GO Revisited: Qualitative Analysis of the Starting and Continuing Factors of GO Activity Among Older Adults

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Research Article

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Abstract

Background

GO is one of the most popular board games among older adults in Asian countries. Some studies have shown that playing GO helps maintain cognitive function and brain activity. However, the factors that facilitate older adults to start playing GO and their reasons for continuing it remain unclear. This study explored the starting and continuing factors of playing GO among older adults and found concrete methods for social implementation of GO activity aimed at the prevention of and living well with dementia.

Methods

In the field of large community-based interdisciplinary research, we conducted semi-structured interviews using a qualitative descriptive approach with six amateur GO players who began playing when they were 65 years or older. The contents of the interviews were the starting and continuing factors of playing GO.

Results

Six categories were generated for exploring the starting and continuing factors of playing GO. The participants felt motivated to start playing GO due to their interest and impression of GO and to cope with their anxieties about aging. The continuing factors represented feelings of pleasure and relaxation and fostering human relationships through GO. Age-friendly staff and user-oriented tasks were of particular importance in both starting and continuing to play GO.

Conclusions

GO is not just a board game; it is an effective tool in coping with aging issues, cultivating peace of mind, and facilitating interaction among people; therefore it may be useful to the community as a socially prescribed intervention. The keys to its implementation are fostering comfortable relationships between the participants and staff and allowing self-controlled task difficulty.

Introduction

The prevalence of dementia is rapidly increasing worldwide [1–3]. Since Japan is one of the most aging countries, its government has set the prevention of, and living well with, dementia as ultimate policy goals [2–5].

Intellectual activities have been regarded as creative tools for achieving these policy goals [2, 3]. Previous studies have shown that frequent engagement in intellectual activities maintains cognitive function and
reduces the risk of dementia [6–9]. In particular, intellectual activities that include elements of learning new skills and social interactions are considered to improve cognitive function [10]. However, evidence concerning a realistic method using intellectual activities for older adults to live with dementia has not been fully explored.

Based on this background, we focused on the board game “GO” as a tool for people to prevent and live well with dementia. GO is a popular strategic board game in Asian countries. It originated in China more than 5000 years ago and was introduced in Japan around 1300 years ago [11, 12]. Currently, there are over 40 million GO players worldwide, and it continues to gain popularity in Asia, Europe, and the United States. The game involves two players, who take turns placing black and white GO-stones, the playing pieces, on the intersections of the GO board. The ultimate goal is to surround more territory than that of the opponent. The standard GO board has 19×19 lines, containing 361 points; however, beginners often play on 9×9 and 13×13 boards.

Although playing GO has four simple rules, it involves highly complex and abstract reasoning. GO has unique characteristics. First, since the board is wide, it allows for many possible and controllable moves. Second, it requires a wide perspective called “Taikyokukan.” Third, the rules of GO are easy and simple; therefore, people with a broad range of cognitive levels can enjoy the game. Owing to these characteristics, we regarded GO as an effective and practical tool that contains a higher intellectual stimulation than other board games and can assist a wide range of older adults regardless of their cognitive and physical abilities.

We conducted medical research, focusing on cognitive ability and brain imaging using GO. Our research suggested that GO could improve visual working memory [13], and increase brain activity, particularly in the basal ganglia region, in community-dwelling older adults [14]. Furthermore, we also found that older adults with dementia can enjoy GO and maintain their attention and working memory [15]. These findings suggest that GO is effective for cognition and enjoyable in both healthy older adults and patients with dementia.

We considered the possibility that GO is useful for the prevention of and living well with dementia. However, the medical efficacy of GO should subsequently be aimed at social implementation by identifying participants’ starting and continuing factors from their experiences, for instance, what motivated the participants? Why are participants playing GO? Regarding factors that facilitate health promotion activities in older adults, factors that promote physical and musical activities have been examined; however, there is no previous research on factors that promote intellectual activities such as games [16–19]. The starting and continuing factors derived from the answers can help researchers and practitioners learn how to implement and organize activities that have demonstrated the medical efficacy of GO in real society, and to a large number of people.

Further, through participants’ experiences, researchers and practitioners may be able to find concrete methods for implementing GO activity as a social prescription in the community. From the geriatric perspective, social prescribing on older adults has been reported to reduce emergency hospital
admissions [20]. Facilitating social prescribing is beneficial for the community; however, a detailed method that is feasible and effective in the Asian context has not been fully explored. Therefore, GO activity may serve as a model for social prescriptions in Asian countries.

In this study, we explored the starting and continuing factors of playing GO among older adults and found concrete methods for social implementation of GO activity aimed at dementia prevention and living well with dementia by qualitative analysis.

**Methods**

We used a qualitative descriptive approach to clarify the starting and continuing factors of playing GO in older adults. This approach is generally used to gain new insights from participants’ reports regarding lesser-known phenomena [21].

**Recruitment and Participants**

Since 2016, our research team has been conducting epidemiological and action research on large-scale housing complexes in the Tokyo metropolitan area to build an urban-scale model of dementia-friendly communities [22, 23]. For the present study, a community center was established in 2017 with services such as a community café, medical consultation, raising awareness of dementia, and human resource development.

Since 2018, our research team staff has been conducting GO classes once a month at the established community center. During these classes, participants play GO under the guidance of the instructors (Figure 1). The participants in this study were recruited from the GO class. The inclusion criteria were older adults who participated in the GO class and those who began playing GO when they were 65 years or older. There were no restrictions on the presence or absence of specific diseases, cognitive level, mental status, and care level.

Eight participants regularly participated in the GO class. Of these, six participants who met the inclusion criteria and provided informed consent were included in this study (68-87 years old; one man, five women).

**Procedures**

Individual semi-structured interviews were conducted with six participants from February to March 2021 at the community center. Two researchers interviewed each participant for 1.5 to 2 hours and recorded the interview with participants’ permission. The interview questions focused on two main themes as well as participants’ demographic characteristics such as age, gender, educational history, whether they were family members living together, their work history, and hobbies. First, we asked participants about starting factors which motivated them to start playing GO game. Second, we asked participants about factors which motivated them to continue playing GO game. The following questions were used as a guide for the interviews.
• Starting factors
  Why did you decide to start playing GO?
  What motivated you to start GO?

• Continuing factors
  Why do you continue to play GO?
  What does playing GO mean to you?

After the interviews, a Japanese version of the Mini-Mental State Examination (MMSE-J) was used to estimate the cognitive level of the participants. The MMSE-J is a dementia screening tool with a maximum score of 30 and a cut-off score of 23/24 [24, 25].

Data analysis

First, the audio recordings were converted into character data, and a verbatim record was created for each participant. From the verbatim record, we extracted conversations about the starting and continuing factors, interpreted the meaning of the context as a group of sentences to the maximum extent possible, and assigned a code that reflected the content. Second, we combined similar codes according to affinity and generated a primary category. Finally, the contents of the primary category were examined to converge on the larger, secondary category. The codes were generated independently by each of the four researchers to ensure validity and the categorization was decided by their consensus.

Results

Participant characteristics are presented in Table 1. The average age of the participants—five women, and one man—was 81.6 years. Four of them lived alone, and all the six had high-skilled jobs in the past. The cognitive level ranged from the lowest MMSE-J score of 21 points to the highest score of 30 points.

Table 2 shows the categories generated from the interview data and narratives regarding starting and continuing factors of playing GO. In starting factors, six secondary categories were generated from 13 primary categories: (1) human relationship factors, (2) factors concerning the nature of GO, (3) factors concerning accessibility to start GO, (4) consideration of aging, (5) seeking leisurely engagement, and (6) factors concerning the presumption of GO. In continuing factors, five secondary categories were generated from 15 primary categories: (1) human relationship factors, (2) factors concerning the nature of GO, (3) peace of mind, (4) pleasure, and (5) new habits. The secondary categories, “human relationship factors” and “factors concerning the nature of GO,” and the primary category, “attractive staff” were common for both starting and continuing factors.

The participants’ perspectives on each of the secondary categories for both starting and continuing factors are detailed as follows.

Starting factors
**Human relationship factors**

Participants reported that the affability of the GO staff motivated participants to start playing GO (attractive staff). They also stated that being invited by friends was one of the prompts for action regardless of their interest in GO (invitation from old friends).

**Factors concerning the nature of GO**

The ease of playing GO was motivating for older adults. One participant reported that GO can be played by all individuals, including those who are healthy, injured or ill, and continued as a lifelong hobby (no need for physical robustness).

**Factors concerning accessibility to start GO**

Some participants were familiar with GO because people close to them played it, or they had a chance to watch GO on TV and read about it in books (chance to know GO). Participants also stated that an environment that allowed them to participate in the class with ease was important, such as the convenience of the day, timing of the class, and their proximity from the location (ease of accessibility).

**Consideration of aging**

All participants started GO as they heard that it was effective for dementia prevention (expectation of dementia prevention), and some participants expressed their thoughts about aging during the interviews. They reported that their anxiety about aging made them considerate towards their families, not wanting to bother others for needing care (aging anxiety), and encouraged them to feel prepared to be independent despite aging (preparing for aging). Participants said that these thoughts might be related to motivation.

**Seeking leisurely engagement**

One participant expressed their desire to try new things even if they became older (desire for new experience). Some participants reported that they wanted to enrich their lives by learning a new skill (seeking new skills).

**Factors concerning the presumption of GO**

Participants stated that GO has a “noble” and “cool” image (noble image of GO), and they found a commonality between GO and their prior work or hobbies (familiarity with one's life). Some participants were vaguely interested in GO (previous interest).

**Continuing factors**

**Human relationship factors**
Participants said that they enjoy forming new relationships and interacting with people through GO (chance to make new friends) and that their relationships were simple, hassle-free, and “cozy” (simple and comfortable relationships with new friends). Participants also said that the GO instructors were kind and taught in a comprehensive manner (attractive staff), hence they reciprocated the feelings (reciprocal relationship with staff).

**Factors concerning the nature of GO**

Participants stated that the unique characteristic of GO, which makes it simple yet profound, was highly enjoyable. Many participants were fascinated by the ease of playing with the basic board (9×9) (cognitively easy and simple task). One participant expressed the fact that even when they were not playing GO, they felt satisfied by merely observing others play (enjoyment through mere observation of the game). Some participants enjoyed playing GO because it was amusing to think deeply since there are many possible strategies involved (enjoy contemplation). Moreover, participants reported feeling comfortable positioning themselves in the calm and extraordinary space of the GO classroom and found the echoes from the stones comforting (finding GO to be an extraordinary experience).

**Peace of mind**

Many participants stated that GO is a way to escape their everyday anxieties and worries, and has a relaxing effect (relaxation). While playing GO, they can eliminate anxieties and worries because their concentration is on the board (free from worry).

**Pleasure**

Many participants mentioned that GO was a tool to accomplish their aspirations (meet aspiration) and stimulate curiosity (satisfy curiosity). Some participants felt an immense joy upon "capturing stones," which is one of the rules of GO (pleasure of capturing stones). They also stated that it was a pleasure to be absorbed in the game itself (enthusiastic).

**New Habit**

One participant stated that playing GO was a new habit and an integral part of their life.

**Discussion**

This study aimed to explore the starting and continuing factors for playing GO and concrete methods for implementing GO-based activities in older adults. The participants felt motivated to start playing it due to their interest and impression of GO and to cope with their anxieties about aging. The continuing factors were feeling pleasure, relaxation, and fostering human relationships through GO. From their responses to the interview questions, we found that GO is an age-friendly activity and a calming tool for the mind, therefore it may be useful to the community as a socially prescribed intervention.
To clarify the methods for social implementation with more concreteness, from the results, we divided the secondary categories as “factors outside the individuals (Outside)” and “factors inside the individuals (Inside).” Outside includes categories that are easy for researchers and practitioners to use as interventions for social implementation, whereas inside includes categories regarding the feelings or thoughts of individuals that are challenging to intervene. As a result, the categories were classified as shown in Figure 2.

The outside categories that were common for starting and continuing factors were “human relationship factors” and the “factors concerning the nature of GO,” which constitute the core of social implementation. Regarding “human relationship factors,” interaction with friends and staff was a key factor. One of the participants who struggled to communicate well stated that he could talk with ease through GO. GO involves a good balance of non-verbal communication during, and verbal communication after, a game; thus, it may be suitable for introverted individuals. Furthermore, attractive staff was a common primary category for starting and continuing factors. Interestingly, it seems that being treated politely by the staff can improve participants’ self-esteem. Educating staff with a suitable attitude towards older adults is likely to be a crucial factor in social implementation.

“Factors concerning the nature of GO” was considered an important factor to match the difficulty of the task to each individual. Particularly, many participants said that they continued playing GO because they felt satisfied playing as beginners using a 9×9 board. When the task was too easy or too difficult, participants felt discouraged to continue the activity. Furthermore, it was important to create a calm environment for the GO class (finding GO to be an extraordinary experience). The tranquility of hearing the sounds of GO stones and nature offers a unique atmosphere, such as tea ceremony and flower arrangement rooted in Japanese culture. When holding a GO class, researchers and practitioners may need to consider creating a calm environment, such as avoiding a crowded place, limiting interaction to only when necessary during the game, and maintaining low noise levels afterward.

“Factors concerning accessibility to start GO” was an outside category generated specifically in exploring starting factors. Some participants stated that GO has a “noble” and “cool” image. This image of GO as being cleaner and more intelligent was their main motivation and may be one of the effective strategies to recommend it to older adults. The environment of the GO class, which enabled older adults to participate with ease, was also important. Focusing on older adults required considering aspects that differ from those applicable to young adults, such as avoiding late-night classes and selecting a closer location.

Some categories were classified as inside. For example, all participants stated that they started playing GO to prevent dementia and their anxieties about aging. This is a personal feeling, but advertising the effects of GO on cognitive function could be a motivation for the elderly to start playing GO. In addition, participants experienced pleasure and peace of mind while playing GO. Since these were internal thoughts, researchers and practitioners may find it impracticable to intervene. However, one of the attractive features of GO may be that it elicits such thoughts and feelings, therefore when recruiting
participants for GO class, posting personal thoughts as "participant's experience" on the flyer and website may be useful to attract more people.

This study has a few limitations. First, it focused on a single GO class in one country. There is a possibility that the findings related to starting and continuing factors may differ from GO classes in other geographical locations. Therefore, care should be taken while generalizing these findings. Second, most participants in this study were women; so men may have different experiences and perspectives. In the future, exploring gender differences may provide a deeper insight. However, novel findings of this study included starting and continuing factors and concrete methods for implementing GO activity in older adults. Particularly, we clarified that GO is not just a board game; it is an effective tool in coping with aging issues, cultivating peace of mind, and facilitating interaction among people. Furthermore, older adults with a broad range of cognitive levels participated in GO class, and strong human relationships were built in such an environment. Evidently, we considered that there is a possibility for living well with cognitive impairment, which was realized through GO. In our future research, we intend to examine the nature of interactions between healthy older adults and those with dementia while playing GO.

Declarations

Ethics and consent to participate

Ethical approval was obtained from the Institutional Review Board and Ethics Committee of the Tokyo Metropolitan Institute of Gerontology (Approval No.3147, 2021), and all methods were performed in accordance with the Declaration of Helsinki. We explained the purpose, methods, and ethical considerations of this study and obtained written informed consent from each participant based on the Declaration of Helsinki before enrolment.

Consent for publication

Written informed consent was obtained from each participant for the publication of this paper, including any identifying images or other personal or clinical details of the participants that compromise anonymity.

Availability of data and material

The datasets used and analyzed during the current study are available from the corresponding author on reasonable request.

Competing Interests

The authors have no potential conflicts of interest to declare with respect to the research, authorship, and/or publication of this article.

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**Author’s Contribution**

Ai Iizuka was responsible for developing the study concept and design, interpretation of the data, and drafting the manuscript. Mari Yamashita and Chiaki Ura assisted in the acquisition, analysis, and interpretation of data. Tsuyoshi Okamura supervised the development of the research question, analysis and interpretation of data, and assisted in research accomplishment. All authors approved the final manuscript.

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Tables

Table 1. Demographic characteristics of participants.
| Participants | Age | Gender | Education<sup>a</sup> | Living style | MMSE-J | Working Experience | Other hobbies |
|--------------|-----|--------|----------------------|--------------|--------|--------------------|---------------|
| A            | 68  | Female | High school          | Living with children | 26     | Bank officer       | Swimming, Tennis |
| B            | 87  | Male   | University           | Living alone   | 30     | Office worker      | Reading books  |
| C            | 83  | Female | Vocational school    | Living alone   | 27     | Office worker      | Chorus         |
| D            | 78  | Female | Junior high school   | Living alone   | 29     | Office worker      | Dancing, Postcard art |
| E            | 87  | Female | Junior high school   | Living alone   | 21     | Office worker      | Dancing        |
| F            | 87  | Female | High school          | Living with niece | 28     | Office worker      | Tea ceremony, Flower art |

MMSE-J, Mini-Mental State Examination Japanese;
<sup>a</sup> Final academic background

Table 2. Participant's comments by each category
| Category                                      | Starting factor                                                                 | Continuing factor                                                                 |
|----------------------------------------------|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Human relationship factors                   |                                                                               |                                                                                 |
| Attractive staff                             | The staff were kind to me, so I started playing GO.                            | The instructors always teach me carefully, so I continue to play GO.               |
| Invitation from old friends                 | I was invited by a friend.                                                     |                                                                                 |
| Chance to make new friends                  |                                                                               | I'm happy to make new friends through GO.                                         |
| Simple and comfortable relationships with new friends |                                                                               | The good thing is that our relationship is simple and cozy.                       |
| Reciprocal relationship with staff           |                                                                               | I participate in the GO class with the feeling of giving back to the instructors. |
| Factors concerning the nature of GO         |                                                                               |                                                                                 |
| No need for physical robustness             | I think GO can be played even after we get injured or sick.                    |                                                                                 |
| Cognitively easy and simple task            |                                                                               | Even beginners can enjoy using the introductory board.                            |
| Enjoyment through mere observation of the game |                                                                               | It's fun even just watching other people's games.                                 |
| Enjoy contemplation                          |                                                                               | GO is deep, and has no right answer, so it is fun.                                 |
| Finding GO to be an extraordinary experience |                                                                               | I like the quiet and calm atmosphere where the sound of stones echoes.            |
| Factors concerning accessibility to start GO |                                                                               |                                                                                 |
| Chance to know GO                           | I was interested GO because the GO class was held next to the yoga class in which I participated. |                                                                                 |
| Ease of accessibility                        | The place and time of GO class were convenient for me.                         |                                                                                 |
| Consideration of aging                       |                                                                               |                                                                                 |
| Expectation of dementia prevention           | I have heard that GO is effective to prevent dementia.                         |                                                                                 |
| Aging anxiety        | I’m worried about becoming demented. |
|----------------------|---------------------------------------|
| Preparing for aging  | I live alone, so I want to live independently throughout life. |

**Seeking leisurely engagement**

| Desire for new experience | I wanted to try something new things. |
|---------------------------|---------------------------------------|
| Seeking new skills        | I have nothing else to do, so I started playing GO. |

**Factors concerning the presumption of GO**

| Noble image of GO         | The image of GO is cool and smart. |
|---------------------------|-----------------------------------|
| Familiarity with one’s life | GO is similar to my prior work and hobbies. |
| Previous interest         | I was somehow interested in GO. |

**Peace of mind**

| Relaxation                | I play GO for a change in feeling. |
|---------------------------|-----------------------------------|
| Free from worry           | I can forget my anxieties and worries while I play GO. |

**Pleasure**

| Meet aspiration           | I want to level up on my GO skills. |
|---------------------------|-----------------------------------|
| Satisfy curiosity         | My curiosity is satisfied by playing GO. |
| Pleasure of capturing stones | Capturing stones is my pleasure. |
| Enthusiastic              | I’m just crazy about it. |

**New habit**

| GO is a part of my life and has become a new habit. |

Note: There is no corresponding comment in the shaded area.

**Figures**
Figure 1

GO class at the community center
Figure 2

Categories in four quadrants.