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Effect of the Occupational Engagement Home Program (MyHOeME©) for Older Persons in the Community

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Abstract
Malaysia faces a pressing issue as its older population is projected to reach 16% by 2030. While global and national initiatives focus on health and independence, there exists a gap in structured activities for older persons. Our study introduces MyHOeME, a 5-week program designed by an occupational therapist, which addresses the physical, cognitive, and social facets of ageing through personalized activities. This quasi-experimental study involved 78 older persons in the community. The results indicate a significantly enhanced health-related quality of life after attending MyHOeME, emerging as a promising solution for the well-being of Malaysia's ageing population.

Keywords: Older people; Home programme; Occupational Therapy

1.0 Introduction

Malaysia is set to become an ageing country by 2030, with 16% of its population being older individuals, expected to rise to 22% by 2050. Individuals aged 60 and over in Malaysia are classified as elderly (World Assembly on Aging, 1982; World Health Organization, 1989; Ministry of Health, 1999). Ageing introduces physical, psychological, psychosocial, and cognitive challenges. Physically, chronic health conditions like diabetes and arthritis are prevalent among older people, alongside a decline in mobility attributed to age-related changes in muscle mass and joint flexibility (Ismail et al., 2018; Yusoff et al., 2020). Psychologically, an increase in mental health issues, particularly depression and anxiety, is noted, often linked to factors such as social isolation, loneliness and health concerns (Lim et al., 2019). Cognitive challenges, encompassing memory impairment and cognitive decline, pose significant psychological hurdles, with mild cognitive impairment and dementia becoming more prevalent (Chan et al., 2021; Hassan et al., 2020). These issues are often interconnected. For example, functional impairment due to musculoskeletal issues can lead to depression (Ali et al., 2020), and physical

and social inactivity may contribute to social isolation and depression (Ibrahim et al., 2022; Harnisha & Dahlan, 2023), ultimately affecting sleep quality and health-related quality of life (Dahlan et al., 2021; Ibrahim et al., 2022; Lim et al., 2023).

Current intervention programs for older persons in Malaysia exhibit limitations. Existing initiatives focus narrowly on specific aspects, such as physical exercise, with less attention to the enjoyable and integrated aspects of programs. Moreover, these programs often overlook the social, psychological, and cognitive dimensions of an individual's well-being, leading to challenges in adherence and compliance. Adherence and compliance to such programs pose significant challenges, resulting in many older individuals abandoning or not adhering to prescribed protocols. The adherence level toward physical exercises ranges from 10.4% (Mirahmadizadeh et al.,2020) to 77.0% (Bullard et al., 2019). Challenges include the lack of integration into daily routines, the perception of forced participation, and the absence of involvement from carers and the community (Bullard et al., 2019).

To address these gaps, our study introduces My Occupational Engagement Home Program (MyHOeME©), a 5-week initiative developed by an Occupational Therapist. MyHOeME© takes a comprehensive approach, incorporating physical, psychosocial, and cognitive activities tailored for individual and group sessions, accommodating both the older person and caregiver involvement. The objective of the study is to evaluate the effectiveness of MyHOeME© on health-related quality of life (physical, mental, and overall health-related quality of life) among older individuals in Malaysia. By addressing the multifaceted aspects of ageing, our program endeavours to seamlessly integrate into daily routines, involve carers and communities and enhance overall well-being. As Malaysia transitions into an ageing nation, our research provides valuable insights for policymakers, healthcare professionals, and communities navigating the evolving needs of an ageing demographic.

2.0 Literature Review

Literature consistently shows many benefits of participating in physical, social and cognitive activities. Engaging in regular physical activities (PA) is paramount for maintaining the health and well-being of older individuals. Much evidence suggests that PA contributes to enhanced physical health, including improved cardiovascular function, muscle strength, and balance (Taylor, 2020). Aerobic exercises, such as walking or swimming, have been linked to cardiovascular benefits, while resistance training helps maintain muscle mass and strength (Chodzko-Zajko et al., 2009). Additionally, activities like yoga or tai chi improve physical health and positively affect mental well-being, reducing stress and promoting relaxation (Abbott et al., 2014). Furthermore, Systematic reviews, meta-analyses, and pooled analyses from 2006 to 2018 indicate that PA provides strong evidence for improving quality of life (QoL) and well-being primarily for older persons aged 65 years and above (Marquez et al., 2020)

Social engagement is a vital component of healthy ageing, offering numerous cognitive and emotional benefits. Regular social interactions have been associated with a lower risk of cognitive decline and dementia (Kuiper et al., 2015). Participating in group activities, such as book clubs, community events, or volunteer work, fosters a sense of belonging and combats social isolation, which is a prevalent concern among older individuals (Hagan et al., 2016). In addition, based on a systematic review, social activity improves life satisfaction and cognitive function among older persons (Wanchai & Phrompayak, 2019). Moreover, maintaining strong social ties positively influences mental health, contributing to lower rates of depression and anxiety (Newman & Zainal, 2020). Engaging in conversations, sharing experiences, and building relationships in various social contexts are crucial elements that enhance older individuals' overall quality of life.

Stimulating the mind through cognitive activities is instrumental in preserving cognitive function and preventing cognitive decline in older age. Regular engagement in activities that challenge cognitive abilities has been linked to a reduced risk of developing conditions such as Alzheimer's disease and other forms of dementia (Najar et al., 2019). Cognitive activities encompass a broad spectrum, including puzzles, games, reading, and learning new skills or languages. Participating in mentally stimulating activities helps maintain cognitive reserve and the brain's ability to adapt to damage and enhances neuroplasticity (Valenzuela & Sachdev, 2006). Additionally, lifelong learning and intellectual curiosity contribute to a sense of accomplishment and purpose among older individuals (Park & Biswas-Diener, 2013).

A holistic approach that integrates physical, social, and cognitive activities yields optimal benefits for the well-being of older individuals. For instance, group-based activities, such as dance classes or nature walks, provide physical exercise, foster social connections, and stimulate cognitive functions through coordination and engagement (Yarmohammadi et al., 2019). However, many of these activities are often implemented as' stand-alone' programs, needing more integration and frequently overlooking the social, psychological, and cognitive dimensions of an individual's well-being. This oversight can lead to issues related to compliance. Addressing this concern is crucial to ensuring older persons' sustained health and well-being.

3.0 Methodology

3.1 Study Design

A quasi-experimental design, without a control group, is chosen for ethical reasons, as withholding interventions, like MyHOeME©, may be impractical. Real-world implementation, resource constraints, reliance on natural variability, and suitability for pilot studies are factors favouring this approach.

3.2 Study Setting and Participants

Purposive sampling, a non-probability sampling strategy, was utilised to recruit a representative sample from 15 health clinics across Malaysia. The study was conducted as a part of a rehabilitation program conducted by an Occupational therapist. The inclusion criteria for this study are (i) older person age 60 and above; (ii) Do not have cognitive impairment (Scored above 22 using Montreal-Cognitive Assessment [MOCA]); (iii) scores 91 - 100 in the Modified Barthel Index, which indicates slight dependence in the performance of the activity of daily living; (iv) scores less than 5 in Geriatric Depression Scale (Malay version) which indicates no depression. This study obtained ethical approval from the ethics committee of the UiTM (REC/07/2023 (PG/MR/252)

3.3 Sample size

To determine the optimal sample size, ensure the study has sufficient statistical power to detect meaningful effects and enhance the reliability and validity of the research, G*Power calculation analysis (Faul et al., 2007) was used. Based on the G*Power, a sample size of fifty-four is needed to test the hypothesis at a 0.05 level (two-tailed), providing 80% power in detecting a population with an effect size of 0.5. Considering a 20% attrition rate, the total sample needed is sixty-eight participants. To ensure the study's blinding and prevent threats from interpretation bias, pre-and post-assessment were conducted by two independent occupational therapists who were not part of the research team.

3.4 Intervention Protocol

The MyHOeME© program aims to enhance the health and well-being of older persons through comprehensive engagement in occupational activities. Guided by holistic principles, it focuses on preventing physical, psychological, and cognitive deterioration. The approach is person-centred, evidence-based, culturally sensitive, and involves family and caregiver participation, utilising multi-sensory methods. Developed through Design and Development Research (DDR), the program's need was identified via interviews with Ministry of Health stakeholders and three focus group discussions with sixteen older individuals. Eight health professionals, including geriatric specialists and occupational therapists, were interviewed to provide insights into the challenges faced by older persons to engage in health-related activities and the activities the older person likes to engage with. Subsequently, a scoping review regarding social activities among older persons was established (Dahlan et al., 2023). The interview and the scoping review were combined to form a meta-inference that guided the development of the MyHOeME©.

Certified Occupational Therapists, trained for 18 hours as MyHOeME© trainers, conducted the program. It was designed for group and individual sessions, spanning five weeks. Group sessions, with 5-6 participants, occurred weekly and were structured into introduction, main activity, and closing parts. The main activities focused on themes like physical, social, cognitive, and leisure activities.

Individual sessions involved activities at home and in the community, engaging carers, family, and friends. Participants created schedules during the group meeting, planning activities like walking for 60 minutes daily, cognitive activities (e.g., table-top games) for 15-30 minutes four times a week, and social activities 2-3 times per week. Feedback and modifications were discussed during group sessions to address barriers and improve engagement. The program promotes a holistic and individualised approach to enhance the overall well-being of older persons through meaningful occupational activities.

3.5 Research Instruments

Short Form Health Survey (SF-12): A pivotal instrument in health research, the SF-12, an abbreviated version of the SF-36, is tailored to assess health-related quality of life (HRQoL) with methodological rigour (Ware et al., 1996). This 12-question survey provides a comprehensive overview of an individual's health status, further divided into the Physical Component Summary (PCS) and the Mental Component Summary (MCS). Covering aspects such as physical functioning, role limitations, vitality, and mental health, the SF-12's norm-based scoring system facilitates nuanced insights. The Malay version, validated by Noor & Abd Aziz (2014), was employed to identify the impact of MyHOeME© on both physical and mental health.

3.6 Data Analysis

Data were analysed using Statistical Package for the Social Sciences (SPSS) Version 21. The normality test was conducted on all continuous dependent variables using the Shapiro-Wilk test for normality, and it was found that the data was normally distributed ($p>0.05$). Therefore, the Paired-Sample t-test was used. An alpha level of 0.05 was used to determine any significant difference between the pre and post-MOHOeME©. The decision to accept or reject the hypothesis is based on a 95% confidence interval (CI) ($p<0.05$).

4.0 Findings

4.1 Demographic characteristics

The socio-demographic characteristics of the participants are presented in Table 1. Out of the total, 36 participants fall within the age range of 60–65 years, constituting 64.20% of the sample, with a mean age (SD) of 67.9 (5.66). Among the participants, 58 individuals are female (71.80%), 63 are of Malay ethnicity (80.00%), and 52 are married (66.70%). Furthermore, 48 participants have completed high school education (61.50%). Notably, 66 participants (84.6%) have reported health-related problems such as hypertension and diabetes.

4.2 SF12 Scores Before and After MyHOeME© Intervention

A paired-sample t-test was conducted to evaluate the impact of the MyHOeME© on the older person's scores on Health Status (Physical Component Summary (PCS)). There was a statistically significant increase in PCS from Time 1 (M = 2.44, SD = 0.43) to Time 2 (M = 2.61, SD = 0.40), t (77) = -3.71, p <.005 (two-tailed). The mean increase in PCS scores was 0.17, with a 95% confidence interval ranging from -1.34 to -4.04. The eta squared statistic (0.34) indicated a large effect size. Similarly, there is an increase in the Mental Component and total Health status as measured by the SF-12, with a large effect size ranging from 0.34 to 0.42, as shown in Table 2.

The paired-sample t-test results reveal both statistical and clinical significance in enhancing the Health Status of older persons, notably in the Physical Component Summary (PCS). The mean PCS scores significantly increased from 2.44 (Time 1) to 2.61 (Time 2), evident in the negative t-value (-3.71) and p-value (< 0.005). Beyond statistical significance, the clinically meaningful increase of 0.17 surpasses the minimal clinically important difference (MCID), underlining its relevance. The 95% confidence interval (-1.34 to -4.04) reinforces its clinical significance.

Table 1. Socio-demographic characteristics of participants

No	Demographic		N (%)
1	Age (Years old)	60 – 65 years old	36 (46.20)
		66 – 70 years old	22 (28.20)
		71 – 75 years old	12 (15.40)
		76 – 83 years old	8 (10.30)
		Mean (SD) = 67.9 (5.66)	
2	Gender:	Male	20 (25.60)
		Female	58 (74.35)
3	Ethnicity	Malay	63 (80.80)
		Chinese	6 (7.70)
		Indian	3 (3.80)
		Others	6 (7.70)
4	Marital status	Single	3 (3.80)
		Married	52 (66.70)
		Divorcee	6 (7.70)
		Widower	17 (21.8)
5	Living arrangement	Staying alone	2 (2.60)
		Staying with others (children/spouse etc)	76 (97.40)
6	Educational background	No formal educations	4 (5.10)
		High school	48 (61.50)
		Diploma / Degree	21(26.90)
		Master PhD	5 (6.40)
7	Health problem	Yes	66 (84.6)
		No	12 (15.4)

n = number of participants

Table 2. Result of the SF12

No	Components	Mean (SD)	Lower	Upper	t (df)	Sig	r
1	Physical Component Summary (PCS)	-0.87 (2.07)	-1.34	-4.04	-3.71 (77)	0.00	0.34
2	Mental Component Summary (PCS)	-0.98 (2.93)	-1.64	-0.32	-2.97 (77)	0.00	0.38
3	Total SF-12	-1.85 (3.89)	-2.73	-0.98	-4.22 (77)	0.00	0.42

Similar positive trends in the Mental Component and total Health Status (SF-12) exhibit both statistical and clinical importance. The large effect sizes (0.34 to 0.42) not only indicate statistical significance but also imply practical relevance. These substantial effect sizes suggest changes are not only statistically detectable but also possess clinical significance. In summary, the MyHOeME© program's impact is not confined to statistical improvements; it extends to clinically meaningful enhancements in both physical and mental components of health, as validated by effect sizes and confidence interval scores on the Health Status (Mental Component Summary (MCS)). There was a statistically significant increase in PCS from Time 1 (M = 2.44, SD = 0.43) to Time 2 (M = 2.61, SD = 0.40), t (77) = -3.71, p <.005 (two-tailed). The mean increase in PCS scores was 0.17, with a 95% confidence interval ranging from -1.34 to -4.04. The eta squared statistic (0.38) indicated a large effect size.

4.0 Discussion

The observed improvements in the PCS, MCS, and overall Health Status (SF-12) among participants in the MyHOeME© program can be postulated to stem from the program's comprehensive and integrated approach, addressing the interconnected aspects of physical, psychosocial, and cognitive well-being.

The enhanced physical well-being, as indicated by the improved PCS scores, could be attributed to the tailored physical activities embedded in the MyHOeME© program. Regular engagement in moderate physical activities, such as walking and targeted exercises designed by occupational therapists, aligns with existing literature emphasising the positive impact of physical activity on cardiovascular health, muscle strength, and overall mobility (Taylor, 2020). The program's emphasis on enjoyable and integrated physical activities may have contributed to increased adherence, addressing common challenges observed in previous interventions (Bullard et al., 2019; Yarmohammadi et al., 2019). Integrating physical activities into daily routines, as facilitated by the program, further encouraged sustained participation, positively influencing participants' physical health.

The improvement in the Mental Component and overall Health Status is likely attributed to the program's multifaceted approach encompassing psychosocial and cognitive dimensions. Social engagement, a key component of the program, has been linked to improved mental well-being, reduced rates of depression and anxiety, and enhanced cognitive function (Kuiper et al., 2015; Newman & Zainal, 2020). Group-based activities, including discussions on temporal orientations and current affairs, fostered social connections, potentially alleviating feelings of loneliness and isolation commonly experienced by older individuals (Hagan et al., 2016). The integration of cognitive activities, such as playing table-top games and engaging in discussions, may have contributed to cognitive stimulation and the preservation of cognitive function, aligning with evidence highlighting the importance of mentally stimulating activities in preventing cognitive decline (Najar et al., 2019).

The overall success of the MyHOeME© program can be attributed to its person-centred and inclusive design, considering the unique needs and preferences of older individuals. The integration of activities into daily routines, involving caregivers and the community, and the program's enjoyable nature may have collectively contributed to the observed improvements. While further research is warranted to explore the specific mechanisms underlying these positive outcomes, the study underscores the potential of holistic and individualised programs in promoting the health and well-being of older individuals.

5.0 Conclusion and Recommendation

The MyHOeME© program, designed to enhance the well-being of older individuals, aligns with global and national ageing policies, as evidenced by improvements in the Physical Component Summary (PCS) and Mental Component of the SF-12. Adhering to WHO's Active Ageing Policies, Malaysia's National Policy for Ageing (DWEN), and Health Policy for Older Persons, the program addresses distinct health challenges faced by older persons. Limitations include the quasi-experimental design without a control group, hindering the establishment of definitive causal relationships. Caution is needed in attributing improvements solely to MyHOeME©, and the lack of long-term follow-up data limits insights into sustainability.

Future research should employ more robust designs like randomised controlled trials, providing valid findings. Longitudinal studies can offer insights into the enduring impact of the program, and expanding its reach to a diverse population will enhance understanding across demographic groups. In practical terms, MyHOeME© stands as a promising community-based health intervention for older individuals, emphasising inclusivity and individualised care. Policymakers and healthcare professionals can consider scaling such programs to address the evolving health needs of an ageing population.

Acknowledgement

Paper Contribution to Related Field of Study

This paper makes a significant contribution to the existing body of knowledge by providing evidence-based insights, practical solutions, and considerations for policymakers, practitioners, and researchers in the fields of health sciences, gerontology, health promotions, and rehabilitation for older persons.
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