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Research Article

Effects of Table Top Board Game (Ayo Olopon) On Mental Health And Social Connection Among Older Adults in A South Western Community, Ondo State, Nigeria

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Abstract

Background: The quality of life and general well-being of older adults can be adversely affected by the rising risk of social isolation, loneliness, and mental health decline which are commonly associated with aging. Culturally relevant leisure activities, particularly those that combine social interaction with mental challenge are increasingly recommended as low-cost, sustainable interventions. The traditional Nigerian table top board game-Ayo Olopon is well known for promoting memory, strategic thinking, and interpersonal relationships, which makes it a potentially useful tool for improving psychosocial health in older adults.
Aim of study: To examine the effects of table top board game-Ayo Olopon on mental health and social connection among older adults in Owo, Ondo State, Nigeria.
Material and Methods: The experimental study recruited 40 older adult aged $\geq$60 years from a community within Owo Local Government area of Ondo State. They were randomized into an experimental group (n = 20) that played Ayo Olopon three times weekly for one month and a control group (n = 20) who maintained their usual activities. Mental well-being and social connection were assessed pre- and post-intervention. Data were analyzed using paired and independent t-tests. Alpha level was set at 0.05.
Results: Pre and Post measurement comparison of participants in the Ayo Olopon board game showed significant improvements in both mental well-being (t = -3.12; p = 0.006) and social connection (t =7.32; $p < 0$ .001) at the end of the study, while the pre-post comparison of mental well-being and social connection in the control group showed a significantly decline at the end of the study (t = 8.35; $p < 0.001$ and t = -2.67; p =0.015 respectively). Furthermore, Between-group comparison shows a significant difference in both mental well-being (t = -8.13; $p < 0.001$) and social connection (t =7.63; $p < 0$ .001) in favor of Participants in the Ayo Olopon board game.
Conclusion: Ayo Olopon improved both the mental health and social interaction in older adults and may be a practical, culturally grounded tool for promoting healthy ageing.

1. Introduction

The World Health Organization (WHO) defines mental health as a state of well-being that allows people to cope with life's stresses, contribute to their community and realize their potential [1]. Aging is the lifetime process of growing older at cellular, organ, or whole-body level

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throughout the life span [2]. According to the United Nations, the population worldwide is aging significantly and by 2030, there will be 1.4 billion people over the age of 60 [3]. Report from research have shown that, with the increase in aging population, there will be increase in the risk of developing mental health issues such as depression, anxiety, and loneliness among the older adults [4].

Mental Health is increasingly understood to include psychological resilience, life satisfaction, and positive functioning in addition to the absence of mental illness [5, 6]. Concerns about mental health have become a significant health issue among the older populations since more than 20% individuals aged 60 and older has been found to suffer from mental and neurological illnesses, which account for 6.6% of the total impairment in older adults [7]. Depression being a mental illness marked by sadness, diminished interest in day-to-day activities, difficulty focusing, and memory problems has been reported to be one of the prevalent mental health conditions among older adults, with the highest occurrence observed between the ages of 60 and 70 years [8, 9]. Similarly. cognitive abilities such as thinking, reasoning, and memory which are crucial for mental well-being has been found to be diminished in older population resulting in a significant personal and social burdens [10, 11].

Social connection is the experience of feeling linked to others, being part of a community and having meaningful relationships [12]. Social connection is widely recognized as a basic human need that is associated with longer lifespans, increased safety, resilience, as well as improved health [13, 14]. Through adaptive behavioral and biological mechanisms, research have showed that social connection is one of the best indicators of survival for human beings at both early and later stages of life [15]. Health and well-being therefore depend on the quantity and variety of social connections, interactions and networks [16, 17]. Social connections are crucial for preventing mental health issues, preserving mental health, and aiding in the recovery from both moderate and severe mental health conditions while on the other hand, loneliness and isolation have been linked to worse mental health [16]. Social isolation, depression and loneliness are particularly prevalent among older adults leading to loss of social network [18]. The devastating effects of social disconnect among older adults, such as cognitive deterioration, and a worse standard of living may result in higher chance of death [19].

Tabletop games have been around for almost as long as civilization, and they are used for social interaction, education, and cultural exchange in addition to being a source of enjoyment [20]. A board game is a form of tabletop game in which pieces are moved or arranged on a patterned surface according to established rules, often using dice, counters, or other markers to guide gameplay [21, 22]. Board games provide a unique combination of fun, connection with others, and cognitive engagement that might lessen the detrimental consequences of loneliness and social isolation [23, 24]. According to research, board games has been shown to enhance reasoning, memory, perception and social interaction which has a major positive impact on cognitive development and maintenance throughout life [25–27]. In a recent study by [28], they observed that engaging in board games can have a range of cognitive benefits and could be a potential tool for promoting positive ageing, mental health and social connection among older adults. The Ayo Olopon, an age-long traditional game in South-western Nigeria is a form of board game that similarly, can be a potential tool for promoting positive ageing, mental health and social connection among older adults, although there seem to be dearth of literatures on the effects of Ayo Olopon-board game on mental health and social connections, this study is designed to investigate the effects of Ayo Olopon- tabletop board game on mental health and social connection among older adults in Owo community, Ondo state.

2. Materials and Methods

Ethical clearance was obtained from the Health Research Committee of the Federal Medical Centre, Owo, Ondo State (FMCOWO/HREC/2025/19) before the commencement of the study. This experimental study was conducted among older adults at a game center for the elderly, in Owo local government area of Ondo state.

The participants for the study were older adults recruited from Ikare -Junction, a densely populated community, in Owo local government area using a purposive sampling technique. Inclusion criteria included, older adults who are 60 years and above, without hand physical and functional limitation, not previously engaged in any game for social interaction among peers and are able to understand and follow instructions. Participants' informed consent was secured after the purpose and procedures of the study has been fully explained to them. 40 participants who met the inclusion criteria and consented to participate in the study were assigned into two groups: experimental (n=20) and control groups (n=20). through a simple random sampling technique using a fishbowl method.

2.1. Instrument for Data Collection

Instruments used for data collection included traditional Ayo Olopon board game, Warwick-Edinburgh Mental Well-being Scale (WEMWBS) and Social Connection Questionnaire (SCQ).

Ayo Olopon is a popular, strategic and intellectual game that has been played for centuries, with deep roots in the Yoruba culture in the south western Nigeria, although variants of it are also found across other parts of the African continent. The game is typically played on a wooden board, known as the Ayo board, which is divided into two rows of six holes (or pits) each. The board is set up with an initial number of four seeds placed in each of the six holes creating an initial total of 48 seeds at the start of the game. The two players sit across from one another, each controlling one side of the board. The primary goal of Ayo Olopon is to capture more seeds than the opponent by the end of the game. Players can capture seeds by "sowing" them strategically across the board, aiming to land in positions where they can "capture" the seeds of the opponent. Ayo Olopon games provide a unique combination of fun, connection with others, and cognitive engagement that might lessen the detrimental consequences of loneliness and social isolation.

WEMWBS is an instrument to measure mental well-being and emphasizes positive aspects of well-being, such as happiness, optimism, and satisfaction with life. It consists of 14 items (questions) that assess various aspects of mental well-being on a 5-point Likert scale (none of the time, rarely, some of the time, often, all of the time). The total score ranges from 14 to 70 with score of 14-29 indicative of poor mental wellbeing; 30-50 moderate wellbeing and 51-70 excellent mental well-being [29].

SCQ is a tool used to measure the quality and quantity of a person's social connections and social support. It typically consists of several questions that assess the frequency, quality, and satisfaction with a person's social relationships. The SCQ has four major domains (social isolation, social support, social engagement and emotional connection). Higher scores indicate poor social connection while lower score is indicative of excellent social connection [30].

2.2. Procedure for Data Collection

The participants in the experimental group played Ayo Olopon board game for a minimum of 1 hour, three times weekly, over one month, while the control group continued with their usual activities during the period of study. All sessions were supervised by the researcher. Participants were instructed and enlightened on the need to adhere to the protocol and not to be involved or participate in any other game activities while the study lasted.

Participants socio-demographic data: age, gender, occupation and baseline measure of mental status and social connections were obtained through a researcher - administered questionnaires at the beginning of the study and at the end of a month study period. Data were analyzed using IBM SPSS Statistics version 21. Descriptive statistics summarized sociodemographic variables and baseline scores for the Warwick–Edinburgh Mental Well-being Scale (WEMWBS) and Social Connection Questionnaire (SCQ). Baseline group differences were assessed using independent t-tests for continuous variables and Chi-square tests for categorical variables. Within-group pre–post changes were examined using paired t-tests for continuous scores and Chi-square tests for categorical mental well-being. Between-group differences in change scores were assessed with independent t-tests. Level of significance was set at $p < 0.05$.

3. Results

A total of 40 older adults participated in the study, aged 60-70 years (Mean ± S.D = 64.73 ± 3.31). The majority were Christians (60.0%), followed by Muslims (32.5%) and adherents of traditional religions (7.5%). In terms of occupation, the largest group worked in agriculture (32.5%), followed by those in informal/small business (22.5%). Other occupation groups included skilled labor, transport services, business/entrepreneurship, formal employment, and retirees, as presented in Table 1.

Table 1: Sociodemographic Characteristics of Participants (N = 40)

Variable	Category	Frequency	Percentage
Religion	Islam	13	32.5%
	Christianity	24	60.0%
	Traditional	3	7.5%
	Total	**40**	**100%**
Occupation Group	Agriculture	13	32.5%
	Informal/Small Business	9	22.5%
	Artisan/Skilled Labor	5	12.5%
	Transport Services	5	12.5%
	Formal Employment	1	2.5%
	Business/Entrepreneur	4	10.0%
	Retiree	3	7.5%
	Total	**40**	**100%**
Age	Min -60 years		
	Max-70years		
	Mean ± S.D	64.73	3.31

Table 2 shows the result of both the mental wellbeing score and the social connection scores at baseline. The mental well-being scores were relatively high (Mean ± S.D = 58.43 ± 7.70), suggesting good mental well-being overall. The participants had mid-range means on the Social Connection Questionnaire domains (social isolation, support, engagement, emotional connection), with total social connection scores ranging from 14 to 35 (Mean ± S.D = 24.65 ± 6.77), indicating moderate levels of social connection.

Table 2: Pre-Intervention Mental Well-being and Social Connection Scores (N=40)

Variable	Min	Max	Mean (X)	S.D
Mental Well-being (WEMWBS)	41	68	58.43	7.70
Social Isolation	3	9	5.80	2.20
Social Support	3	9	6.18	1.66
Social Engagement	3	9	6.03	1.72
Emotional Connection	3	9	6.65	2.03
Social Connection (Total)	14	35	24.65	6.77

Presented in Table 3 is the baseline comparison of mental wellbeing and social connection scores between the experimental-Ayo Olopon and control groups. The independent samples t-tests revealed significant differences between both groups. Mental well-being scores were significantly higher in the experimental-Ayo Olopon group compared to the control group ($t = -5.063$, $p < 0.001$). Similarly, social connection scores were significantly lower (better) in the experimental-Ayo Olopon group than in the control group ($t = 10.378$, $p < 0.001$). These results indicate that the groups were not comparable at baseline on the primary outcome measures, suggesting that pre-existing differences should be considered when interpreting post-intervention comparisons.

Table 3: Baseline Comparison of Mental Well-being and Social Connection Scores between Groups

Parameter	Group	Mean (X)	S.D	t	df	p-value
Mental Well-being	Experimental (n=20)	63.25	4.09	-5.063	38	<0.001
	Control(n=20)	53.60	7.48			
Social Connection	Experimental(n=20)	18.90	3.93	10.378	38	<0.001
	Control(n=20)	30.40	3.02			

Shown in table 4 is the changes in the categorical scores in mental wellbeing of participants in both groups. In the experimental-Ayo Olopon group, all participants were classified as having "Excellent" mental well-being both before and after the intervention, resulting in no measurable category shift, however, the control group showed a decline in categorical mental well-being, with the proportion classified as "Excellent" decreasing from 60.0 to 15.0 and those in the "Moderate" category increasing from 40.0% to 85.0%. This shift, however, was not statistically significant (x^2 = 2.35, p = 0.242).

Table 4: Changes in Mental Well-being Categories from Pre- to Post-Intervention in Experimental and Control Groups

Group	Mental Well-being Category	Pre n (%)	Post n (%)	Chi-square (x^2)	df	p-value
Experimental (n=20)	Moderate	0 (0%)	0 (0%)	x^2 = 2.35	1	0.242
	Excellent	20 (100%)	20 (100%)			
Control (n=20)	Moderate	8 (40.0%)	17 (85.0%)			
	Excellent	12 (60.0%)	3 (15.0%)			

Shown in table 5 is variables' continuous scores analysis. The result revealed a significant improvement in WEMWBS scores (t = -3.12, p =0.006) of participants in the experimental-Ayo Olopon group, indicating that although participants did not move into a higher category, their well-being levels increased within the "Excellent" range. Additionally, social connection scores significantly improved (t = 7.32, p <0.001), reflecting reduced feelings of social isolation. These findings suggest that participation in experimental-Ayo Olopon group had a positive effect on both mental health and social connection. In contrast, the control group showed a significant deterioration in mental well-being (t = 8.35, p $<$ 0.001) and a small but statistically significant worsening in social connection (t = -2.67, p = 0.015). These results indicate that the absence of intervention may be associated with deterioration in psychological outcomes.

Table 5: Within-Group Differences in Mental Well-being and Social Connection Scores

Group	Measure	Mean (Pre)	Mean (Post)	t	df	p-value
Experimental	Mental Well-being	63.25	65.95	-3.12	19	0.006
	Social Connection	18.90	15.15	7.32	19	0.001
Control	Mental Well-being	53.60	46.30	8.35	19	0.001
	Social Connection	30.40	31.25	-2.67	19	0.015

Shown in table 6 is the independent samples t-tests which were used to compare the mean change scores for mental well-being and social connection between the experimental-Ayo Olopon and control groups. Participants in the experimental group demonstrated a significantly greater improvement in mental well-being compared to the control group (t = -8.13, p $<$ 0.001). For social connection, the experimental-Ayo Olopon group showed a significantly larger reduction in scores (t = 7.63, p $<$ 0.001), indicating enhanced social connectedness, as lower SCQ scores reflect better perceived social connection and reduced isolation.

Table 6: Between-Group Comparison of Pre–Post Change Scores in Mental Well-being and Social Connection

Measure	Experimental Mean Change	Control Mean Change	t	df	p-value
Mental Well-being	+2.70	-7.30	-8.13	38	0.001
Social Connection	-3.75	+0.85	7.63	38	0.001

4. Discussion

This study aimed to investigate the effects of playing the traditional tabletop game Ayo Olopon on older adults' mental health and social connection. The study's findings revealed that despite the experimental Ayo Olopon group started with stronger baseline scores, engaging in Ayo Olopon board game led to significant improvements in mental health and social connection. Continuous Warwick–Edinburgh Mental Well-being Scale (WEMWBS) scores showed significant improvements in mental well-being, despite categorical classifications of mental well-being remaining same in the experimental-Ayo Olopon group. This suggests that participants' psychological well-being improved within the "Excellent" category, indicating improved resilience, life satisfaction, and pleasant mood.

Additionally, social connection scores in the experimental-Ayo Olopon group significantly improved, reflecting reduced feelings of social isolation and increased emotional involvement. These findings suggest that participation in tabletop games had a positive effect on both mental health and social connection in the experimental group-Ayo Olopon group and also highlights the dual role of tabletop games as both cognitively stimulating and socially interactive activities. Similar results from previous researches have shown that structured board games help older adults form social bonds, engage in cognitive stimulation and promote companionship [24, 28].

On the other hand, over the same time frame, members of the control group showed decline in their social connection and mental health. Categorical well-being declined, with a marked reduction in the number of older adults classified as "Excellent" and an increase in those

classified as "Moderate." Although this categorical shift did not reach statistical significance, continuous scores however, demonstrated a distinct and significant reduction in both outcomes. These findings suggest that the lack of intervention may be responsible for a decline in psychological outcomes and it also draws attention to the possible dangers of loneliness, depression, and psychological decline in older adults who are deprived of opportunities to engage in meaningful social interactions.

This study finding is consistent with other studies that demonstrated the beneficial effects of board games and social gaming activities on older adults' social connection and mental health: In a quasi-experimental study conducted in Taiwan, board game activities decreased depression levels in older adults through controlled sessions, highlighting the psychosocial advantages of such participation [31]. Also, in a pilot study conducted by [32], the Kioku board game intervention showed a decrease in loneliness of older adults who might still be coping with the effects of the COVID-19 pandemic and also promotes their wellbeing.

Additionally, according to a comprehensive study by [28], non-digital gaming helps older adults socialize, improve their quality of life, experience less sadness, and feel less alone and this is consistent with our results, reflecting improved social connection and reduced isolation among older participants[28]. Also reported that playing board games of low to medium ability considerably increases older adults' well-being when compared to their daily lives. This supports the idea that culturally familiar games like Ayo Olopon, which strike a balance between challenge and accessibility, can yield meaningful well-being gains. Board games like Ayo Olopon require attention, strategy, and planning and also cognitive demands that can enhance mood and satisfaction when the challenge is appropriately tuned. Additionally, face-to-face interaction in group play fosters meaningful social bonding, reducing feelings of isolation and subsequently improves mental health [33].

5. Conclusion

This study assessed the effects of tabletop game (Ayo Olopon) on mental health and social connection in older adults. The Ayo Olopon-a tabletop boardgame significantly improved the mental health and social connection in older adults. Therefore, regular participation in culturally relevant tabletop games like Ayo Olopon can enhances mental well-being and reduces social isolation among older adults.

Recommendation

Traditional tabletop gaming should be a regular activity in local community centers, elder care programs, and family groups to improve psychological well-being and social interaction. To test long-term efficacy and generalizability, future research should include randomization, larger sample sizes, and follow-up evaluations over longer time periods. To find wider relevance, Ayo Olopon should be evaluated against other traditional and modern games using cross-cultural comparisons.

Article Information

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