period using Friedman Test

Factors	Themes in counselling	N	Mean	SD	Mean Rank	Chi-Square	Sig.
Positive relationship with others	Before experiment	8	4.4625	.63419	1.00	12.452*	.002
	After experiment	8	5.3400	.38940	2.44		
	Follow-up period	8	5.4288	.21451	2.56		
Autonomy	Before experiment	8	3.5250	.66708	1.00	14.250*	.001
	After experiment	8	4.6500	.39641	2.13		
	Follow-up period	8	5.4750	.42678	2.88		
Environmental mastery	Before experiment	8	4.2725	.71829	1.19	11.267*	.004
	After experiment	8	5.3100	.33903	2.81		
	Follow-up period	8	4.9163	.36656	2.00		
Purpose in life	Before experiment	8	3.8038	.71845	1.00	15.548*	.000
	After experiment	8	4.9075	.34972	2.06		
	Follow-up period	8	5.2863	.34994	2.94		
Personal growth	Before experiment	8	4.1788	.60072	1.13	9.742*	.008
	After experiment	8	5.2688	.31041	2.56		
	Follow-up period	8	5.1975	.34972	2.31		
Summary	Before experiment	8	4.0488	.52453	1.00	14.250*	.001
	After experiment	8	5.0963	.24865	2.13		
	Follow-up period	8	5.2600	.22678	2.88		

* $p < .05$

Table 3 presents that means of psychological well-being of participants during the time of before the experiment, and after the experiment were statistically significant ($\bar{X} = 14.250$, $p < .001$). This means that the group psychological

counseling model influences the level of psychological well-being of the participants.

The researcher continually compared between the components of psychological well-being by using multiple comparison with Wilcoxon Signed Ranks Test presented as table 4.

Table 4 The results of multiple comparison using Wilcoxon Signed Ranks Test comparing between the components of psychological well-being

Factors	Comparison of pairs	N	Z	Sig.
Positive relationship with others	Before and after experiment	8	2.527*	.012
	Before experiment and follow-up period	8	2.524*	.497
	After experiment and follow-up period	8	0.679	.497
Autonomy	Before and after experiment	8	2.530*	.011
	Before experiment and follow-up period	8	2.524*	.012
	After experiment and follow-up period	8	2.395*	.017
Environmental mastery	Before and after experiment	8	2.521*	.012
	Before experiment and follow-up period	8	2.028*	.043
	After experiment and follow-up period	8	2.032*	.042
Purpose in life	Before and after experiment	8	2.527*	.012
	Before experiment and follow-up period	8	2.521*	.012
	After experiment and follow-up period	8	2.388*	.017
Personal growth	Before and after experiment	8	2.524*	.012
	Before experiment and follow-up period	8	2.383*	.017
	After experiment and follow-up period	8	0.254	.799
Summary	Before experiment and follow-up period	8	2.521*	.012
	After experiment and follow-up period	8	2.521*	.012
	After experiment and follow-up period	8	1.960	.050

* $p < .05$

The table 4 presented that the mean score of the psychological well-being of the participants after the experiment and in the follow-up period were higher than before the experiment at 0.05 level of significance.

2. The results from focus group discussion showed that the participants were satisfied with the group counselling model as they had opportunity to freely express and exchange their ideas within the group

Positive relationships with others

The results from attending group counselling model 9 sessions in total of the participants showed that promoting psychological well-being to elders in terms of building good relationships with others could be able them to have positive relationships with others. It could be noticed that before the experiment, the participants did not prefer to know each other or concern for others. Since

members. Also, this method provided them to enquire what they need to know and understand their situation. These led the participants to understand their life goals, trust others, proud to be themselves, and apply these to their routine and daily life. The themes and excerpts below illustrate the important findings from focus group discussion after the experiment and in the follow-up period as follows:

the first time they met each other in the same group during orientation, they could build the relationships within the group members. They rather understand and concern for others. Every single time of group counselling, the elders gradually increased their awareness regarding advantages of trusts, helping others, and more understand regarding how to act as a giver or a receiver

The example of excerpt in terms of improving positive relationships with others

“ I think that participating in this activity could help me feeling happy. This is because previously I feel alone. First time when I met the group members, I felt shy to

talk with them because I don't know about them. But when I started to talk with them, you know I then felt more understand about them.

The components of autonomy

The results from the focus group discussion illustrated that after attending the group psychological counseling in terms of being autonomy, the participants pointed out that their ability of being autonomy was

improved. They also described that 9 sessions of participation as the group members enhanced their ability to make a decision, explore themselves to others, and understand and respect themselves and others.

The example of excerpt in terms of improving autonomy

“ Since I have done this activity with you, I feel more confident in myself. Previously, before doing something, I have to consult others about what I have to do or how

can I make a decision. Now I am confident to tell others what I want. It doesn't mean that I don't listen to others. I just can tell others what I want to do or what I think”

Implication of the study

1. The psychological well-being form could be applied as a tool for evaluating mental health conditions or psychological well-being in elders living in the similar context, or dwelling in the same region. Also, this could be applied in elders in special conditions, for example, elderly people with chronic diseases, dependent elders, or vulnerable elders, by adjusting questions

based on differences of socio-cultural context.

2. In addition to applying the model in elderly group, the psychological counseling model could be applied to another group of people in the different areas and context by considering the context of target area and practice the group counseling before conducting the study.

Discussion

The mean score of the psychological well-being of the participants before experiment, after experiment, and follow-up period were statistically significant ($\bar{X} = 14.250, p < .001$). That would mean a good effectiveness of psychological well-being model and influences the level of psychological well-being of the participants for enhancing psychological well-being of elderly in Yala Province, Thailand. Also, the mean score of the psychological well-being of the participants after the experiment and in the follow-up period were higher than before the experiment at 0.05 level of significance. These were consistent with the point of view according to the results from the focus group discussion. Most participants illustrated that they are satisfied with the group counseling as they have opportunity to freely express how they feel, what they need, and so on. These could help them to understand others, plan their life goal, be autonomous, and create a trust. The participants could apply what they receive from attending the group counseling in the daily life. Consistent with the study of Sangarun, C. (2014) the group psychological counseling could promote participants to recognize and accept their

emotional consequences and idea leading to the ability of decision making and creating their life goals. Also, these could encourage the participants to build their relationship with others and try to have the new experiences which lead them to achieve their life goal.

Furthermore, there are some supporting factors affecting the effectiveness of the group psychological counseling model. One of which is that the participants live in the same area. Consequently, the participants could easily build their relationship with the other group members. Also, the appropriate time and place could encourage the participant to participate in the study. The place was convenient for the participants as the group counseling were conducted in the first floor of Public Health Center 3, Yala Municipality. Also, the time of counseling was not the working and prayer time of the participants (between 13.00 – 14.30). Consistent with the study of Thongdee, J., Rongmuang, D. & Nakchattree, C., (2013). Studying about health status, and quality of life among elders in Yala Province, Thailand, they found that health promotion planning for elders in Yala Province, Thailand needs to be appropriated with the socio-cultural context of the clients.

Suggestions

1. The future study should compare between two groups, control group and experimental group, for testing the effectiveness of the model.
2. The participants should be followed up for 3 months and 6 months after the experiment.

3. The results should be expanded to another group, for instance, patients with chronic illness, elders in the rural areas, vulnerable group, and so on, for enhancing their psychological well-being appropriated with their context.

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*Original article***Nurses' Experiences in Effective Communication with Dementia***Received: Mar. 18, 2022**Revised: May 20, 2022**Accepted: May 26, 2022**Published: June 7, 2022*Phanit Leecharoen¹, Yuwanida Aramroom¹, Surasak Puthiwanit¹,Kesinee Bauchean¹, Yuwanida Aramroom²¹Boromarajonani of Nursing Songkla, Faculty of Nursing, Phraboromrajchanok
Institute ²Songkla Hospital**Abstract**

Effective communication is important for understanding a patient's needs. There were yet, a few studies that explored experiences communicating effectively with older people with dementia in an Asian context. This qualitative study explored nurses' experiences of effective communication for older people with dementia. The criterion sampling method was used to select seven nurses with more than five years of experience in dementia clinic. The nurses who assented to participate in this study were included. A semi-structured in-depth interview was chosen for collecting the data. The findings from content analysis found the main categories of nurses' experiences in effective communication were: using techniques, considering individual differences, nurses' politeness, and creating familiarity. This information is beneficial knowledge for nurses to create a practice guideline for effective communication with Thai older people with dementia.

Keywords: Dementia, Effective communication, Older adult, Nursing experiences

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Introduction

There are currently 55 million people living with dementia worldwide, with an additional 10 million diagnosed each year (World Health Organization, 2020). Dementia is estimated as 7.5 percent of older people over 60 years in Thailand (Phenwan, Tawanwongsri, Saengow, & Koomhin, 2020). Dementia is a group of symptoms caused by brain degradation that goes beyond normal aging and interferes with patients' daily lives (World Health Organization, 2020). Mostly, dementia symptoms are gradually progressive and irreversible from the early stage until the end stage of dementia. There were dramatic impacts on physical, psychological, economic, and social problems. Nursing care for older people with dementia aims mainly to improve the quality of life through the long-term care journey. Communication was the key to have success in the nursing care process (Afriyie, 2020). Most dementia patients showed problems regarding understanding and verbal expression, repetition, reading, and writing (Banovic, Zunic, & Sinanovic, 2018). Ineffective communication between nurses and older people with dementia affects patient-centered care processes, such as lack of consensus between nurses and patients, and misunderstanding of nurses' true meaning of messages sent by patients' verbal or non-verbal communication (Wang, Hsieh, & Wang CJ, 2013).

Methods

This narrative research was guided by an interpretive paradigm. This information, from the nurses' perspective, was collected through semi-structured in-depth interviews with seven nurses who have experience in dementia clinics. The informants were selected using criterion sampling that were; having experiences in dementia clinic for more than five years and experiences in communicating with dementia people. The interpretation of content analysis was conducted to explore the experiences of nurses in effective communication with older people with

Communication is the process of a message or information being exchanged from a sender to a receiver (Lunenburg, 2010). Exchanging information, thoughts, and sentiments via verbal or nonverbal expressions to successfully achieve a desired or planned consequence for the sender has been described as effective communication (Afriyie, 2020). Effective communication of nurses in healthcare settings does not only benefit patients, such as adherence, satisfaction, and safety, it also benefits healthcare providers in the aspect of their job satisfaction and health (Bello, 2017).

The researchers realize the importance of effective communication between nurses and older people with dementia for the successful practice of nursing processes. Thus, understanding older people with dementia through nurses' experiences of effectively communicating with dementia people might be a benefit for improving the quality of nursing care and older people with dementia's quality of life. The existing knowledge of effective communication between nurses and older people with dementia in eastern countries may be different from western countries. This knowledge can be the knowledge base for improving communication between nurses and older Thai people with dementia. The aim of this study was to explore the nurses' experiences effective communication with Thai older people with dementia.

dementia by considering in logical chain of evidence, grounded in the data and the essence of the finding so that the knowledge can be practical for nurses and caregivers. Even though the researcher has experience in communicating with dementia, the researcher needs to open-mind to new knowledge without interview prejudice or conclusion prejudice. The interview started after the researcher explained the purpose of the study and the informants signed the consent form. The collecting data ended after the data had been saturated. All nurses completed the interview one or two times

(Hennink, Kaiser, & Marconi, 2017) in-between time 45 to 60 minutes in the private room at dementia clinic. The main questions were guided by the objective of the study and the definition of effective communication developed by the researchers. The six main questions were verified by three experts who have experience in qualitative studies and in older people's areas. The researchers prepared themselves to be familiar with the questions before the interview process. Data collection was conducted between September and November 2021.

The qualitative data were analyzed using a content analysis approach to explore the nurses' experiences of effective communication with older people with dementia. All data from interviews and observations were included for interpretation. The four main steps (Bengtsson, 2016) used to analyze the data were: 1) the de-contextualization to familiarize, and read through the transcribed text to obtain the sense of the whole, 2) the re-contextualization to check that all aspects of the content have been covered related to the purpose, 3) categorization to create categories and condense the extended meaning, and 4) compilation to consider the

Results

The content analysis found that the nurses' experiences of effective communication with older people with dementia consisted of four main categories:

Using techniques

The informants mentioned several techniques for communicating with older people with dementia, such as 1) using helper tools to try to understand older people with dementia, 2) attempting to attract and attention dementia, 3) engaging dementia in activities by doing it together, using tricks,

A helper tool: The informants explained how to understand and how to evaluate the stage of dementia by using the available tools around them. For example, paper rolls or stethoscopes for older people with dementia having hearing problems;

data and the purpose of the study before writing the conclusion.

The study's credibility was established by applying the standards suggested by Lincoln and Guba Lincoln, & Guba (1985). Members checked the data following the interview and the conclusion of the findings to validate the researcher's interpretation, which increased credibility. In this study, three researchers and one external reviewer verified the research findings for validity. This research proposal, questions, information sheet, and consent form were approved by an Institutional Review Board at Songkhla's hospital (2021-Nrt-J3-1037). All informants received information about this study, including the aim of this study, the collection data method, and the right to refuse or withdraw at any time without consequences. In-depth interviews were conducted at the private room in dementia clinic when the informants had available time and after the explanation of the proposal information and signing of the consent form. The confidentiality of the nurses' identities was protected, and each data set was assigned a code number and kept the information in the researcher's private storage.

using techniques, considering individual differences, nurses' politeness, and creating familiarity.

explaining, and no ordering, 4) decreasing aggressive emotions and behavior with a stop conversation, distraction, or taking a break and relieving their emotions, and 5) understanding dementia people by guessing, or asking relatives:

nurses informants told that the older people with hearing problem could hear better if nurses used paper rolls or stethoscopes as a medium for making the low-frequency sound to communicate with them. The big-sized letters for the older people with

dementia having eyesight problems; nurses informants mentioned that they sometimes used big-sized letters if they want to evaluate brain function in language domain by their understanding after reading. The pictures were for the older people with dementia having memory problem, nurses informants use wall pictures to tell the story and communicate with them.

"Sometimes there is a picture or sign on the wall as an option to choose

Naturally uses attraction and attention: The informants mentioned applying attraction and attention techniques to try to understand the meaning of the messages. For older people with dementia with attention deficits, informants tried to find an easier story to converse. The informants suggested that show interested and active listening were features of conversation so that the older with dementia can understand and pay attention.

Doing it together, using tricks, explaining: According to the informants, encouraging older people with dementia to comply with the request was preferable to ordering them to do. The informants said that explaining the reason why you're asking older dementia to do something and invite them to join in activities by doing it together rather than letting him or her do it alone. The nurses admitted that they had to role-play to get older people with dementia to follow or accomplish something.

Cooling down, and distraction: The informants gave the information that when the older people behave aggressively or show dissatisfied expressions, the informants dealt with the behavior problem by stopping the conversation immediately and letting the older people keep calm and relax until the older people with dementia feel better, at which point they could start a new conversation again. In the case of showing dissatisfaction, sadness, or irritating behavior during communication, nurses used the method to continue the conversation by changing the subject and finding another

during we speak so that he understands what I am saying, otherwise he might not understand." (Nurse 2)

"The equipment used for writing large letters or using a roll of paper. But you have to assess which ear can hear or which ear can't hear, then put it to that hearing ear and speak through the paper roll, or use a medical stethoscope, bring the round side to speak, and let the patient listen." (Nurse3)

"Nurses should have a stable posture to be a resting place for him. Not too sweet, but he must have attention and focus. Active listening, focus, and eye contact. Listen to him until he finishes speaking. Show interest, understanding, and perception of their message. He will perceive it through his senses. He could feel like helping him by trying to understand him. He will feel relaxed, not tense. Focusing on his face and eyes must be on the same level and show interest." (Nurse1)

"For example, if you want her to draw a picture and she doesn't draw, don't force her until she relaxes, and then ask, 'I want to draw this one.' Let's draw first. Who will draw first? Do it like playing together and talking until she is comfortable, but we won't order her to do it. Who should take it first? Auntie? let her participate in decision-making so she would be more cooperative. Respectfulness for older people is being the culture of the Thai people. Children would not be able to order adults." (Nurse7)

topic to talk about or changing the speaker to talk with, to reduce such behavior.

"I had an experience with whom a high social position, I didn't build a relationship before evaluating him. He didn't cooperate. He got angry and walked away. Then let him sit and calm down. Don't talk at that time, no matter what we say. It was all negative. I had to let him sit and calm down before observing until he cooled down, then apologize and said that our intentions were clear. In that case, I did something wrong, I didn't let him to understand at the first time." (Nurse4)

Guessing or asking relatives: The informants mentioned that sometimes the older people with dementia couldn't find words to response. Nurses might repeat the answer, or guess the words by their gestures or responses, such as speaking sentences and leaving space for his/her words to fill in. If nurses could not find the words, they would ask their relatives.

Considering individual differences

The nurses can make effective communication by considering individual differences of patients, thus they do need to have the ability to assess older people with dementia. The informants said that assessing before and during communication can help communicate more effectively. The informants agreed on the assessment of brain degeneration each time. The stage of dementia assessed before the conversation can help nurses find an appropriate conversational style. To comprehend the differences in the physical, psychological, and social status of dementia patients as their age and background. Informants commented that if the older people had uncontrollable emotional behavior, they could not communicate effectively with them. Older people must be consulted by a doctor before using psychiatric medicine to control their symptoms. For social status, the informants told their experiences of how they dealt differently with older people with

"The perception and communication of older people with dementia are impaired, so by their abilities of thinking and reasoning, we have to translate what they communicate. If it's not clear, we repeat it after his talk by writing it down and asking him again. Another way is to ask relatives what he said. Because most of the relatives might know very well the meaning of what the patient's actions or words mean". (Nurse3)

dementia who had different backgrounds (educated, social level).

"Depends on each person; some people can make a conversation by only talking. It's not the same as some people need to do both (verbal and non-verbal). We must evaluate before asking. If you don't understand, use gestures. You have to look at the stage of dementia as well." (Nurse6)

"In the case of villagers, we have to assess. Some people have eyesight problems, and they don't cooperate. Older people with deafness can't hear our voices. We may ask relatives first. If a patient is unable to read, we should know whether they are uneducated or not. We must have a past history also. (Nurse 4)

"Some of them had been teachers, engineers, or used to hold high positions. If he tells him to do something, he will get angry. What kind of role-playing do we have to do? Do we have to play as a student? Let's try it out. (Nurse2)

Nurses' Politeness

Nurses need to grasp the nature of older Thai people, according to the informants,

Honor and respectful behavior:

The words to use with the older people with dementia must be soft, sweet, and respectful. Inattentive use of words can lead older people to feel low self-esteem. For example, when adding or subtracting numbers, which were used to evaluate brain conditions, older people might think that this is for kids.

"Most of the time at home, he was often ordered and blamed by relatives. Why did you do that? Why did you do this? If we

because nurses' demeanor is vital during conversations with older people with dementia.

did the same, he would feel a loss of dignity. He should have been an adult and was a person of honor. Thus, we need to show respect to him." (Nurse2)

"Try to avoid saying that it is a brain test. It is an honor to say that this is a brain function test that was verified by expert. " (Nurse3)

"You have to talk to him nicely, don't make him feel low self-esteem or loss of ability." (Nurse4)

Familiarity: The language used in the family, or dialects is normally used in communication between nurses and older people with dementia. Based on observations and listening during the interview, all nurses communicated with older people with dementia by dialects or local language.

Patient and calm manner: The informants told that repeating the sentences during conversation can confirm whether the older person can understand. We must understand the patient correctly and what they want to communicate. The answers by older people with dementia should be repeated so be patient and calm.

Empathy: The informants referred to the characteristics of caring, smiling, and proper touching with showing both eye contact and interaction that were used to have effective communication. In addition, the informants' consensus was that the way to have successful communication with older people with dementia was to use words to express appreciation for what the older people have accomplished in life.
"We show understanding and empathy. We can feel his feelings, with tears

Use suitable messages: According to the data, using the right tone can help nurses communicate effectively with older people with dementia. The tone of discourse might go wrong if it is too loud or too light. Facial expressions and gestures may appear antagonistic in the presence of loud noises. Soft tones and a caring demeanor express compassion and care even if there was speaking with a loud sound. The informants emphasized that both verbal and nonverbal communication could be useful for older people with dementia. If the older person's language skill is not an issue. In dementia communication, a combination of spoken, and body language were much effective.

"The tone must be soft and we must treat him like a loving child." "Some people use too much loud noise because their ears can't hear. But the use of loud voices

"Sometimes we have to use words like familiar with her, and then she will talk with us as friend her. Emphasize admiration that she had the potential to be successful before, such as if she had sold delicious desserts before. She would tell us all about it, and then we used our method to extract the necessary information". (Nurse4)

"We should talk with older people with dementia with a soft tone of voice and tell them that we understand. Treat him like he is a child, giving love, kindness, patience, and calm. " "It takes gentle words to tell the older people to follow."(Nurse7)

in his eyes. Older people will be fascinated by listening with friendliness, making eye contact, smiling, and nodding. I showed recognition of his response, which showed that I was always with him". (Nurse2)

"Most older people feel uncomfortable when they visit a hospital. We should treat her as if she were our relative, teasing her, touching her hands, asking simple questions, paying attention, and caring for them". (Nurse 5)

sometimes makes them seem unfriendly, so must be careful." (Nurse3)

"Teaching how to button a shirt requires speaking and acting. Just as with drawing a picture, you have to talk and make gestures. "Speaking language is best if the older people understand and have no language problems." Some people have to use both. We have to evaluate first. If he/she cannot understand well, we use gestures. It depends on the stage of dementia as well." (Nurse2)

Informants suggested that talking to older people with dementia should use language that is easy to understand and clear, especially when asking older people to answer.

"Ask a simple, short question for him to answer in a familiar way. Say it briefly and clearly. Don't talk too much; speak slowly". (Nurse 5)

Creating familiarity

The informants said that to be able to communicate effectively with older people with dementia, one had to start by building a good relationship between nurses and the older people with dementia. On the first visit, older people with dementia were unfamiliar and untrusting. The informants told that they needed to welcome them with attention, greeting, and a smile so that the older people with dementia feel comfortable. Then nurses could ask them about their problems and evaluate their mental status.

"You have to have a relationship with him first to make him feel relaxed. We

have to kindly talk to him for trusting us first. If it's an old patient and had been visited, it's not a problem at all because we have had a relationship. If it's the case of a new patient, you need to talk in general first to build a relationship". (Nurse3)

"When he/she was not familiar and had fearful expressions, I had to say hello, then ask how you are doing; how did you come here?; keep talking; let him be ready first. If we see that he has anxiety, we will greet, and talk about common things first, such as "long time I did not see you how are you?". (Nurse4)

Discussion

The study found nurses employed the following ways to communicate effectively: attraction and attention, doing it together, explanation, not ordering, using tricks, taking a break and distraction, guessing or asking relatives. According to the study of De Vries De Vries (2013), the techniques used to communicate with dementia patients included removing distractions, approaching slowly from the front, maintaining eye contact, using short, simple sentences, speaking slowly, asking only one question or giving only one instruction at a time, using closed-ended rather than open-ended questions, repeating messages with the same wording, avoiding interrupting, and approaching.

For considering individual differences, giving precedence to an individual's assessment before and during communication, and likewise, the summary results in general older people from the study by Jack, Ridley, and Turner (2021), mentioned the important changes in general older people that nurses should consider the individual's characteristics and cultural differences, as well as biological and social changes because those changes can affect communication during consultations. They also suggested that hearing, vision, and dementia problems have to be evaluated so that effective communication can be successful. In the study by De Vries De Vries (2013), the author mentioned the assessment of communication disabilities.

Also, nurses' politeness for communication with older people with dementia. The scoping review study of van Manen et al (2021) suggested the experiences of nurses, time and duration in communication, verbal and non-verbal communication, communication styles, and situations that are associated with communication with dementia. In our study, we found the manners of nurses, including showing honor and respect, familiarity, patience and calm, empathy, and the ability to use suitable messages were the characteristics of nurses for effective communication with dementia. The use of both verbal and non-verbal language styles should be considered, which is useful to choose depending on the individual and situation but needs to be a simple question.

In terms of familiarity, the findings demonstrated the effectiveness of interpersonal communication in the context of a positive relationship. The nurses can receive the necessary or comprehensive data from the older people with dementia if they have been trusted so that nurses can determine suitable care for them. The systematic review of Alsawy, Mansell, McEvoy, and Tai (2017) found that strong relationships can facilitate communication. Also, the study by Stanyon, Griffiths, Thomas, and Gordon (2016) emphasized the importance of staff's skills in building the relationship with older people with dementia to correctly respond and create proper care.

Conclusion

Respectfulness was required for communicating with older people, but nurses should find a way to avoid behavior problems by treating them like children in some situations and like adults in some situations. Nurses should understand the characteristics of persons with dementia and have knowledge of deteriorating dementia so that they can assess the stage of dementia, as well as psychological and physical issues. The familiarity or strong relationship between nurses and older people with dementia, as well as the appropriate characteristics of nurses, is critical for effective communication with older people with dementia and success in the nursing process, particularly in the patient assessment process, which has an impact on other steps of the nursing process. In addition, these findings can be the knowledge added in to the older adult

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curriculum of nursing students for dementia care.

The qualitative study is limited in generalizing to different areas. The findings might be limited by cultural and traditional factors in the area of study. Regarding the information from nurses who work in outpatient clinics, it might be different from other experiences of nurses who work in inpatients or intensive unit care. Thus, the recommendations for further studies are, as follows:

1) Further studies should be designed with a factor analysis or causal model to identify the related concept to the effective communication between nurses and older people with dementia.

2) The limitation of qualitative study cannot refer to another area that has a different culture, context, or ethnicity so testing the theory should be verified in several areas.

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*Original article**Received: Feb. 16, 2022**Revised: June 2, 2022**Accepted: Aug. 5, 2022**Published: Aug 20, 2022***Medical Complications and Symptomatic Management of Post Covid Syndrome-A Review**Jophy mathew, M Sudha*, R Sambath Kumar
J.K.K. Nattraja College of Pharmacy, Namakkal (Dt), Kumarapalayam, India**Abstract**

COVID-19 (multi-organ disease with a wide range of symptoms) is an ongoing pandemic, which are now extending to its long-term sequelae. The majority of patients make a recovery within 3–4 weeks of diminishing COVID-19, but a small percentage of patients continue to suffer from its persisting effects and develop sustained illness/medical problems, which can lead to long-term health issues. Fatigue, dyspnea, cough, headache, brain fog, anosmia, and dysgeusia are frequent symptoms of post-COVID-19 complications (PCS), although damage to the pulmonary, cardiovascular, cutaneous, musculoskeletal, and neuropsychiatric systems have also been observed. Patients with COVID-19 should be followed up for a long time after they have recovered, and a complete rehabilitation program can be established for them. Current scenario demands further epidemiological and clinical studies to establish the metaphors of PCS and its management. The present review aims to highlight the post COVID manifestations and management strategies as there is very limited evidence about the management of COVID-19 after the first three weeks of illness.

Key Words: COVID-19, Post covid complications, Rehabilitation program, Neuropsychiatric systems, Medical complications

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Introduction

Following an acute COVID-19 infection, a considerable number of people suffer from long-term and devastating effects. The persistent cluster of symptoms has been named as "post-COVID syndrome" by the National Institute for Health and Care Excellence (NICE). It's also known as "long-haul COVID-19," "ongoing symptomatic COVID-19," "chronic COVID-19," and "post COVID-19 syndrome."¹ This is further classified into acute post-COVID syndrome, which lasts three weeks after the primary infection, and post-COVID syndrome, which lasts longer than twelve weeks (Iqbal, F.M., et al, 2021)

COVID-19 patients should be followed up on for a long time after they have recovered, and a comprehensive rehabilitation programme can be established for them. The current scenario necessitates additional epidemiological and clinical studies to establish mechanism for PCS and its management. Because there is very little evidence about the management of COVID-19 after the first three weeks of illness, the current review aims to highlight post-COVID manifestations and management strategies.

COVID-19 has been diagnosed in approximately 117 million people worldwide as of March 2021, with more than 2.6 million deaths (Iqbal, F.M., et al,

2021). The novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) induces COVID-19, a heterogeneous virus that causes a wide range of symptoms, from asymptomatic to life-threatening and catastrophic disease (Salamanna,F., et al, 2021). One of the most prevalent symptoms of SARS-CoV-2 is interstitial pneumonia, which can be exacerbated by acute respiratory distress syndrome (ARDS), a disease characterized by a high death rate, particularly in elderly persons with numerous comorbidities (Mao, R., et al, 2020, Levi, M., et al, 2020).

As the COVID-19 pandemic proceeds, a slew of new symptoms have emerged such as fever, dry cough, shortness of breath, fatigue, myalgias, nausea/vomiting or diarrhea, headache, weakness, rhinorrhea, anosmia/ageusia, and many laboratory abnormalities that is lymphopenia and elevated inflammatory markers like erythrocyte sedimentation rate, C-reactive protein, ferritin, tumor necrosis factor- α , IL-1, and IL-6 have been reported (Salamanna,F., et al, 2021, Mao, R., et al, 2020). Other significant and severe COVID-19 consequences include heart, brain, lung, liver, kidney, and coagulation system dysfunction (Long, B., et al, 2020, Mao, L., et al, 2020, Middeldorp, S., et al, 2020, Chen, Y.T., et al, 2020).

Classification of Post-COVID Syndrome

Table 1: Classifications of post-COVID syndrome. * Becker, R.C. 2021. (COVID-19 Clinic of the University of Cincinnati Medical Center)

	Type 1	Type 2	Type 3		Type 4		Type 5
Initial symptoms	Variable a	Mild	A Mild	B Mild	A None	B None	None
Duration of	Variable a	>6 weeks	3–6 months	>6 months	Variable	Variable	N/A
Period of	No	No	Yes	Yes	No	No	N/A
Delayed onset of	No	No	No		Yes ≥ 3 months	Yes ≥ 6 months	Yes

Note: Type 3A- Period of inactivity or nearly full recovery, followed by a recurrence of persistent symptoms for at least three months, Type 3B- Period of inactivity or nearly full recovery, followed by a recurrence of persistent symptoms for at least three months or at least six months, Type 4A- Asymptomatic when tests positive but get symptoms in 1 to 3 months, Type 4B- Asymptomatic when test positive but get symptoms in atleast 3 months later.

Table 1 shows that there are five categories of protracted COVID-19 syndrome, according to the University of Cincinnati Medical Center's recommended criteria for COVID-19 sequelae, depending on initial symptoms, time of onset, duration of symptoms, and period of inactivity are figured in Table 1. Type 1 comprises patients whose recovery time varies depending on the severity of the acute infection, organ problems, and underlying medical disorders, Type 2 is characterised by symptoms that last for at least six weeks from the commencement of the illness, Type 3 shows a period of inactivity or nearly full recovery, followed by a recurrence of symptoms persisting for at least three months (Type 3A) or at least six months (Type 3B), Type 4 refers to patients who are initially asymptomatic when a SARS-CoV-2 test is positive but develop symptomatic one to three months (Type 4A), or at least three months later (Type 4B), and Type 5 includes patients who are asymptomatic or have little symptoms at the time of diagnosis and may

die within the next 12 months are included in this category (Becker, R.C. 2021). Amenta *et al.* from Baylor College of Medicine, Houston, classified post-acute COVID-19 manifestations in three categories, of which the first two should not be regarded as mutually exclusive. Firstly, residual symptoms that persist after recovery from acute infection. Organ dysfunction that persists after initial recovery comes the second one. Finally the new symptoms or syndromes that develop after initial asymptomatic or mild infection (Amenta, E. M., et al, 2020). Lastly, Fernandez-de-Las Penas *et al.* considered also undiagnosed cases and proposed a time-based classification as follows: potentially infection-related symptoms (up to 4–5 weeks), acute post-COVID symptoms (from week 5 to week 12), long post-COVID symptoms (from week 12 to week 24), and persistent post-COVID symptoms (lasting more than 24 weeks). Intrinsic and extrinsic predisposing factors are also considered (Fernandez-de-Las-Penas, C., et al, 2021).

Pathogenesis of post-COVID syndrome

The pathophysiology of post-COVID syndrome is not well known. Prolonged inflammation appears to play a crucial role in the aetiology of most post-COVID symptoms, according to evidence (Trougakos, I. P., et al, 2021). Alteration of neuronal functions may occur and lead to central nervous system (CNS) complications in the context of a significant rise in circulating cytokines, notably IL-6, which can pass the blood-brain barrier like altered mental status and neurocognitive disorders among others (Trougakos, I. P., et al, 2021). Furthermore, COVID-19-related inflammation may cause GABA-ergic impairment, which could be the reason of neuromotor and cognitive fatigue, as well as apathy and executive dysfunction. Indeed, animal models have revealed that an IL-6-induced hyper-inflammatory state can reduce GABA receptor density (Garcia-Oscos, F., et al., 2012).

Coronaviruses are neurotropic and may invade the blood-brain barrier and access the CNS through the use of peripheral or olfactory neurons. The hippocampus appears to be particularly susceptible to infection, that could contribute to memory loss as secondary infections (Ritchie, K., et al, 202). Wostyn hypothesised that post-COVID fatigue syndrome could be caused by damage to olfactory sensory neurons, which would result in a decreased CSF outflow through the cribriform plate and leading to the congestion of the lymphatic system with subsequent toxic build-up within the CNS (Wostyn, P, 2021). In addition, direct SARS-CoV-2 microinvasion has been hypothesised as a method that could lead to long-term neuropsychiatric problems, it appears to be less plausible given the time after infection (Amenta, E. M., et al, 2020).

Clinical manifestations

With the COVID-19 pandemic raging around the world, many recovered patients are still suffering from the infection's persistent effects, which include respiratory, cardiac, haematological, neuropsychiatric, renal, endocrine,

cutaneous, gastrointestinal and hepatobiliary. The most common manifestation of Long-COVID-19 is the persistence of the physical symptoms seen in acute viral illness (Nalbandian, A., et al, 2020).

Pulmonary

- Dyspnea, decreased exercise capacity and hypoxia are commonly persistent symptoms and signs (Nalbandian, A., et al, 2020).
- Follow-up of COVID-19 survivors revealed reduced diffusion capacity, restricted pulmonary physiology, ground-glass opacities, and fibrotic alterations on imaging (Nalbandian, A., et al, 2020).

- As clinically relevant, home pulse oximetry, 6MWTs, PFTs, high-resolution computed tomography of the chest, and computed tomography pulmonary angiography may be used to monitor the progression or recovery of pulmonary disease and function (Nalbandian, A., et al, 2020).

Hematologic

- Thromboembolic events (venous thromboembolism, egmental pulmonary embolism, intracardiac thrombus, thrombosed arteriovenous fistula and ischemic stroke) have been noted to be <5% in post-acute COVID-19 in retrospective studies (Nalbandian, A., et al, 2020).
- The duration of the hyperinflammatory state induced by infection with SARS-CoV-2 is unknown (Nalbandian, A., et al, 2020).

- In patients with predisposing risk factors for immobility, persistently elevated d-dimer levels (greater than twice the upper limit of normal), and other high-risk comorbidities such as cancer, direct oral anticoagulants and low-molecular-weight heparin may be considered for extended thromboprophylaxis after a risk–benefit discussion (Nalbandian, A., et al, 2020).

Cardiovascular

- Persistent symptoms may include palpitations, dyspnea and chest pain (Nalbandian, A., et al, 2020).
- Increased cardiometabolic demand, myocardial fibrosis or scarring (detectable via cardiac MRI), arrhythmias, tachycardia, and autonomic dysfunction are all possible

long-term consequences (Nalbandian, A., et al, 2020).

- Serial clinical, echocardiography, and ECG follow-up may be used to examine patients with cardiovascular issues during an acute infection or those who have chronic heart symptoms (Nalbandian, A., et al, 2020).

Neuropsychiatric

- Persistent abnormalities may include fatigue, myalgia, headache, dysautonomia and cognitive impairment (brain fog) (Nalbandian, A., et al, 2020).
- Anxiety, depression, sleep disturbances and PTSD have been reported in 30–40% of COVID-19 survivors, similar to survivors of

other pathogenic coronaviruses (Nalbandian, A., et al, 2020).

- Immune dysregulation, inflammation, microvascular thrombosis, iatrogenic medication effects, and psychosocial effects of infection are all part of the pathophysiology of neuropsychiatric complications (Nalbandian, A., et al, 2020).

Renal

- The majority of individuals with acute COVID-19 achieve resolution of AKI; nevertheless, at 6 months follow-up, decreased eGFR has been documented (Nalbandian, A., et al, 2020).
- COVID-19 associated nephropathy (COVAN) may be the predominant pattern

of renal injury in individuals of African descent (Nalbandian, A., et al, 2020).

- Early and diligent follow-up in AKI survivor clinics may assist COVID-19 survivors with persistently compromised renal function (Nalbandian, A., et al, 2020).

Endocrine

- Endocrine complications include new or worsened diabetes mellitus control, subacute thyroiditis, and bone demineralization (Nalbandian, A., et al, 2020).
- Patients with newly diagnosed diabetes who do not have established risk factors for

type 2 diabetes, hypothalamic–pituitary–adrenal axis suppression, or hyperthyroidism should have adequate laboratory tests and be sent to endocrinology (Nalbandian, A., et al, 2020).

Gastrointestinal and hepatobiliary

- Prolonged viral fecal shedding can occur in COVID-19 even after negative nasopharyngeal swab testing (Nalbandian, A., et al, 2020).

- COVID-19 has the potential to modify the gut microbiome, including opportunistic microbe enrichment and commensal depletion (Nalbandian, A., et al, 2020).

Dermatologic

- Hair loss is the predominant symptom and has been reported in approximately 20% of

COVID-19 survivors (Nalbandian, A., et al, 2020).

Multisystem inflammatory syndrome in children (MIS-C)

- Diagnostic criteria includes <21 years old with fever, elevated inflammatory markers, multiple organ dysfunction, current or recent SARS-CoV-2 infection and exclusion of other plausible diagnoses (Nalbandian, A., et al, 2020).
- Typically affects children >7 years and disproportionately of African, Afro-

Caribbean or Hispanic origin (Nalbandian, A., et al, 2020).

- Cardiovascular (coronary artery aneurysm) and neurologic (headache, encephalopathy, stroke and seizure) complications can occur (Nalbandian, A., et al, 2020).

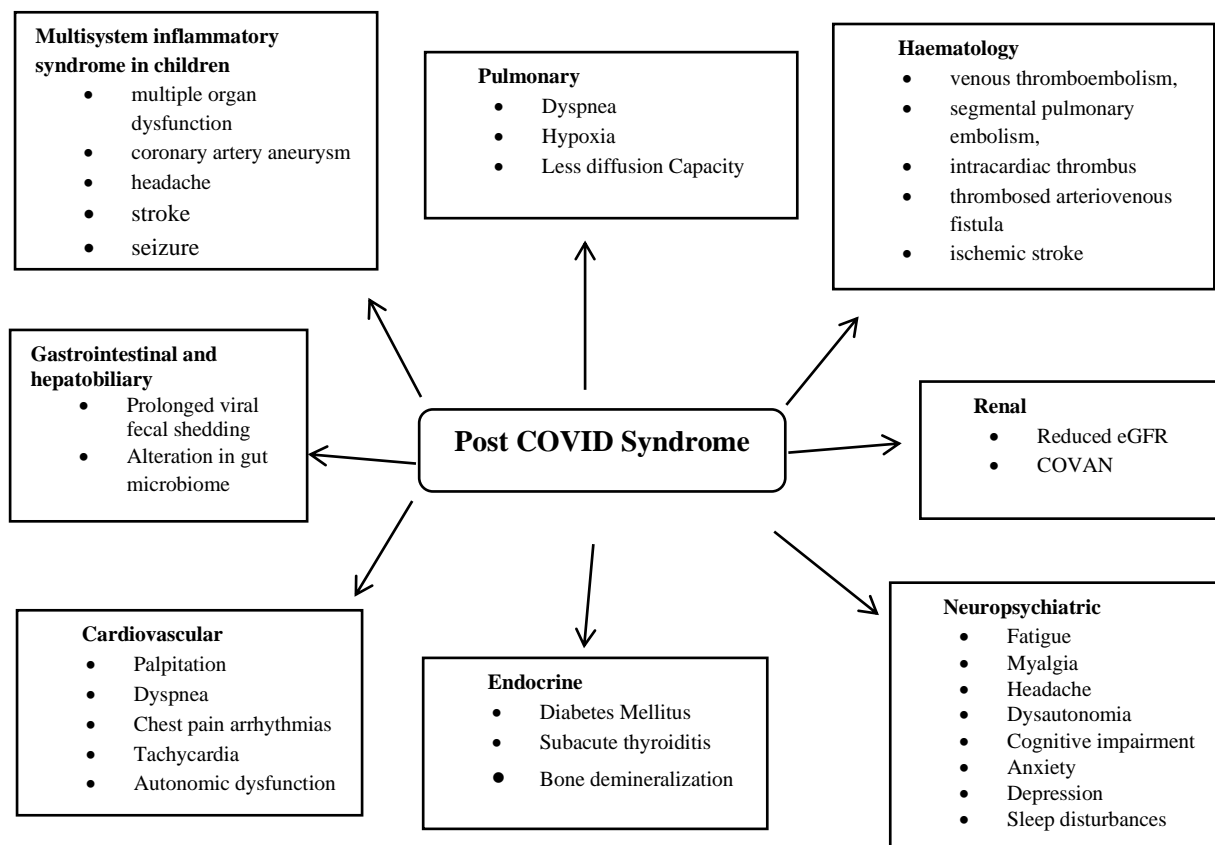


Figure:1 Clinical presentation of post COVID syndrome

Note: The COVID-19 pandemic raging around the world, many recovered patients are still suffering from the infection's persistent effects, which include respiratory, cardiac, haematological, neuropsychiatric, renal, endocrine, cutaneous, gastrointestinal and hepatobiliary. The most common manifestation of Long-COVID-19 is the persistence of the physical symptoms seen in acute viral illness.

Chronic complications

The chronic complications that may persist after infection with SARS-CoV-2 mainly affect the respiratory, cardiovascular, renal and neurological systems. In June 2020, one of the first studies to look into the long-term effects of COVID-19 on the respiratory system was released. A total of 57 patients were followed up, they had a pulmonary function test, a six-minute walk test, and chest computed tomography (CT) scan 30 days after being discharged from the hospital. Tomographic alterations were seen in 31 patients (54.3%), abnormalities in pulmonary function tests were detected in 43 patients (75.4%). Patients with severe

disease exhibited a greater incidence of impairment of diffusing capacity of the lungs for carbon monoxide (DLCO) (75.6 percent versus 42.5 percent; $P = 0.019$) when compared to non-severe cases. More than half of the COVID-19 patients in the early stages of recovery had reduced DLCO, lower respiratory muscle strength, and abnormalities on pulmonary imaging (Huang, Y., et al, 2020). These data were not completely documented by Lerum *et al.* who published a prospective study on 103 COVID-19 patients, including 15 cases that were considered severe and were treated in an IC U (Lerum, T.V., et al, 2021). Their

aim was to report patient's quality of life, state of dyspnea, pulmonary function and chest CT findings, three months after their discharge from hospital. They found that on chest CT scan, a 1/4th of their patients had opacities and had decreased diffusion capacity. However, in their sample, this was not reflected in increased dyspnea or impaired pulmonary function. The presence of pathological CT findings was most intimately associated to ICU admission.

Cardiac abnormalities have also been studied. Cardiovascular magnetic resonance imaging (MRI) was performed on average 71 days after the disease was diagnosed in a cohort study of 100 patients who had recovered from COVID-19. Cardiac abnormalities were discovered in 78 patients, with active myocardial inflammation in 60 patients. This occurred regardless of the patient's pre-existing conditions, disease severity, general evolution of the acute disease, or time since the initial diagnosis (Puntmann, V.O., et al, 2020). Nonetheless, the long-term evolution of such cases remains uncertain. Rajpal *et al.* also used cardiac MRI but studied a very specific population. They recruited 26 university athletes with COVID-19, in the outpatient department (Rajpal, S., et al, 2020). Through transthoracic echocardiograms and cardiac MRI, none of them were found to have any ST/T wave alterations in electrocardiograms, and all of them had ventricular volumes and functions that were within the normal range. None of

the athletes presented elevated serum levels of troponin I. Four of them (15%) had cardiac MRI findings consistent with myocarditis. The neurological alteration that has been most reported after COVID-19 is persistence of olfactory dysfunction. Otte *et al.* analyzed the sense of smell of 50 consecutive patients, at least three weeks after they had recovered from an acute condition (Otte, M.S., et al, 2020). During the course of the disease, 94 percent of these patients reported that they had suddenly lost their sense of smell. When the patients were given an olfactory test after their recovery, 38 percent still had a deficiency, while 61.7% had completely recovered their sense of smell. These include changes in cognition and memory, as well as sleep deregulation. Some psychiatric changes, such as mood changes associated with depression or anxiety, have also been reported. Other consequences, albeit hypothetical, may also impact the post-COVID-19 population. According to a study published in the journal Future Oncology, infection with SARS-CoV-2 may have a carcinogenic effect, particularly in the pulmonary tissue that could lead to an increased risk of cancer in these patients in the future (Hays, P. 2020). What to expect from these chronic changes, and even how to treat them, is unknown. SARS-CoV-2 causes chronic modifications to the lungs, kidneys, heart, and endothelium.

Management

Treatment methods for post-COVID sequelae will differ significantly based on the clinical profile and demands of each patient. Prior pre-existing medical conditions should be considered in management strategies, and care teams should provide regular follow-up for each patient until symptoms subside and for some time afterwards (Oronsky, B., et al, 2021). Post-hospital discharge care of COVID-19 survivors has been recognized as a major priority research by professional organizations (Bai, C. 2020), and treatment guidelines for these patients are still being

developed (Shah, W., et al, 2021). Although home pulse oximetry using Food and Drug Administration-approved devices has been proposed as a useful tool for monitoring patients with persistent symptoms, supporting evidence is currently lacking (Luks, A.M., et al., 2020, Brigham, E. 2021).

A preliminary observation of significant symptomatic and radiological improvement in a small UK cohort of COVID-19 survivors with organising pneumonia 6 weeks after hospital discharge suggests that corticosteroid treatment may

be beneficial in a subset of patients with post-COVID inflammatory lung disease (Myall, K.J. 2021). In the post-acute COVID-19 Chinese study, steroid use during acute COVID-19 was not associated with diffusion impairment or radiographic abnormalities at 6 months follow-up (Huang, C. 2021). Lung transplantation has previously been performed for

fibroproliferative lung disease after Acute Respiratory Distress Syndrome (ARDS) (Chang, Y. 2018) due to influenza A (H1N1) infection and COVID-19 (Bharat, A. 2020, Chen, J. 2020). Antifibrotic therapies are being tested in clinical trials to prevent pulmonary fibrosis after COVID-19 (George, P.M., et al, 2020).

Hematologic treatment

Direct oral anticoagulants and low-molecular-weight heparin are preferred anticoagulation agents over vitamin K antagonists because they do not require frequent monitoring of therapeutic levels and have a lower risk of drug-drug

interactions (Bikdeli, B. 2020, Barnes, G.D. 2020). Similar to provoked Venous Thrombo Embolism (VTE), therapeutic anticoagulation is recommended for ≥ 3 months for those with imaging-confirmed VTE (Bai, C. 2020, Moores, L.K. 2020).

Cardiovascular treatment

In those with cardiovascular consequences during an acute infection or persistent cardiac symptoms, serial clinical and imaging examination with ECG and echocardiography at 4–12 weeks may be recommended (Bikdeli, B. 2020, Desai, A.D., et al, 2020). Despite initial concerns about elevated ACE2 levels and the potential

of acute COVID-19 when using Renin-Angiotensin-Aldosterone System (RAAS) inhibitors, they have been proved to be safe and should be continued in patients with stable cardiovascular disease (Bozkurt, B., et al, 2020, Lopes, R.D., et al, 2020). Instead, abruptly stopping RAAS inhibitors could be dangerous (Vaduganathan, M., et al, 2020).

Neuropsychiatric treatment

For neurologic problems such as headaches, standard therapy should be used, with imaging examination and referral to a specialist reserved for refractory headache

(Guzik, T.J., et al, 2020). In individuals with cognitive impairment, a second neuropsychological evaluation should be considered in the post-acute illness situation.

Renal treatment

While the risk of dialysis-dependent AKI at discharge is low, the amount of renal function recovery needs to be evaluated. As a result, COVID-19 survivors with persistently reduced renal function in the post-acute infection phase may benefit from

early and close follow-up with a nephrologist in AKI survivor clinics, which has been linked to better outcomes in the past (Do, T.P., et al, 2019, Kaseda, E.T, et al, 2020).

Endocrine treatment

In patients with newly diagnosed diabetes mellitus who may not have traditional risk factors for type 2 diabetes, serologic testing for type 1 diabetes associated autoantibodies and repeat post-prandial C-peptide measurements should be obtained at follow-up, whereas it is reasonable to treat patients with such risk

factors as if they had ketosis-prone type 2 diabetes (Meier, P., et al, 2011). Corticosteroids can be used to treat hyperthyroidism caused by SARS-CoV-2 related destructive thyroiditis, although new-onset Graves' disease should also be ruled out (Ruggeri, R.M., et al, 2020).

Gastrointestinal and hepatobiliary treatment

COVID-19 has the potential to transform the gut microbiota, favouring opportunistic infectious microbes and reducing beneficial commensals (Donati Zeppa, S., et al, 2020, Bradley, K.C., et al,

2021). The gut microbiota's ability to influence the course of respiratory infections (the gut–lung axis) has previously been observed in influenza and other respiratory illnesses (Miquel, S., et al, 2020).

Dermatologic treatment

In the post-acute COVID-19 Chinese trial, only 3% of patients had a skin rash after 6 months (Chang, Y. 2018). Hair loss was the most common dermatologic complaint, with almost 20% of individuals

diagnosed it (Chang, Y. 2018, Garrigues, E., et al, 2020). Hair loss could be triggered by telogen effluvium, which is characterized by a viral infection or a stress response (Chang, Y. 2018).

Conclusion

COVID-19 is the current illness garnering the most attention among medical providers. Its post-discharge symptoms are yet to be investigated but they pose a major socio-economic and clinical challenge. From the recent reports, the most common symptoms of post Covid-19 syndrome includes dyspnoea, fatigue, thromboembolic events, myalgia, headache, anxiety, depression and sleep disturbances. Corticosteroids, antifibrotics, anticoagulants

and certain antihypertensives were the main stays of PCS management. Patients with COVID-19 should be on long term follow up and observation even after recovery and a comprehensive rehabilitation program can also be implemented for such patients. The current scenario demands further epidemiological and clinical studies to establish the mechanisms of PCS and its management.

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Author Guideline and Instruction

International Journal of Public Health and Health Sciences (IJPHS)

Instruction for Authors & Guidelines (Revised March 18, 2019)

1. About the Journal

1.1. The International Journal of Public Health and Health Sciences (IJPHS) is published by Praboromajchanok Institute for Health Workforce Development (PBRI), a higher educational institute of Ministry of Public Health, Thailand. PBRI is consisting of 39 Sirindhorn Colleges of Public Health, Kanchanabhishek Institute of Medical and Public Health Technology and Abhaibhubejhr College of Thai Traditional Medicine Prachinburi, 30 Boromarajonani College of Nursing and Nursing Colleges under Praboromarajchanok Institute for Health Workforce Development, Ministry of Public Health, Thailand.

1.2 The aim of publishing original articles and contributions is relevant to public health and medical sciences. The scope of the journal is broad, covering health policy and management, health care and services, health promotion/health education/behavioral health, environmental and occupational health, health technology and data management, global health, nursing and nursing sciences, community health, dental public health, community pharmacy, toxicology, and other relevant health issues of health and medical sciences. The IJPHS publishes original papers, systematic review articles, brief reports, case studies, field studies, and letters to the editor.

2. Policies

2.1. The Editorial Board decides whether a contribution will be sent for peer review, and if so, it will consider the peer reviewers' reports and make the final decision to accept or reject the manuscript for publication. The Editorial Board reserves the final right to decide the section (manuscript type) in which the paper will be published if it is found to be acceptable for publication.

2.2. Submission of a manuscript to the IJPHS implies that it has not been published elsewhere, that it does not duplicate material already published in any language elsewhere, and that it is not in submission elsewhere.

3. Ethical issues

3.1. Human studies are expected to be conducted in accordance with the recommendations outlined in the Declaration of Helsinki (1964, revised 1975, 1983, 1989, 1996, 2000, 2002, 2004, 2008 and 2013).

3.2. Authors should state in their Subjects (Materials) and Methods section that their institution's review board (ethics review committee) has approved the study proposal, as well as the manner in which informed consent was obtained from the subjects (if applicable).

4. Manuscript categories

The following types of contributions will be considered for publication.

4.1. Reviews: Review, evaluation or commentary of a number of research reports on a specific theme.

4.2. Originals: Articles with new findings and original research results, research methodologies, research materials and interpretations of the authors own or of other research results and articles of a similar nature.

4.3. Brief Reports: Articles with limited but original data and having the same format as originals.

4.4. Case Studies: Reports on cases of interest in the field of public health and related fields.

4.5. Field Studies: Reports on investigation into the status of public health with relevant data.

4.6. Opinions: Short articles conveying authors' own opinions or comments on various aspects of public health.

4.7. Letters to the Editor: Letters to the Editor on material published in the IJPHS are welcome. Authors can submit Letters to the Editor by e-mail to the editorial office (ijph-editor@scphtrang.ac.th). The length must not exceed 500 words, only one table or figure is permitted, and there should be no more than five references. When appropriate, the journal may invite replies.

5. Copyright

If the manuscript is accepted for publication, copyright of the article shall be assigned to the IJPHS. After acceptance of a manuscript, the authors will be requested to complete a copyright transfer agreement form.

6. Manuscript format and style

Manuscripts should be prepared in the following manner. Submissions that do not conform to the instructions will be returned unread. The Editorial Office holds the right not to publish an article at any stage of the submission, review, and copyediting if the manuscript does not follow the required format and style.

6.1. Manuscripts should be written in English. Non-native English authors are encouraged to seek the assistance of an English-proficient colleague or commercial English editing services before submission of manuscripts to the journal.

6.2. Manuscripts should be typed in MS Word 97/03 for Windows or higher version, size 12-point type with margins of 2.5 centimeters on A4 (ca.22 × 28 cm) paper. Double spacing should be used throughout, and the right margin should be unjustified.

6.3. All papers should be organized to include the following: a title page, abstract, text, acknowledgments, references, figure legends, tables and figures. Each of the elements should begin on a separate page.

6.4. Pages should be numbered consecutively, beginning with the abstract. Line

numbers should be put in the left margin of each page of the text.

6.5. Title page. The title page should include the following: a concise and descriptive title, name of each author, departmental and institutional affiliation of each author, the telephone and fax numbers as well as the e-mail address of the corresponding author, type of contribution, running title (not more than 60 letters including spaces), the number of words in the abstract and the text and the number of tables and figures.

6.6. Abstract. For all submissions except Letters to the Editor, structured abstracts should not exceed 250 words and should normally be organized under the following headings: Objectives, Methods, Results, and Conclusions. Abstracts are necessary for Opinions; however, abstracts for Opinions can be unstructured if appropriate.

6.7. Word count. Originals and Field Studies should be limited to 4,000 words, and Reviews should be limited to 6,000 words, excluding the abstract, acknowledgments, references, tables and figure legends. Brief Reports should not exceed 3,000 words and should contain no more than a total of 2 short tables or figures.

6.8. Format. Originals should generally use the following format: Introduction, Subjects (or Materials) and Methods, Results, and Discussion. Subheadings are paragraph titles should be used whenever possible. Brief Reports and Case Studies should be limited to four printed pages (normally, 800–1,000 words (text base) per page) including references, tables and figures.

6.9. Key words. For all submissions, give a list of 3-5 key words in alphabetical order. The authors are recommended to refer to Medical Subject Headings (MeSH) selected from main headings listed in Medical Subject Headings in Index Medicus, published by the National Library of Medicine (<http://www.nlm.nih.gov/mesh/MBrowser.html>). Key words will be placed after the abstract for Reviews, Originals, Case Studies and Field Studies.

6.10. Tables and figures. Tables and figures should be of adequate quality to

withstand reduction in size. Each table and figure should be submitted on a separate A4 sheet. Their locations in the text should be indicated in the right margin of the text. Only 6 or fewer tables and figures are permitted in total. Each table and figure should constitute a single unit of communications; that is, it should be completely informative in itself without reading the body of the text.

6.11. References. The style of references should follow the Uniform Requirements for Manuscripts Submitted to APA Formatted References, 6th Edition (<http://lumenjournals.com/wp-content/uploads/2017/08/APA6thEdition.pdf>).

Please refer to the examples of references listed below. List all authors when there are six or fewer; when there are seven or more authors, list the first three authors, followed by “et al.” References should be numbered according to the order in which they appear in the text and should be listed at the end of the text. References should be limited to 30 original papers. Please ensure that the references include the most current articles and information.

Originals

Yuychim, P., Niratharadorn, M., Siriumpunkul, P., Buaboon, N. (2018). Effects of a Family Participation Program in Managing Drug Managing Drug Use Behaviors among Older Adults with Chronic Disease in Phun Phin Community. *Journal of Public Health*, 48(1): 44-53.

Thepaksorn, P., Fadrilan-Camacho, V. & Siriwong, W. (2017). Respiratory symptoms and ventilatory function defects among Para rubber wood sawmill workers in the South of Thailand. *Human and Ecological Risk Assessment: An International*, 23(4):788-797.

Fraenkel, R. J., Wallen, E. N. & Hyun, H. H. (2012). *How to Design and Evaluate Research in Education*. (8th ed.). New York: McGraw-Hill.

Praboromarajchanok Institute of Health Workforce Development. (2013) Collection of Academic Performance in

Humanized Service Mind. Nontaburi: Ministry of Public Health.

Citation in book chapter

Waite, J. (2011). “Information and Documentation. In Potter, A.P., Perry, G.A., Stockert, A.P. & Hall, A.” *Basic Nursing Challenge*. (pp. 142-164). Missouri: Mosby/Elsevier.

Internet

Chen, M.W., Santos, H.M., Que, D.E., Gou, Y.Y., Tayo, L.L., Hsu, Y.C. (2018). Association between

Organochlorine Pesticide Levels in Breast Milk and Their Effects on Female Reproduction in a Taiwanese Population. *International Journal of Environmental Research and Public Health*. Retrieved June 3, 2018 from <http://www.mdpi.com/1660-4601/15/5/931>.

Thesis/dissertation

Hom, K. E. (2018). *Association of Air Pollution with Longitudinal Changes in Arterial Stiffness and Correlated of*

Longitudinal Changes in Arterial Stiffness in the Multi-Ethnic Study of Atherosclerosis (MESA). A Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree of Doctoral of Philosophy, University of Washington.

7. Charges

7.1. Page charges. No charge will be imposed on the authors of papers comprising up to ten printed pages with exemption for 200 \$ in 2019-2020. However, charges for papers comprising more than ten pages will be levied on the authors at a rate of \$50 per page.

7.2. Color figure charges. Color figures will incur a charge of \$50 per each page.

8. Submitting a manuscript

Manuscripts should be submitted online through the web site at <https://www.tci-thaijo.org/index.php/ijphs> Authors can suggest preferred / non-preferred reviewers for their manuscript, but the editors are not obliged to

use/not to use author suggested reviewers. In the IJPHS editorial process, six filed editors and their associate editors will handle submitted papers according to their relevant areas of expertise. Please choose 2 appropriate fields in the order you prefer, as this will help ensure a prompt and efficient editorial process. The editorial board may allocate papers to fields other than those chosen by the authors when appropriate, but authors should endeavor to select the appropriate fields. Selection of inappropriate fields will delay the editorial process.

9. Accepted manuscripts

9.1. Research articles accepted for publication in the IJPHS will appear initially as author-supplied unedited files online in the IJPHS -in-Press section on the website (<https://www.tci-thaijo.org/index.php/ijphs>) shortly after acceptance. The date the articles was included on the website will be considered the publication date. Any substantive changes at this stage will require an erratum to be

published. Articles will be published in the print version in order of acceptance as journal space permits.

9.2. Copyediting

Accepted manuscripts will undergo copyediting. The authors of the accepted manuscript are asked to make appropriate changes requested by the Editorial Office. The authors will be asked to submit the corrected manuscript to the Editorial Office as a Microsoft Word file(s).

9.3. Page proofs will be made available once to the submitting author.

9.4. Accepted manuscripts can also be accessed from the journal's page on the website free of charge. Authors can download the PDFs of their accepted articles and send them to colleagues for noncommercial use.

10. Editorial Office contact information

Questions regarding the instructions for authors should be addressed to the journal office via e-mail (ijphs@scphtrang.ac.th) or Tel. 66-88-7531547.