

# Oral Presentation Abstract-English Session

## Oral Session A (English session)

### 【場次 A1】

柏格平衡量表應用於嚴重精神病患之信度與效度

#### Reliability and validity of the berg balance scale in patients with severe mental illness

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**Objective:** The Berg balance scale (BBS) has become a standard indicator to measure balance and fall risk in older adults. However, few studies explored the association among the BBS, falls and the patients with severe mental illness, especially in schizophrenia. This study aimed to validate the BBS for assessing balance abilities in patients with severe mental illness, focusing on its reliability (internal consistency) and validity (convergent validity and known-group validity).

**Methods:** Sixty-one patients with chronic schizophrenia in psychiatric hospital in Taiwan were recruited. The balance performances were assessed using three measures: the BBS, the Timed Up and Go test, and the Mini-Mental State Examination. The internal consistency and validity of the BBS were examined.

**Results:** The BBS demonstrated satisfactory internal consistency among patients with chronic schizophrenia (Cronbach's  $\alpha = 0.72$ ). The BBS scores exhibited a moderate negative correlation with patient age ( $r = -0.40$ ) and a strong moderate correlation with the Timed Up and Go test results ( $r = -0.66$ ). Furthermore, the BBS scores effectively differentiated patients with a history of falls.

**Conclusion:** The finding of this study support the reliability and validity of the BBS in assessing balance abilities among patients with chronic schizophrenia, endorsing its potential utility in clinical practice.

**Keywords :** Berg Balance scale, internal consistency, convergent validity, known-groups validity

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### 【場次 A2】

正念日曆於失智症個案照顧者之使用初探

#### Utilization of a "mindfulness calendar" in caregivers of individuals with dementia

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**Introduction:** With the increasing number of dementia patients, the majority of patients' caregivers experienced emotional strain, physical exhaustion, and a lack of personal time. To address these challenges, we proposed the creation and use of a customized calendar for mindfulness-based practice. Mindfulness training, an evidence-based intervention, has been proven to be effective in reducing the issues faced by dementia caregivers. Our product aimed to offer daily mindfulness exercises with professional instructions, providing needed support to caregivers of individuals with dementia. The feasibility of our mindfulness calendar was assessed.

**Methods:** We custom-made a two-week online calendar with mindfulness-based education materials and practice. The practice video or audio clips were demonstrated or guided by certified mindfulness-based stress reduction program instructors, who were also healthcare professionals including an occupational therapist and a nurse. To maximize exposure, our study made use of a variety of platforms, including caregiver-focused Facebook groups and LINE chat groups. By filling out an online Google form, the participants agreed to receive information regarding our calendar via emails or social media groups and to use the calendar daily for at least two weeks. The participants engaged in daily mindfulness exercises by viewing instructional videos on YouTube. Individuals' feedback regarding usage and level of satisfaction was collected through online Google forms. The participants reported daily to our project team members whether they completed the practice materials. They were also invited to fill out a feedback form once a week online.

**Results:** Out of the 96 individuals who participated in our program, all of them showed high satisfaction with our program. The results showed that after engaging in the mindfulness program for 2 weeks, the participants reported that they "feel calmer," "more relaxed," "experienced reduced level of stress" and "increased level of self-awareness," as compared to their status before attending the program.

**Discussion:** In conclusion, it is feasible to provide mindfulness exercise to caregivers of individuals with dementia through our mindfulness calendar. Future work is encouraged to systematically examine the effect of our mindfulness calendar in improving caregivers' emotional wellbeing and stress levels. We also plan to promote the use of the mindfulness calendar among caregivers of clients with chronic diseases through online platforms.

**Keywords :** mindfulness calendar, caregivers, dementia

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### 【場次 A3】

#### Exploring the Relationship between Cognition and Frailty Among Individuals with Mental Illness

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**Objective:** Individuals with mental illness often experience physical frailty due to factors such as psychiatric symptoms, aging, and lifestyle. This can lead to an increased incidence of falls, impacting daily life functioning and quality of life. Past research has indicated that individuals with physical frailty tend to have higher rates of cognitive impairments and declining cognition, and vice versa. Therefore, the aim of this study is to explore the relationship between cognition and frailty among individuals with mental illness.

**Methods:** This study employed a cross-sectional research design and recruited participants from a

psychiatric hospital in northern Taiwan. Cognitive function was assessed using the Allen Cognitive Level Test (ACLS), while frailty was evaluated using the Fried Frailty Index. Frailty assessments included grip strength testing, the Time Up and Go test (TUG), administration of the Center for Epidemiologic Studies Depression Scale (CES-D), evaluation of physical activity levels, and assessment of unintentional weight loss over the past year. The relationships between variables were analyzed using chi-square tests and ANOVA.

**Results:** Data were collected in 2023, with a total of 390 cases analyzed. The average age was 48 years, with males comprising 50.3% of the sample. Schizophrenia was the most common diagnosis, accounting for approximately 92.4% of cases. Most participants (44%) scored at level 4 on the ACLS. Among them, 24% met frailty criteria, while 60% were classified as pre-frail. Moderate correlations were found between cognitive level and frailty ( $r = 0.48, p < 0.05$ ), as well as between cognitive level and activity level ( $r = 0.46, p < 0.05$ ), with significant differences. Grip strength and walking speed showed a small significant relationship with cognitive level ( $F = 4.17; 3.07; p < 0.05$ ). However, weight loss and depression levels were not significantly correlated with cognitive function.

**Conclusions:** The results of this study provide valuable insights into the association between cognition and frailty among individuals with mental illness, particularly those diagnosed with schizophrenia. The moderate correlation observed suggests that a decline in cognition may increase the risk of frailty, indicating a potential interrelationship between these two domains. Additionally, cognitive level was significantly associated with grip strength, walking speed, and activity levels. However, weight loss and depression levels did not exhibit significant correlations with cognition. Furthermore, the findings underscore the prevalence of frailty among individuals with mental illness. These results emphasize the importance of comprehensive assessments and interventions targeting both cognitive and frailty domains to enhance outcomes and quality of life for individuals with mental illness. Further research is warranted to explore these relationships in greater depth and develop tailored interventions to address the complex interplay between cognition and frailty in this population.

**Keywords :** mental illness, schizophrenia, cognition, frailty

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#### 【場次 A4】

### Impact of Work Training on Walking Speed of Inpatients with Mental Illness: A One-Year Follow-Up Study

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**Objective:** Walking speed is one of the indicators of frailty. Individuals with mental illness often demonstrate reduced walking speed and are prone to early onset of frailty. The aim of this study is to track changes in walking speed among inpatients with mental illness participating in work training or occupational therapy (OT) activities over the course of one year.

**Methods:** Participants were recruited from a psychiatric hospital in northern Taiwan. The Time Up and Go test (TUG) was used to assess walking speed at pre-test (T1) and one year later at post-test (T2). A TUG score exceeding 10 seconds was considered indicative of frailty. Generalized estimating equations (GEE) were employed to analyze the change in walking speed.

**Results:** Fifty-six patients were enrolled in this study. Among them, 44 participants received OT (G1), 9 participants attended assembly and subcontracting (G2), and 3 participants underwent training for cart pushing (G3). According to the TUG score at T1, 2.3% of participants in G1 were classified as frail, while there were no frail participants in G2 and G3. After one year at T2, the percentage of frail participants increased to 9.1% in G1. However, there were still no frail participants in G2 and G3. The changes in frailty prevalence did not reach significant differences among the groups based on participant numbers. Nevertheless, a significant difference was observed at T2 in the TUG score between the G1 and G3 groups ( $p = .003$ ).

**Conclusions:** This study aimed to monitor changes in walking speed among inpatients with mental illness engaging in work training or OT activities over a one-year period. While there was an observed increase in frailty prevalence in the G1 group, statistical analysis did not indicate significant differences compared to the other groups. This suggests that while participation in work training or OT activities may have some impact on walking speed among individuals with mental illness, this effect may be limited or influenced by other unaccounted factors. Further research is warranted to explore these factors and develop more effective interventions to enhance walking speed and function in individuals with mental illness.

**Keywords :** mental illness, work training, walking speed, frailty, one-year follow-up

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### 【場次 A5】

#### Mediators in the association between long COVID symptoms and quality of life among Taiwanese people with mental illness

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**Background/objectives:** Although it was announced that COVID-19 is not a pandemic by the World Health Organization in 2023, its impacts on health remain. One of the examples is the long COVID symptoms. Long COVID symptoms are experienced by people infected with COVID-19 and still experiencing its symptom(s) “three months” after infection. These symptoms have impacts on people’s health, including their quality of life (QoL). However, whether any factors could mediate the pathways between long COVID symptoms and QoL are not fully known, especially for vulnerable population (e.g., people with mental illness in the present study). Therefore, we aimed to examine if sleep quality, psychological distress, and self-stigma are potential mediators in the associations between long COVID symptoms and QoL.

**Method:** People with mental illness (PWMI) from one psychiatric center in southern Taiwan were the target participants, and 333 PWMI (204 [61.3%] males; mean age 48 years) agreed to participate by providing written informed consent. All the PWMI completed the following measures: Pittsburgh Sleep Quality Index (assessing sleep quality), Depression, Anxiety, Stress Scale-21 (assessing psychological distress), Self-Stigma Scale-Short (assessing self-stigma), and World Health Organization Quality of Life

Questionnaire-brief version (assessing QoL). PWMI completed these measures under the supervision of a well-trained research assistant in a quiet room without disturbance. Their long COVID symptoms were checked via their medical records with verification by a physician in the psychiatric center who is in charge of COVID-related diagnoses and treatments.

**Results:** PWMI who had long COVID symptoms did not have significantly different scores in self-stigma, social QoL, and environment QoL when comparing to their counterparts without long COVID symptoms. However, PWMI who had long COVID symptoms had significantly higher psychological distress (15.8 vs. 12.2;  $p=0.03$ ), poorer physical QoL (12.9 vs. 13.8;  $p=0.01$ ), and worse psychological QoL (11.8 vs. 12.8;  $p=0.02$ ) than their counterparts without long COVID symptoms. Significant relationships were found between sleep quality, psychological distress, self-stigma, and QoL. Moreover, sleep quality and psychological distress were found to be significant mediators in the association between long COVID symptoms and QoL in this PWMI sample; however, self-stigma was not.

**Conclusion:** Because the present study found that sleep quality and psychological distress mediated the association between long COVID symptoms and QoL, healthcare providers may want to pay attention to sleep quality and psychological distress when a PWMI has long COVID symptoms. In other words, pathways between long COVID symptoms and QoL could be connected via sleep quality and psychological distress for PWMI. These findings suggest potential care programs for healthcare providers when taking care of PWMI with long COVID symptoms. That is, sleep improvement program or psychological distress intervention program could be implemented for PWMI who have long COVID symptoms.

**Keywords :** mental illness; long COVID; quality of life

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## 【場次 A6】

### Evaluating Students' Experience in Applying Model of Human Occupation in Acute Care Settings through Actor-Based Case Simulations

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Occupational therapists in hospital settings play a crucial role in supporting patient rehabilitation and ensuring safe discharge. Research shows that occupational therapy in acute care reduces hospital readmissions and the incidence of hospital-acquired injuries like DVT and falls (Rogers et al., 2017 & Edelstein et al., 2022). Despite the benefits of occupation-based interventions (Wall et al., 2023; Clarke et al., 2018), novice therapists often resort to an impairment-based approach due to challenges in implementing occupation-based intervention. Many occupation-centered models, such as the Model of Human Occupation, can assist newly qualified occupational therapists in maintaining an occupation-focused and occupation-based approach (Kielhofner, 2008; Taylor et al., 2023). However, students and novice clinicians frequently struggle to apply theoretical models in clinical settings.

Simulation sessions with case studies have proven effective in enhancing students' learning and boosting their confidence during placements and clinical practice (Bennett et al., 2017; Walls et al., 2018). At London South Bank University, occupational therapy theory is introduced in the first year of the program.

To enhance students' confidence and knowledge, actor-based case simulation of acute care practical sessions was introduced. This study aims to explore occupational therapy students' experiences engaging in actor-based case simulations while applying the Model of Human Occupation in acute care settings. A mixed-method retrospective cohort design was utilized. Thirty students completed both the lecture and practical sessions, with twenty-four consenting to participate in this study by completing an anonymous online survey about their learning experiences. Results indicate that students had overall positive experiences with the actor-based case simulation sessions, reporting that the sessions enhanced their clinical skills for developing occupation-based interventions in acute care settings. The sessions also strengthened students' understanding of each component of the Model of Human Occupation and its application in occupation-based interventions. Additionally, students reported improvements in their confidence in communication and interpersonal skills with future patients during clinical placements and future practice.

The study results suggest that occupational therapy educators should consider incorporating practical-based theory in their program to create advanced learning opportunities. These courses can help students develop occupation-based interventions in acute care settings based on a theoretical foundation, while also enhancing their confidence in future clinical practice.

**Keywords :** Model of human occupation; acute care; education

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## Oral Session C (**English session**)

### 【場次 C2】

#### **Effects of Impairment- and Task-Based Mirror Therapy in Stroke Rehabilitation: A Comparative (Literature) Review**

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**Background:** Mirror therapy, as demonstrated by Thieme et al. (2018), is a promising adjunct to routine therapy for stroke, offering potential in stroke rehabilitation. The different protocols, i.e., mirror therapy combined with the impairment- (MT-IOT) or task-oriented approaches (MT-TOT), may yield different effects for recovery (Morkisch et al., 2019).

**Objectives:** Review and summarize the clinical evidence of the two different mirror therapy protocols for recovery after stroke.

**Methods:** We searched Pubmed/MEDLINE, Cochrane, Embase, Physiotherapy Evidence Database (PEDro), and Google Scholar (last searched July 15, 2024). We also conducted hand searches for other relevant resources. This study included randomized controlled trials for people after stroke, comparing the MT-IOT and MT-TOT or the different MT-TOTs comparison.

**Results:** We included four studies (Bai et al., 2019; Corning & Hildebrand, 2022; Hambir & Satralkar; Lee et al., 2020) with 114 stroke participants. Mirror therapy in the three studies was provided for 30-40

min/day, five days/week, for four weeks (1 study did not report the duration and frequency). Compared to the MT-IOT, in quality-of-life recovery, the MT-TOT may have more positive outcomes (Corning & Hildebrand, 2022). However, regarding improving motor impairment, previous research findings have been inconsistent (Bai et al., 2019; Hambir & Satralkar). Lastly, in the comparison of different MT-TOTs, i.e., complex MT-TOT using multi-joint, such as in-hand manipulation with coins, versus simple MT-TOT, such as picking up a coin, the former MT-TOT may be more effective in restoring the upper limb and activity of daily functions (Lee et al., 2020).

**Conclusions:** While mirror therapy is widely used in many clinics, there is still a need for more extensive sample-size studies for optimal therapy protocols for implementing this technique.

**Keywords :** stroke, mirror therapy, task-oriented approach, impairment-oriented approach

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### 【場次 C3】

#### Mirror Therapy Priming of Kinetic Exergaming in Stroke: A Randomized Controlled Trial

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**Background:** Mirror therapy (MT) and kinetic exergaming (e.g. augmented reality, AR) have been implemented in stroke rehabilitation. MT utilizes mirror visual feedback to promote excitability of the motor areas of the brain. AR offers a virtual context of gamified rehabilitation for sensorimotor, mobility, and cognitive recovery. MT may complement AR to improve intervention outcomes. This research aims to study the effects of AR with and without the priming of MT, relative to control intervention (CI) in patients with stroke.

**Method:** Thirty-nine patients with unilateral stroke were recruited and randomized to receive one of three interventions: MT-primed AR, AR, and CI. Each treatment session was 90 minutes in duration, three times a week for six weeks. The MT-primed AR group received 40 minutes of MT, 40 minutes of AR, and 10 minutes of functional practice. The AR group received AR intervention for 80 minutes and functional practice for 10 minutes. The CI group received 80 minutes of occupational therapy and 10 minutes of functional practice. Home-based program involved functional practice of personally relevant tasks for 30 minutes. Pre-test, post-test, and 3-month follow-up assessment were administered. Primary treatment endpoint included the Fugl-Meyer Assessment-Upper Extremity (FMA-UE) and Berg Balance Scale (BBS). Additional outcome measures included revised Nottingham Sensory Assessment (rNSA), Chedoke Arm and Hand Activity Inventory (CAHAI), Motor Activity Log (MAL), and Stroke Impact Scale Version 3 (SIS). Adverse response was monitored using the visual analogue scale for pain and fatigue.

**Results:** The MT-primed AR group improved the FMA-UE and the tactile scale of the rNSA, relative to the AR and controlled interventions. The AR group improved in the BBS significantly. AR with and without MT priming improved quality of life better than the CI group. There was no serious adverse event during the study.

**Conclusion:** AR with and without MT priming increased upper-extremity motor, mobility, and stroke-

specific quality of life. Of note, MT-primed AR improved upper motor and tactile impairments. AR was advantageous for improving postural balance. Future research is needed to validate the findings and identify the factors predictive of treatment success.

**Keywords :** Stroke rehabilitation, Mirror therapy, Augmented reality, Gamified rehabilitation, Randomized clinical trial

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#### 【場次 C4】

### Development and Application of a novel, environmental friendly material (Biodegradable Clay) in Rehabilitation: an alternative to traditional polycaprolactone

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**Background:** Splinting is a custom-made treatment for musculoskeletal injuries, providing support to immobilize injured body parts. The commonly used splinting material in Hong Kong, polycaprolactone (PCL), has high production cost, limited recycling potential, and some undesirable physical properties. To address these concerns, we have developed a new thermoplastic splinting material, Biodegradable Clay (BDC). BDC is newly developed as a safe, customizable, and recyclable splinting option. It possesses essential properties to be a splinting material while offering an economical and environmentally friendly option. BDC has improved recyclability, which allows on-site recycling. However, human application of splintage made from BDC has yet to be studied.

**Objectives:** The study aims to examine and compare the general applicability of BDC as a splinting material to the conventional PCL. We aim to evaluate users experience of individuals wearing splints made of PCL or BDC materials respectively, and explore the potential advantages and disadvantages of BDC over PCL in splinting applications.

**Methods:** In this single-blinded, crossover pilot trial, 31 healthy adults without orthopedic conditions (11 males, 20 females; aged 18-55) were randomly assigned to receive a 1-week finger splint program of either BDC or PCL, and switched to the alternative material for another 1-week splinting. User experience was collected through questionnaires upon termination of each splinting program, with preference indicated at the trial end. Additionally, changes in physical properties, i.e. pre-post splint weight and thickness, were measured to evaluate durability. Stress stability of splints, including any observed breakage or deformations, was documented. DermaLab® Combo was used to detect potential adverse skin conditions arising from splinting.

**Results:** The user experience evaluation showed no significant difference between BDC and PCL splints. Both BDC (mean = 4.19) and PCL (mean = 4.25) shared high mean ratings in QUEST 2.0, implying BDC is capable of delivering a comparable level of satisfaction as PCL. 42% of subjects indicated a preference for using BDC as their splinting material, which was comparable to that of PCL(45%). This preference was primarily driven by major reasons: 1) attractive appearance, 2) comfortable material texture, 3) excellent conformity to body parts 4) improved breathability.

Regarding the physical properties, no significant differences were found in both weight changes ( $p = .751$ ) and thickness changes ( $p = .613$ ) between PCL and BDC splints, showing that BDC exhibits similar



durability to PCL as a splinting material.

Furthermore, BDC demonstrated similar changes in skin conditions compared to PCL in terms of hydration( $p= .513$ ), elasticity( $p= .102$ ), pigmentation( $p= .508$ ), and vascularity of skin color( $p= .657$ ), implying BDC is as adaptable to human skin as PCL.

**Conclusion:** BDC is applicable in human splintage, which possesses common desirable features of PCL in durability, stress stability, and skin adaptability, with comparable participant satisfaction and preference with PCL, showing its potential to meet the requirements and expectations as a new splinting material. While this study was conducted with healthy adults, further investigation on BDC's clinical applicability and therapists feedback involved in splint fabrication, are necessary for future improvements on BDC material.

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**Keywords : Biodegradable Clay, Polycaprolactone, Splinting application, Rehabilitation,**

**Environmental friendly, Recyclability**

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