國家科學及技術委員會補助專題研究計畫報告

探討更年期婦女接受改變運動恐懼之e化骨質疏鬆症自我管理計劃之成效：隨機對照試驗

報 告 類 別 ： 精簡報告
計 畫 類 別 ： 個別型計畫
計 畫 編 號 ： NSTC 112-2629-B-182-001-
執 行 期 間 ： 112年08月01日至113年07月31日
執 行 單 位 ： 長庚大學護理學系

計 畫 主 持 人： 邵榮華
共 同 主 持 人： 陳素惠、蔡宗廷、梁雁秋

計畫參與人員： 博士班研究生-兼任助理：高怡君

報 告 附 件 ： 出席國際學術會議心得報告

本研究具有政策應用參考價值：□否 ■是，建議提供機關衛生福利部
（勾選「是」者，請列舉建議可提供施政參考之業務主管機關）
本研究具影響公共利益之重大發現：□否 ■是

中 華 民 國 113 年 10 月 16 日

中 文 摘 要 ： 研究背景：骨質疏鬆症已然成為最常見的慢性骨骼疾病之一，主要因素與老化及更年期有關。骨質疏鬆症和更年期骨質流失的狀況在全世界均造成了龐大的社會和經濟負擔。研究顯示骨質疏鬆症婦女具有運動恐懼症及較低的運動自我效能，甚而影響更年期婦女的生活品質。因此，在促進其健康時，應先了解運動恐懼的相關因素，進而提供有效的措施。e化健康自我管理是一種有效的行為改變策略，在目前科技進步的時代中，顯示出它能有效的促進慢性病患者的健康狀況，包括提高自我效能、行為改變、生活品質和降低醫療成本。因此，e化健康骨質疏鬆症自我管理計劃(eOSM)對個人和社會都有其最大的益處，建構此研究計劃是有其必要性的。

研究目的：第一年研究目的為利用質性研究，探討骨質疏鬆症的更年期婦女對運動恐懼的經驗，以在第二、三年的研究中，繼續發展及測試eOSM對運動恐懼的改變及提高自我效能的成效。

研究方法:研究將分三個階段進行，此第一年為第一階段使用線上焦點團體方法進行質性研究，以探討患有骨質疏鬆症的更年期婦女運動恐懼症的經驗。於2023年12月至2024年4月與28位骨質疏鬆症更年期婦女作線上焦點團體會議，包括六個小組（每組四至五個參與者）和12個焦點團體會議，直至主題飽和度完成。資料收集後運用質性之性內容分析法進行分析。

研究結果:分析結果呈現骨質疏鬆症的更年期婦女對運動恐懼的經驗，共得四個主題和 12 個子類別，四個主題如「從小問題變成大挑戰」、「勞心勞力、心有餘而力不足」、「雪上加霜、百病叢生」、和「膽戰心驚如影隨形」。骨質疏鬆病人的運動恐懼涉及多種心理因素，這些因素會影響他們對運動的態度和行為，其內容包括了擔心運動造成的傷害、缺乏運動知識、過去創傷經驗的影響、社會支持不足和心理因素，而對運動的恐懼及其原因，如擔心運動副作用、重訓造成的傷害、骨折風險等。另外在恐懼程度方面，即患者在面對運動時的不同反應，如一些患者對運動非常謹慎，避免高風險運動，而另一些患者則沒有特別恐懼，願意接受指導進行適度運動。參與者描述了他們患有骨質疏鬆症和運動恐懼症的經歷，骨質疏鬆症患者的運動恐懼症涉及多種影響其運動態度和行為的心理因素。

結論：患有骨質疏鬆症的更年期婦女面臨複雜的心理和社會挑戰，導致運動恐懼症。解決這些恐懼需要提供準確的運動知識、心理支持和強大的社會支持系統來幫助個人克服恐懼並提高生活品質。因此，需發展e化健康骨質疏鬆症自我管理計劃(eOSM)以幫助更多更年期婦女能掌握自己的健康狀況，獲得更妥善的照護，減少醫療資源的浪費，能促進照護之成效。由此更能激發醫療政策決策者採取此措施，希望在未來此eOSM計劃將成為骨質疏鬆症更年期婦女可運用的治療選擇之一，最終能成為遠距健康照護管理計劃的一部分。

中 文 關 鍵 詞 ： 骨質疏鬆症、更年期婦女、運動恐懼症、焦點團體

英 文 摘 要 ： Background: Osteoporosis (OP) has become one of the most common chronic bone diseases, influenced by various factors such as menopause and aging. Consequently, OP and menopausal bone loss pose significant social and economic burdens worldwide. Studies have shown that menopausal women

with OP exhibit higher levels of kinesiophobia and lower self-efficacy in physical activity, which negatively impacts their quality of life. Therefore, it is crucial to understand the fear and avoidance behaviors associated with kinesiophobia, consider the decreased self-efficacy that may limit physical activity, and provide effective interventions. With technological advancements, e-health self-management (SM) has emerged as a behavior modification strategy proven effective in managing chronic diseases, resulting in improvements in self-efficacy, behavior, quality of life, reduced healthcare costs, and lower mortality related to bone disease. The e-Health Osteoporosis SM (eOSM) program holds potential benefits for both individuals and society, making it essential to conduct research on its effectiveness.
Aim: The purpose of this first-year study is to use qualitative research to explore the experience of kinesiophobia in menopausal women with OP.
Methods: The research will be conducted in three phases. The first phase, during the initial year, is qualitative study using an online focus group approach to investigate the experiences of kinesiophobia among menopausal women with OP. From December 2023 to April 2024, we conducted online focus group discussions with 28 menopausal women diagnosed with OP. These discussions included six groups (with four to five participants per group) and a total of 12 focus group meetings, continuing until thematic saturation was reached. After data collection, qualitative content analysis was applied to interpret the findings.
Results: The analysis revealed the kinesiophobia experiences of menopausal women with OP. A total of four themes and 12 subcategories were identified. The four major themes are: "From Small Issues to Major Challenges", "Exhausted, Possessing Will but Not Strength", "When It Rains, It Pours" and "Living in Fear, with Anxiety Ever-Present". Kinesiophobia in these women involves a range of psychological factors that influence their attitudes and behaviors toward exercise. These factors include fears of exercise-induced injuries, lack of knowledge about safe exercise, the impact of past traumatic experiences, insufficient social support, and other psychological concerns. Additionally, participants reported specific fears such as worries about exercise side effects, injuries from intense training, and the risk of fractures. The level of fear varied among participants- -some were highly cautious and avoided high-risk exercises, while others were less fearful and open to engaging in moderate physical activity under guidance. The participants' descriptions

highlighted the significant role of psychological factors in shaping their exercise behaviors and attitudes. Conclusion: In conclusion, menopausal women with OP face complex psychological and social challenges that contribute to their kinesiophobia. To address these fears, it is essential to provide accurate exercise education, psychological support, and strong social support systems to help these women overcome their fears and improve their quality of life. Developing an eOSM could play a key role in empowering menopausal women to manage their health, reduce medical waste, and achieve better health outcomes.

英文關鍵詞：Osteoporosis, menopausal women, kinesiophobia, focus group.

國家科學及技術委員會補助專題研究計畫報告

探討更年期婦女接受改變運動恐懼之e化骨質疏鬆症自我管理計劃之成效:隨機對照試驗

報告類別：□進度報告

■成果報告：□完整報告/■精簡報告

計畫類別：■個別型計畫□整合型計畫

計畫編號：NSTC 112-2629-B-182-001

執行期間：112 年 8 月 01 日至 113 年 7 月 31 日

執行機構及系所：長庚大學護理學系

計畫主持人：邵榮華

共同主持人：陳素惠、蔡宗廷、梁雁秋

計畫參與人員：高怡君

本計畫除繳交成果報告外，另含下列出國報告，共 1 份：

□執行國際合作與移地研究心得報告

■出席國際學術會議心得報告

□出國參訪及考察心得報告

本研究具有政策應用參考價值： □否 ■是，建議提供機關:衛生福利部

(勾選「是」者，請列舉建議可提供施政參考之業務主管機關)

本研究具影響公共利益之重大發現：□否 ■是

中 華 民 國 113 年 10 月 15 日

中文摘要

研究背景：骨質疏鬆症已然成為最常見的慢性骨骼疾病之一，主要因素與老化及更年期有關。骨質疏鬆症和更年期骨質流失的狀況在全世界均造成了龐大的社會和經濟負擔。研究顯示骨質疏鬆症婦女具有運動恐懼症及較低的運動自我效能，甚而影響更年期婦女的生活品質。因此，在促進其健康時，應先了解運動恐懼的相關因素，進而提供有效的措施。e化健康自我管理是一種有效的行為改變策略，在目前科技進步的時代中，顯示出它能有效的促進慢性病患者的健康狀況，包括提高自我效能、行為改變、生活品質和降低醫療成本。因此，e化健康骨質疏鬆症自我管理計劃(eOSM)對個人和社會都有其最大的益處，建構此研究計劃是有其必要性的。

研究目的：第一年研究目的為利用質性研究，探討骨質疏鬆症的更年期婦女對運動恐懼的經驗，以在第二、三年的研究中，繼續發展及測試eOSM對運動恐懼的改變及提高自我效能的成效。

研究方法:研究將分三個階段進行，此第一年為第一階段使用線上焦點團體方法進行質性研究，以探討患有骨質疏鬆症的更年期婦女運動恐懼症的經驗。於2023年12月至2024年4月與28位骨質疏鬆症更年期婦女作線上焦點團體會議，包括六個小組（每組四至五個參與者）和9個焦點團體會議，直至主題飽和度完成。資料收集後運用質性之性內容分析法進行分析。

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結論：患有骨質疏鬆症的更年期婦女面臨複雜的心理和社會挑戰，導致運動恐懼症。解決這些恐懼需要提供準確的運動知識、心理支持和強大的社會支持系統來幫助個人克服恐懼並提高生活品質。因此，需發展e化健康骨質疏鬆症自我管理計劃(eOSM)以幫助更多更年期婦女能掌握自己的健康狀況，獲得更妥善的照護，減少醫療資源的浪費，能促進照護之成效。由此更能激發醫療政策決策者採取此措施,希望在未來此eOSM計劃將成為骨質疏鬆症更年期婦女可運用的治療選擇之一，最終能成為遠距健康照護管理計劃的一部分。

關鍵詞：骨質疏鬆症、更年期婦女、運動恐懼症、焦點團體

Research Purposes

The present study aimed to explore the experiences of kinesiophobia in menopausal women with OP in their physical activity.

Methods

Research Design. The focus group method, a qualitative research method, was utilized in the search for answers to such questions. According to Denscombe (2007, p.115), "focus group consists of a small group of people, usually between six and nine in number, who are brought together by a trained moderator (the researcher) to explore attitudes and perceptions, feelings and ideas about a topic." It would focus on participants' experiences of kinesiophobia. There offered a rich source for exploring patients' inner feelings and attitudes for kinesiophobia that will help develop eOSM, objectives based on changes in factors of kinesiophobia, and self-efficacy model in Step 2 of the study.

Data Collection Procedure. A purposive sample were recruited from all menopausal women with OP who attended the clinics of orthopedics in hospital. This study was started in December 2023 and completed in April 2024 with focus group interview, which will have six group interviews (four or five participants per group) and nine focus group meetings last for 90 min (Nyumba et al., 2018). During these discussion sessions, the study will also determine whether themes become ***saturated*** during the last two meetings and estimate the amount of data needed to complete the collection. The time and location of the meeting should be decided keeping in view the convenience of the participants. It should also be ensured that the place is interference-free. Focus groups are typically conducted face-to-face, but new technology has enabled investigators to conduct qualitative research online. Real-time audiovisual Web conference technology offers qualitative researchers a promising alternative to conduct focus groups (Bunnik & Bolt, 2021). Thus, an online focus group is a data collection method that will be used in responding to the difficulty in recruiting participants due to the COVID-19 pandemic. Thus, **online focus groups** will be utilized during the COVID-19 crisis. Otherwise, synchronous methods allow researchers to conduct live discussions between a number of respondents through an online platform, which will attempt to mimic in-person focus groups (Moore et al., 2015). However, the success of the focus group is affected if the moderator is not skilled in managing the group interaction. Thus, the study will follow the "Online Focus Group Checklist" (Hinkes. et al., 2021) to obtain an accurate direction.

There were four steps in this procedure. First, the researcher screened patients who attended the orthopedics clinics in the medical center during the study period, met the inclusion criteria, and agreed to participate in the study. Next, participants were invited to face-to-face interviews in a private, quiet meeting room. The researcher explained the purpose, procedure, and rule of the study and participants' rights, the policy regarding confidentiality, and the benefits of participating in the study. Participants agreeing to participate in the study signed consent forms. Third, baseline data were also collected by interview for participants' who had consented to be in the study. Lastly, four participants were formed a group, which met and discussed online through the line app of the mobile phone. The researchers also reminded that participants needed access to uninterrupted

internet connectivity and a mobile phone with a good camera. On the day of the online focus group, the researcher tested each participant's connection and ensure that participants did not have their backs to windows or bright light at 30 min before the meeting. Moreover, participants were asked to adjust their mobile cam so it is at their eye height and their head and shoulders can be seen to ensure that participants can see each other. This is ideally available to participants. Moreover, during the group discussion, the researcher needed to promote interaction among participants by asking them to respond to each other's comments. Moreover, the researcher reminded the participants regarding the meeting time of the group 3 days before by phone call. Interviews were tape-recorded with the group's permission and lasted 90 min. Participants will be encouraged to listen to each item, talk to each other, ask questions, exchange experiences, and add new items. Furthermore, we discussed with participants that permitted us to have an in-depth insight into participants' views on the experiences of kinesiophobia. Notes were also taken on participants' facial or emotional expression by the researcher during the meeting.

Results

Exploring the experiences of menopausal women with osteoporosis regarding their kinesiophobia

This study used a focus group method to explore the experiences of menopausal women with osteoporosis regarding kinesiophobia. Through data analysis and systematic coding, the open coding results were organized and categorized during axial coding. The following five categories and themes were identified from the data:

Theme 1: "From Small Issues to Major Challenges"

Although bone loss is a normal part of the aging process, it accelerates rapidly in menopausal women. Clinically, osteoporosis often progresses silently, without warning, with a constant decrease in bone density. This becomes a significant issue when bones become too fragile to withstand daily life pressures. Main symptoms include lower back pain, limited mobility, and joint deformities due to vertebral compression fractures. In severe cases, the spine may lose or change curvature, causing hunchback, height reduction, and lower back pain. Extreme spinal curvature can lead to breathing difficulties. Most patients seek medical help only after sudden fractures cause severe pain and mobility issues; by then, it is often too late.

1. **Unforeseen Diagnoses and Disease Progression**: This includes the history and process of diagnosis, and participants' initial experiences of being diagnosed. One participant said, "I checked last year, and it's worse," another stated, "Checked in February, and the condition wasn't good."
2. **Fear of Fractures**: Due to decreased bone density, patients with osteoporosis are more prone to fractures. They may fear falling or injury during exercise, which can lead to fractures. Injury concerns are a primary reason for patients' kinesiophobia. One participant said, "Bending to brush my teeth hurts. I avoid going out alone because I'm afraid of fractures," while another said, "I'm afraid of exercise, especially weight training, as it might cause injuries." Other participants remarked, "I'm scared of the side effects of exercise, especially weight training, fearing fractures," "I avoid massages and bending over, worrying about spinal fractures," and "I avoid intense exercise, fearing fractures."

Theme 2: "Exhausted, Possessing Will but Not Strength"

Bone loss often occurs without any obvious symptoms. A 55-year-old woman who retired early because of financial security and planned to travel fell at home and was diagnosed with a hip fracture. Only after the fracture did she realize that her past sedentary lifestyle, lack of exercise, and irregular meals had led to insufficient bone density. The long recovery process greatly affected her life, highlighting the importance of maintaining mobility in daily life to avoid situations where a person’s will exceed their ability to act.

1. **Misunderstandings and Fear**: Misunderstandings and a lack of knowledge about exercise may cause patients to be unaware of or misunderstand the benefits and risks of exercise for osteoporosis. These misconceptions can intensify kinesiophobia. In addition, many patients may not know which exercises are safe, which may increase the risk of injury. Lack of professional guidance and proper exercise knowledge can lead to feelings of confusion and fear. One participant pointed out, "In larger gyms, trainers guide you through weight training, but sometimes if you don't control [the weights] well, injuries can happen." Another said, "I only do brisk walking every two days for about an hour, and my doctor told me not to lift heavy objects, so I'm hesitant about weight training. I'm unsure if it's appropriate for me; I'm afraid improper force might cause injuries." A participant explained, "When my bone density was -3.2, the doctor recommended swimming, but I can't swim. I consulted my Chinese medicine doctor and Pilates instructor, and they suggested weight training, but I haven't started. Now I'm doing Pilates, but I'm still scared of getting injured." Other respondents asked, "Do you have any courses or information that can provide us with correct guidance on what exercises are safe? I'm afraid that if I overdo it, my bones might fracture, but if I don't exercise, I can't strengthen my bones. What should I do?" and "When I do yoga at night, I like to fold my legs, but is it dangerous?"
2. **Physical and Mental Exhaustion**: Participants described physical symptoms like "lower back pain, hunchback, reduced height, numbness, limited mobility," and "spinal curvature, hunchback," as well as limitations like "I can't sit for long; my back can't support me."
3. **Struggling to Cope**: This includes the impact on daily life and limitations in work abilities, as expressed by participants: "Right hip pain, can't lift heavy objects," "Lower back pain, can't lift heavy objects," "Right joint pain, can't lift heavy objects," and "I can't go up or down stairs. I rent out the downstairs while I live on the second floor, so I haven't exercised."

Theme 3: "When it Rains, it Pours"

In the 15-20 years following menopause, women experience a sharp decrease in estrogen, which increases the activity of osteoclasts, leading to thinning, breakage, and reduction of trabecular bone tissue and weakening bone strength. This rapid postmenopausal bone loss is often accompanied by increased calcium excretion through urine due to decreased parathyroid function. Osteoporosis often results in fractures in areas with high trabecular content, such as vertebral compression fractures, wrist fractures, and intertrochanteric fractures of the hip.

1. **Compounding Injuries and Life Events**: Participants shared various fracture experiences (e.g., foot fractures, fall-related fractures, spinal fractures), and other significant accidents (e.g., car

accidents). For example, "Last year, I had a spinal fracture," "After my car accident," "In February last year, I went shopping at Carrefour. I knew I was getting older, so I tried to balance things out when lifting my purchases. While bending over to put things in the car, I heard my spine crack twice—it broke."

2. **Impact of Major Life Events on Osteoporosis**: Some major life events significantly impacted osteoporosis (e.g., breast cancer treatment leading to osteoporosis). Examples include, "12 years ago, I had breast cancer surgery, and the anti-cancer medication caused osteoporosis," and "I had cervical cancer and had my uterus and ovaries removed in 2006. I don't know if this caused it, but my bones used to be normal."

3. **Impact of Previous Injuries**: Some patients had prior injuries from exercise, leading to negative associations and fears of getting injured again. One participant said, "I'm extra cautious during exercise, avoiding high-impact activities to prevent further spinal injury."

Theme 4: "Living in Fear, with Anxiety Ever-Present"

Osteoporosis does not have obvious clinical symptoms but can cause fractures and complications from even minor trauma, leading to various symptoms, functional impairments, and psychological issues, such as reduced self-esteem or even death. These issues severely affect the patients' quality of life, causing them to fear osteoporosis and its possible consequences.

1. **Excessive Caution**: Patients are cautious about exercise, avoiding heavy lifting and slowing their movements. One participant said, "After learning I had osteoporosis, I started moving more slowly, not running across the street. I have to be careful, which impacts my life. I used to be able to do gardening for 30 minutes without a problem, but now I can only manage 5 minutes before my back starts hurting. I need to rest before continuing, which disrupts my life." Another said, "Now that I know about my condition, I’m always extremely cautious, never lifting heavy things. I won't even ride a bike for fear of falling."

2. **Lack of Social Support**: A lack of support from family, friends, or healthcare professionals makes patients feel isolated and increases their kinesiophobia. One respondent explained, "I can’t lift heavy objects, can’t climb stairs, or hike. I can't sit on low chairs, and doctors advise me against running or jumping." Another said, "My biggest issue is that even though I hired a personal trainer at the gym, they aren't specialized in medical issues like mine. I asked the doctor if rehabilitation could provide proper training, but he said I need to find what suits me myself. This leaves me worried and confused. Even my trainer is afraid of hurting me because he's not an expert in this area."

3. **Social Pressure**: Some patients worry about being judged or ridiculed by others during exercise, leading them to avoid it. Examples include: "My doctor said my bones are slightly displaced, and now when I want to go hiking, my husband tells me not to because of my condition," and "I planned to travel to Japan this year, but my husband was worried I wouldn't be able to keep up with the tour and might inconvenience others, so he told me not to go."

4. **Psychological Factors**: Kinesiophobia may also stem from psychological factors such as increased sensitivity to pain or a lack of confidence in physical abilities. These psychological barriers reinforce reluctance to exercise. One participant said, "I love doing yoga, but I’m worried

that I might break a bone while doing certain poses, so I do them in secret, fearful of injury." Others pointed out, "I avoid intense exercise like hiking and swimming. I’m fine with just walking," "I’m scared that dancing or doing vigorous exercise could cause injury," and "I feel like I can't do the activities I used to love because another fracture would be a disaster. I’m really not capable anymore, so just walking is good enough."

These findings demonstrate the various experiences and treatment options of menopausal women with osteoporosis as well as how they perceive and manage their kinesiophobia.

Discussion and Conclusion

Through our research, we presented themes related to fear of exercise among postmenopausal women with osteoporosis, including the causes of that fear. These causes relate to patients' concerns about exercise, such as side effects, injuries from strength training, and the risk of fractures. Additionally, the level of fear was examined and revealed varying responses to exercise. Some patients were extremely cautious and avoided high-risk activities, whereas others were neither particularly fearful nor willing to engage in moderate exercise. The data were consolidated into key psychological and behavioral findings. In the axial coding of "exercise fear," the identified themes included "kinesiophobia and its causes," "different levels of exercise fear and coping strategies," and "how to choose appropriate exercise methods." The following section discusses the results, consolidating the data into key psychological and behavioral aspects, including: physical and psychological burdens caused by osteoporosis; misconceptions and lack of knowledge about exercise; insufficient social support and social pressure; and strategies for overcoming the fear of exercise.

First, we examined the physical and psychological burden of osteoporosis. Many menopausal women experience long-term conditions related to osteoporosis, including reduced bone density and symptoms such as lower back pain, hunchback, and height loss. These physical changes exacerbate concerns regarding the risks of exercise. Thus, physical limitations are a key factor contributing to kinesiophobia among menopausal women. Symptoms such as back pain and spinal curvature limit mobility and increase fear of injury during exercise (Gunendi et al., 2018). Our study also found that their fear often stemmed from concerns about fractures (Hadjistavropoulos et al., 2012), especially in those with a history of injury, who were more likely to fear further trauma from exercise. These fears are closely linked to past experiences with fractures. The study further revealed that women diagnosed with osteoporosis often experience pain and restricted mobility, making them more apprehensive about exercising, particularly weight training and high-impact activities. Managing these physical limitations through targeted, low-impact exercises like swimming or yoga, can help reduce the risk of injury while improving bone density. Hadjistavropoulos et al. (2012) emphasized that the fear of falling and lack of confidence in one's balance are major reasons why patients avoid exercise, which significantly affects their bone health. Addressing psychological factors, offering psychological support, and engaging in confidence-building measures may help alleviate these fears and encourage menopausal women to participate in appropriate exercise.

In terms of misconceptions and lack of knowledge about exercise, this study found that many participants lacked proper knowledge about the benefits and risks of exercise. They often did not know which exercises were safe or misunderstood the potential negative effects of exercise on osteoporosis. A lack of professional guidance further contributed to confusion and increased kinesiophobia. For example, some participants were concerned about weight training and feared that improper techniques could cause injuries. These doubts often stemmed from a lack of knowledge about exercise. Most participants indicated that they did not have a correct understanding of the benefits and risks of exercise, which is consistent with the findings of previous studies. According to Rodrigues et al. (2016), patients often do not know which exercises are safe, nor do they understand how exercise benefits bone health. The study further noted that many patients with osteoporosis misunderstood the positive effects of exercise on bone health and were confused as to which exercises were safe. This lack of knowledge exacerbates kinesiophobia, particularly in the absence of professional guidance. Therefore, increasing patients' knowledge of the risks and benefits of exercise, strengthening health education, and providing accurate exercise knowledge can help reduce the fear of exercise, promote exercise participation, and encourage healthier lifestyles.

Additionally, participants faced exercise-related psychological barriers that were often associated with past experiences of fractures, spinal deformities, and mobility limitations. Hamed et al. (2021) noted that patients with osteoporosis often experience ongoing anxiety and concerns about the potential consequences of falls, such as fractures, which have long-term effects. Research has shown that many menopausal women develop heightened sensitivity to pain and lack confidence in their ability to exercise. These psychological factors reinforce their reluctance to exercise. Fear of pain and lack of confidence in one’s capabilities play crucial roles in fear of exercise. Even if menopausal women with osteoporosis understand the health benefits of exercise, fear nevertheless leads them to avoid activities that could improve bone density, instead opting for lower-impact, safer activities such as walking and yoga. These psychological obstacles often result in the avoidance of exercise and worsening of physical conditions, creating a vicious cycle. Dohrn et al. (2016) highlighted exercise’s role in providing individuals with a sense of control over osteoporosis and increased self-efficacy. Positive experiences with physical activity such as balance training help individuals gain confidence in managing their condition. Therefore, psychological interventions aimed at improving attitudes toward exercise and enhancing self-efficacy can reduce fear and promote exercise participation.

On the other hand, insufficient social support and social pressure also contribute to kinesiophobia. This study found that lack of social support, especially from family or healthcare professionals, left many patients feeling isolated and helpless. The absence of support was a key factor in exacerbating fear of exercise. Some participants mentioned that their family members or partners discouraged them from engaging in certain exercises, fearing that they would be injured, which further increased their fear. This lack of support makes them more conservative in their exercise choices. Research shows that social support significantly affects the development of

exercise self-efficacy (Bevilacqua et al., 2024). When family members or partners are cautious about exercise, they often heighten the patients' anxiety and stress, thereby reducing their willingness to exercise. Social support is a key factor that influences menopausal women's participation in exercise. Bergland et al. (2011) emphasized that support from family or healthcare professionals can significantly boost patients' exercise confidence. Family encouragement and professional exercise guidance can help patients overcome their fear of exercising and maintain their physical activity. Therefore, providing comprehensive health education and exercise guidance to both patients and their families is important for increasing exercise participation and improving health outcomes.

Finally, in terms of strategies for overcoming kinesiophobia, despite the presence of fear, some participants attempted to overcome these psychological barriers by seeking appropriate forms of exercise to stay active. Emphasizing proper exercise guidance and gradually increasing exercise intensity are important to reduce fear. It is recommended that patients receive professional medical and exercise advice to alleviate their fear and aid in the development of personalized exercise plans. This aligns with the findings of Simmonds et al. (2015), who found that a progressive exercise plan, particularly under the guidance of healthcare professionals, could effectively reduce fear of exercise. In these cases, providing expert advice and gradually increasing exercise intensity helps patients adapt to exercise and build confidence. Therefore, personalized exercise plans are essential. Simmonds et al. (2015) pointed out that designing individualized exercise programs based on a patient’s health status, past exercise experiences, and psychological conditions is an effective strategy for overcoming fear of exercise. Such programs can reduce fear while ensuring safety.

These perspectives indicate that kinesiophobia involves multiple factors, including psychological, knowledge-based, social, and physical challenges. Therefore, future interventions for patients with osteoporosis should adopt an integrated approach to enhance exercise participation and improve their quality of life. Our focus group findings highlighted the prevalence and profound impact of kinesiophobia among patients with osteoporosis, showing the multidimensional psychological and behavioral responses of menopausal women when facing exercise. Kinesiophobia stems not only from physical limitations, but also from psychological factors, past injury experiences, and social support. These findings underscore the importance of designing more targeted interventions to help patients overcome fear of exercise and establish healthy exercise habits. Therefore, future clinical practice and research should focus on how to help menopausal women overcome kinesiophobia by providing proper exercise guidance, increasing their knowledge about exercise, and building strong social support systems, ultimately improving their quality of life. These conclusions serve as a reference for future research and clinical practice, particularly in the design of effective self-management programs to reduce fear of exercise, which is crucial for promoting the health of postmenopausal women with osteoporosis.

In conclusion, menopausal women with osteoporosis face complex psychological and social challenges that contribute to kinesiophobia. Addressing these fears requires the provision of accurate exercise knowledge, psychological support, and robust social support systems to help individuals overcome their fears and improve their quality of life.

國家科學及技術委員會補助專題研究計畫

出席國際學術會議心得報告

日期：113 年 4 月 28 日

計畫編號	NSTC 112－2629－B－182－001		
計畫名稱	探討更年期婦女接受改變運動恐懼之 e 化骨質疏鬆症自我管理計劃之成效: 隨機對照試驗		
出國人員姓名	邵榮華	服務機構及職稱	長庚大學護學系 副教授
會議時間	113 年 3 月 25 日至 113 年 3 月 29 日	會議地點	日本，東京
會議名稱	(中文) 第 14 屆亞洲心理學與行為科學會議 (英文) The 14th Asian Conference on Psychology & the Behavioral Sciences (ACP2024)		
發表題目	(中文) 發展 e 化的自我管理計劃以改變患有骨質疏鬆症的更年期婦女的運動恐懼症：隨機對照試驗的設計 (英文)Development of an e-health self-management program to change kinesiophobia in menopausal women with osteoporosis: design of a randomized controlled trial		

一、參加會議經過

IAFOR 研究中心 (IRC) 是一個政治上獨立的國際性跨學科智庫，位於日本大阪大學大阪國際公共政策學院 (OSIPP)，負責開展和促進學術研究計畫，鼓勵學者和學者在論壇上會面並交流想法和觀點，促進相互尊重的對話，在其舉辦的「第 14 屆亞洲心理學與行為科學會議 (ACP2024)」的會議，主要重點是鼓勵國際間和跨文化間的相互理解與合作，經由跨學科和國際焦點吸引了世界一流的演講者，並讓人們年復一年地回來，ACP2024 無疑將延續這項傳統，成為學習和交流的好地方，整個形式包括了實體會議及線上會議，專家演講者提供來自各種學術和專業背景的觀點，促使各專業人員能夠與年輕的研究人員分享見解，亦可向下一代學習。會議上展示的許多研究論點都處於目前的趨勢，展示了演講者對複雜主題的深刻掌握，並提出了重要的新想法，它讓與會者有機會建立跨學科和全球視角的心理學和行為科學研究。今年的會

議，委員會選擇比往年更開放的主題，在各項心理學和行為科學領域將有許多分論壇和特別會議，演講者不會受到任何特定主題的限制，希望籍由這種開放的形式能夠鼓勵就各種相關主題進行廣泛的交流，並鼓勵跨學科的討論。因此，在整個會議的報告中，各國專家們提出各項的議題，去喚醒大家對不同議題的重視，包括了 COVID-19 的意外爆發為全球教育系統帶來了前所未有的挑戰、人口老化對各國社會和經濟政策提出挑戰、各項老化議題的被忽視與誤解、人工智慧及老化和道德問題、如何利用人工智慧去促進心理醫療保健、探討兒童生活及性別發展方面受養育技巧和環境的影響因素、在學習動機的發展和維持在學習環境中獲取知識和行為等等不同的議題，更在會議中提出，日本作為超老化社會在全民健保的創新與永續性的各項議題的榜樣。 3 月 25 日至 29 日是會議進行的時間，很榮幸與這麼多不同領域的專業人員，投入這場盛會，並在其中的一個 Poster Session 上發表論文-----Development of an e-health self-management program to change kinesiophobia in menopausal women with osteoporosis: design of a randomized controlled trial，分享個人的研究計劃，也藉著報告論文的參與時間，去參與來自世界各國的學者所發表的各項議題。會議本身提供一個同行分享知識和網絡的全球平台，為期 5 天的會議共包括不同場次的知名學者的主題演說、不同場次的口頭報告及線上工作仿討論交流。最後也針對未來各項資訊科技在 AI 研究的發展、困境、與目標提出意見交換。

二、與會心得

在此次會議的參與中，很高興能夠接觸不同的議題，尤其在老化及 AI 的議題中，更加有所領悟，學者提出根據聯合國的預測，2050 年全球 65 歲以上的老年人口比例預計將從 2022 年的 10%增加到 16% 。這代表未來全球 65 歲以上老年人口的數量將持續增加，預計將達到 16 億，佔全球人口的 16%以上，老年人在人口中所佔比例不斷增加－將成為二十一世紀最重大的社會變革之一，人口老化問題不容小覷，對社會幾乎所有部門產生影響，這將對各國經濟政策提出挑戰，全世界都應需要制定新的政策以

因應這種人口變化。人口老化對社會的影響主要涉及家庭變化、年輕人移居城市、對支持和照顧的需求、對健康的關注等方面。隨著人口老化，平均而言，老年人需要比年輕人更多的醫療保健，這導致醫療支出的迅速增加；另外，由於人口老化，經濟中的工作年齡人口減少，導致合格工作者供應短缺，使各項的發展更難持續。老化人口結構轉變產生了大量且不斷擴大的人口群體，通常被稱為「被忽視的人口群體」。他們未滿足的需求是人口變化的直接結果，我們需要了解金錢經濟的經濟優勢至關重要，同樣重要的是深入了解老年人的行為，超越對老人陳腔濫調、標籤、偏見和先入為主的觀念，尤其去了解隨著年齡的增長在應對新事物方面的困難。

學者更提出，在人工智慧、老化和道德問題，重要的是「老」不再那麼老，老化的過程和經驗不再都是負面的。這意味著我們需要「更新」我們的觀念和研究重點，以考慮當今老年人的生活方式，並調查對他們健康、積極地變老意味著什麼。其次，我們還需要接受他們的個人故事和生活經歷，這可以讓我們更加積極的去發展老化相關的評估和介入措施，所以在探討老年人的心理健康以及正向老化的意義，以及如何在文化上建構老化和正向老化的一些考量，都希望強調以積極老化的概念為中心，其目的是將研究重點轉移到老化的社會和心理層面，而不是更傳統的老化生物醫學模型。

另外，日本作為超老化社會的榜樣，尤其在全民健保的創新與永續性，日本的醫療保健體系使人們能夠普遍且頻繁地獲得醫療服務，這也是日本在 G20 國家中預期壽命和健康預期壽命方面表現最好的原因之一。然而，日本人口老化和工作人口下降意味著，如果不採取新政策和提高效率，未來二十年的稅收將不足以支持全民健保中的這個標準。因此，日本政府正在考慮採取某些方法，例如增加日本勞動力來彌補這個問題，使外國工人更容易獲得工作簽證並為社會服務做出貢獻。移民正在增加，但還需要更多，不僅是為了增加工作人口和稅收，而且是為了增加參與人口老化所需的醫療和護理服務的工人數量。另外，需要能夠節省成本的醫療保健的創新，但歐美國家

有越來越多的新技術尚未在日本獲得批准，由於對監管挑戰和定價不確定性的過時理解，許多創新者不會來到日本。因此日本政府在降低監管障礙方面需要作大部份的修訂，透過提高定價透明度、支持帶來長期健康經濟效益的創新、繼續降低監管障礙以及進一步支持移民增長，日本有機會引領發達國家以超低水平的方式展示單一付款人全民醫療保健的可持續性。

越來越多的已開發國家現在將老年人視為優先市場，承認全球人口不斷變化以及老年人越來越多地參與各種活動。然而，儘管老年人具有重要意義，但他們仍然相對不為人所知且未被市場化。老化為政治、科技、行銷和服務等領域的決策者帶來了重大挑戰。在消費者概況和行為快速變化的時代，公司必須努力充分了解老年消費者的需求和願意支付的費用，這包括理解新的消費模式，重新評估他們提供的服務，適應老年人不斷變化的需求，並積極應對變化和挑戰。

另外，在人工智慧方面，在與會中可以看到運用在不同的病患中，個人特別有感受的是利用人工智慧改變心理醫療保健，學者 Dr Ranjan 提出，全世界精神健康疾病的流行引起了重大而迫切的關注，影響了全球很大一部分人口的生活品質和預期壽命，因此，其研究致力於研究人工智慧（AI）技術在解決心理健康領域複雜挑戰的應用。它旨在克服與成本效率、可及性和產品開發相關的障礙。研究的目的是製定一個策略框架，使心理健康解決方案提供者能夠降低成本，同時滿足個人的不同需求和偏好。利用質性研究設計，全面探討研究問題的多面向向度。透過嚴格的調查來證實人工智慧技術與心理健康背景下的連結性之間的關係。將進行重點小組討論，以評估公眾對人工智慧技術在心理保健中的應用的情緒和看法。這項研究的預期結果是提供實證證據，證明人工智慧整合對心理健康解決方案的影響，為精神衛生領域的企業提供可行的指導，以降低成本並滿足個人的多樣化需求。此外，希望對公眾在精神保健領域接受基於人工智慧的解決方案的態度、擔憂和意願有一個細緻的了解。

由以上的學習，更加開拓了視野，而在參與會議中，可以將為結交不同領域的專

家學者、建立新的聯繫、建立人際網絡以及促進跨國界和跨學科的夥伴關係提供絕佳的機會。以符合大會鼓勵跨學科討論、促進提高跨文化意識、促進國際交流以及生成和分享新知識的使命。

三、發表論文全文或摘要

此次會議進行的方式包括口頭發表、海報展示、相互討論與分享等；會議過程的經驗分享、學術研究的切磋，讓人收獲滿滿，除了不同領域知識的交流之外，還可以體會到各國對不同研究的族群、學習行為及健康照護的發展及重要性，報告摘要如下：

Background: Osteoporosis (OP) has become one of the most common chronic bone diseases that are related to various factors including menopause and aging. As a result, OP and menopausal bone loss pose a huge social and economic burden worldwide. Moreover, studies showed that OP menopausal women have higher levels of kinesiophobia and lower self-efficacy of activity, which even affects their quality of life. The e-health self-management is a behavior modification strategy that is proven effective in the management of diseases. Thus, it is necessary to develop and evaluate an e-Health Osteoporosis Self-Management (eOSM) program based on changes on the kinesiophobia and self-efficacy model and facilitate behavior change in menopausal women with OP.

Methods: This research will be conducted in three steps. In the first step, a qualitative study with online focus-group approach will be conducted to explore kinesiophobia in OP menopausal women. In the second step, after the factors of kinesiophobia are identified, the eOSM program that focuses on changes in factors of kinesiophobia and self-efficacy model will be developed. In the third step, an experimental design will be applied to allocate patients to either a supervised 4-week eOSM intervention with usual practice or usual practice only by randomized controlled trial. The outcome measures of this study will be conducted at baseline and at 1, 6, and 12 months.

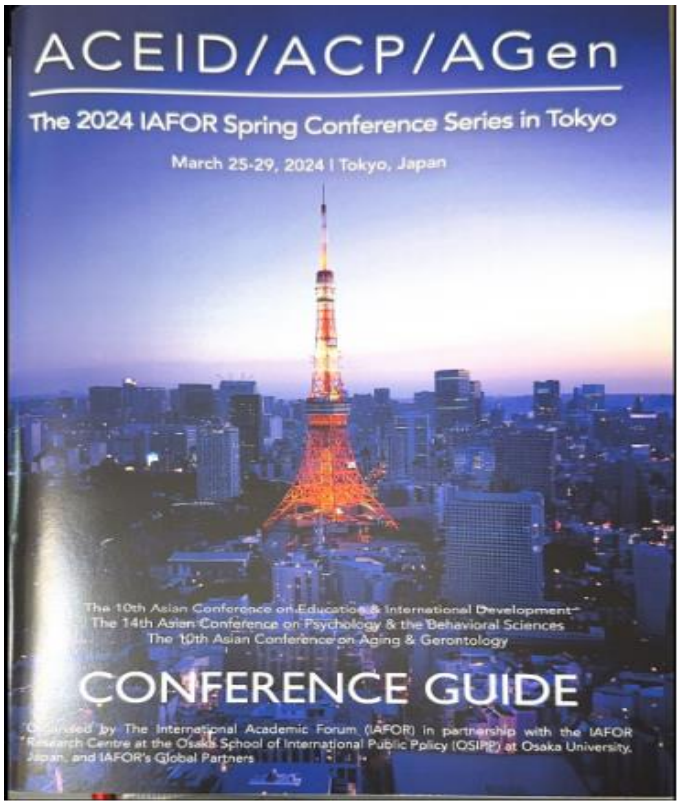
Conclusion: The findings of this study would generate an effective eOSM program for health professional to facilitate menopausal women with OP the development of self-care capability and improvement of health-related outcomes

四、建議：

參加了此次的會議，對我來說，經由會議的主題學習與意見交換，了解到目前各國的各項研究的主題，讓生活與科技的結合、改善民眾生活等，都可以作為未來個人研究趨勢的參考。尤其在會議中的老化人口的問題，首先要能夠更深入去探討這個重要但經常被忽視的人口群體；其次，闡明老年人在企業重要方面的行為變化，所獲得的見解及其實際影響可以幫助研究人員、專業人士、政策制定者和行銷人員更好地理解和滿足隨著人口持續老化而不斷變化的老年消費者的需求和期望。經由此會議，帶給我們一些不同研究的想法及理念，如利用 AI 技術，軟體和系統對醫療保健行業的影響，這讓我領悟到也必須跟上科技發展的步伐，以提高效率。未來須運用參與本次研討會的相關經驗於自己的研究領域，如 E 化對老人照護的趨勢、提升民眾健康自我管理的生活習慣，提供符合時代科技進步的自我管理計劃，不同的理倫提供老人慢性病患維持其生活的品質，仍是我須要持續努力的目標。

五、攜回資料名稱及內容

- 此研討會之相關手冊



六、其他

- 參與會議之相關證明與資料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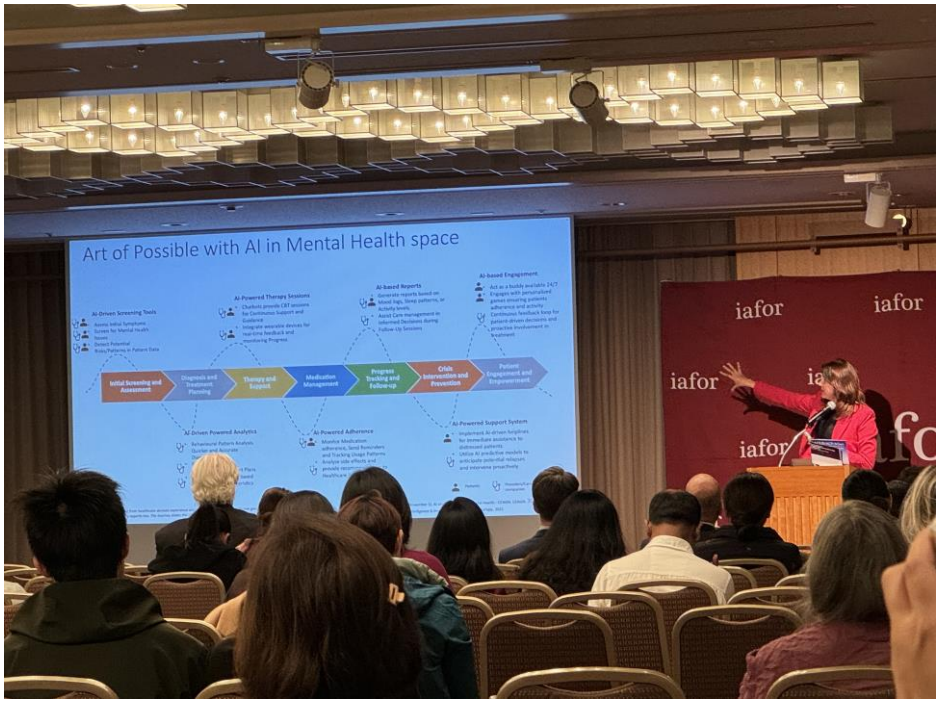
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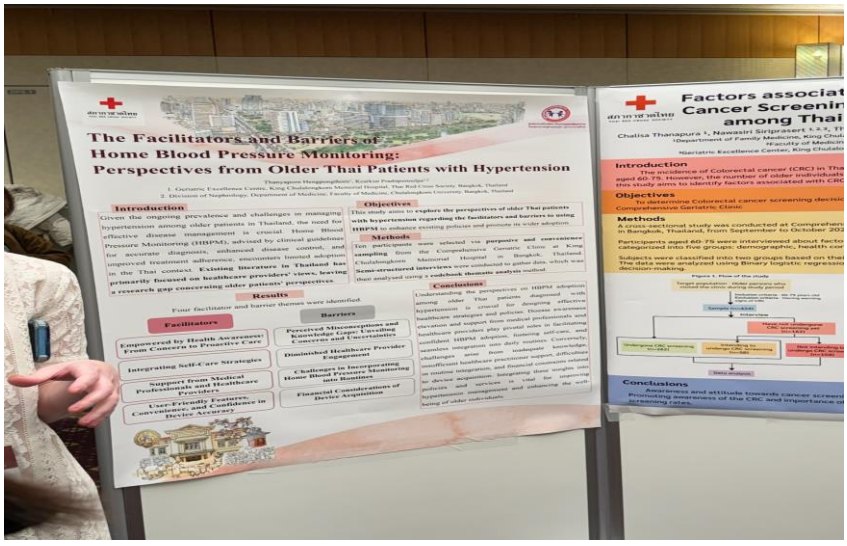
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