


Social Participation Benefit in Elderly Patients With Diabetes: A Scoping Review

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Abstract

Aims: To conduct a scoping review on the proportion of social participation in elderly patients with diabetes and related factors to clarify what is known and what needs to be addressed in the future. **Methods:** Literature searches were conducted using MEDLINE, Web of Science, CINAHL, CiNii, and Ichu-shi. Articles that surveyed social participation in elderly patients with diabetes were included. Social participation was defined as participation in community activities/groups (exercise, sports, hobbies, volunteer activities, neighborhood associations, senior citizens associations, and political and religious organizations). **Results:** The mean age of the subjects was 67 years, and 42% were women. The percentage of social participation was 13%–36%. Moreover, factors contributing to social participation included self-management of treatment, lifestyle, mobility, subjective assessment of health, and quality of life. **Conclusion:** This study showed the percentage of social participation in elderly patients with diabetes and related factors. Further study is required to evaluate the causal relationship, the mechanism between social participation and contributing factors, the relationship between social participation and other outcomes, and several stratified analyses in elderly patients with diabetes.

Keywords

elderly patients, diabetes, social participation, outcomes, community activities

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Introduction

The elderly population of the world continues to grow, and Japan, in particular, is one of the most aged countries (World Health Organization, 2011; Statistics Bureau, n.d.). Age-related changes include a decline in physical and mental abilities, and the risk of decreased social interaction increases with age (Valtorta et al., 2018; Saito et al., 2010). The opportunity for interaction with communities decreases with age (Valtorta et al., 2018; Saito et al., 2010; Landeiro et al., 2017), and the presence of fewer opportunities the elderly have for social interaction has been viewed as a problem. With this background, the importance of increases in opportunities to interact with others/communities through local activities (i.e., social participation) has received attention in recent years. The definition of social participation is controversial; some studies define it as participation in local activities, such as exercise, hobbies, volunteer activities, and neighborhood associations (Kanamori et al., 2014; Tomioka et al., 2018), while other

studies describe it on the basis of composite scores according to multiple items, including participation in local activities (Aida et al., 2011; James et al., 2011). Social participation increases the opportunity for interaction with others, such as with local people, and promotes physical and mental activity (Kanamori et al., 2014; Tomioka et al., 2018; Aida et al., 2011; James et al., 2011). In fact, studies involving community-dwelling elderly indicated that social participation decreases the risk of death (Aida et al., 2011; Ishikawa et al.). Other studies involving community-dwelling elderly showed that social participation, which is defined as involvement in

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exercise programs, hobbies, and neighborhood associations, is related to the maintenance of activities of daily living (ADL) (Tomioka et al., 2015) and cognitive function (James et al., 2011; Saito et al., 2018) as well as the prevention of the need for nursing care (Kanamori et al., 2014). As described above, social participation is clinically important.

In addition to the above factors, abundant comorbidities, decreased physical function, mental health abnormalities (such as depression), and decreased quality of life contribute to a decline in social participation (Kanamori et al., 2014; Tomioka et al., 2018; Aida et al., 2011; James et al., 2011). More patients with diabetes have these factors than those without diabetes, suggesting that the social network of diabetic patients is small (Eller et al., 2008). In other words, elderly patients with diabetes have fewer opportunities to participate in social activities. This indicates the clinical importance of calling attention to a decline in their social participation.

Given such a tendency, the social participation of elderly patients with diabetes is likely to have a huge positive impact on their health outcomes. We believed that it is clinically important to conduct a study with the aim of clearly elucidating the current status of social participation in elderly patients with diabetes and issues to be addressed in the future. The purpose of this study is to conduct a scoping review on the percentage of social participation in this patient population and related factors to clarify what is known and what needs to be addressed in the future.

Materials and Methods

Study Design

This review was performed on the basis of a scoping review conducted by Arksey and O'Malley (2005), who adopted the following five stages of the framework: (1) identifying the research questions; (2) determining the relevant studies; (3) selecting studies; (4) charting the data; and (5) collating, summarizing, and reporting the results. The study was conducted in accordance with the Helsinki Declaration.

Identifying the Research Questions

The research questions for this review are as follows: "What is the percentage of social participation in elderly patients with diabetes?" and "What are the factors associated with social participation in elderly patients with diabetes?"

Identifying Relevant Studies

Literature searches were conducted using MEDLINE, Web of Science, CINAHL, CiNii, and Ichu-shi on February 1, 2021. The keywords for the search were "elderly patients with diabetes" and "social participation." The examples of the search strategy used in MEDLINE were as follows: ("social participation"[MeSH Terms] OR "social participation"[All

Fields] OR "social capital"[MeSH Terms] OR "social capital"[All Fields] OR "social networking"[MeSH Terms] OR "social network*" [All Fields] OR "social* engage*" [All Fields] OR "social* activ*" [All Fields] OR "social* disconnect*" [All Fields] OR "social relation*" [All Fields] OR "social* integrat*" [All Fields] OR "social tie*" [All Fields] OR "social contact*" [All Fields] OR "social* connect*" [All Fields] OR "social alienation" [All Fields] OR "leisure activ*" [All Fields] OR "recreational" [All Fields] OR "volunteer activ*" [All Fields] OR "social* involvement*" [All Fields] OR "community participation" [All Fields] OR "community engage*" [All Fields] OR "community involvement*" [All Fields]) AND ("elderly" [All Fields] OR "elder" [All Fields] OR "old age" [All Fields] OR "old people" [All Fields] OR "older" [All Fields] OR "aging" [MeSH Terms] OR "aging" [All Fields] OR "aging" [All Fields]) AND ("diabetes mellitus" [MeSH Terms] OR "diabetes mellitus" [All Fields] OR "diabet*" [All Fields]). No literature search was performed on gray literature. Furthermore, hand-searching was conducted for the reference lists of all the articles included in this review.

Selection Criteria

Original research articles written in English or Japanese were extracted. The selection criteria included studies that survey the social participation of elderly patients with diabetes. Studies that involve patients with diabetes ≥ 60 years old (including their mean age ≥ 60 years) were included. The included studies defined social participation as involvement in exercise and sports, hobbies, volunteer activities, neighborhood associations, senior citizens associations, and political and religious organizations (Kanamori et al., 2014; Tomioka et al., 2017a, 2017b, 2018; Ishikawa et al., 2016). Based on these previous studies, this review defined social participation as participation in any of the following community activities/groups: exercise/sports, hobbies, volunteer activities, neighborhood associations/community groups, senior citizens associations, political organizations, or religious organizations. Studies excluded from the review were those involving non-elderly patients, non-diabetic patients, individuals in a nursing home, or hospitalized patients, as well as those using a different definition of social participation from our study, qualitative research, or literature review. The process of literature extraction is shown in the flow diagram. The literature selection described above was performed by the first author (S.I), and we consulted another reviewer (K.M.) regarding results that were difficult to interpret.

Charting, Summarizing, and Reporting the Findings

We created a data extraction form that included the characteristics of the studies involved (key author name, publication year, study location, design of study, sample size, basic information of the participants, definition of social participation, prevalence of social participation, and main findings). The continuous variables were presented as means, standard

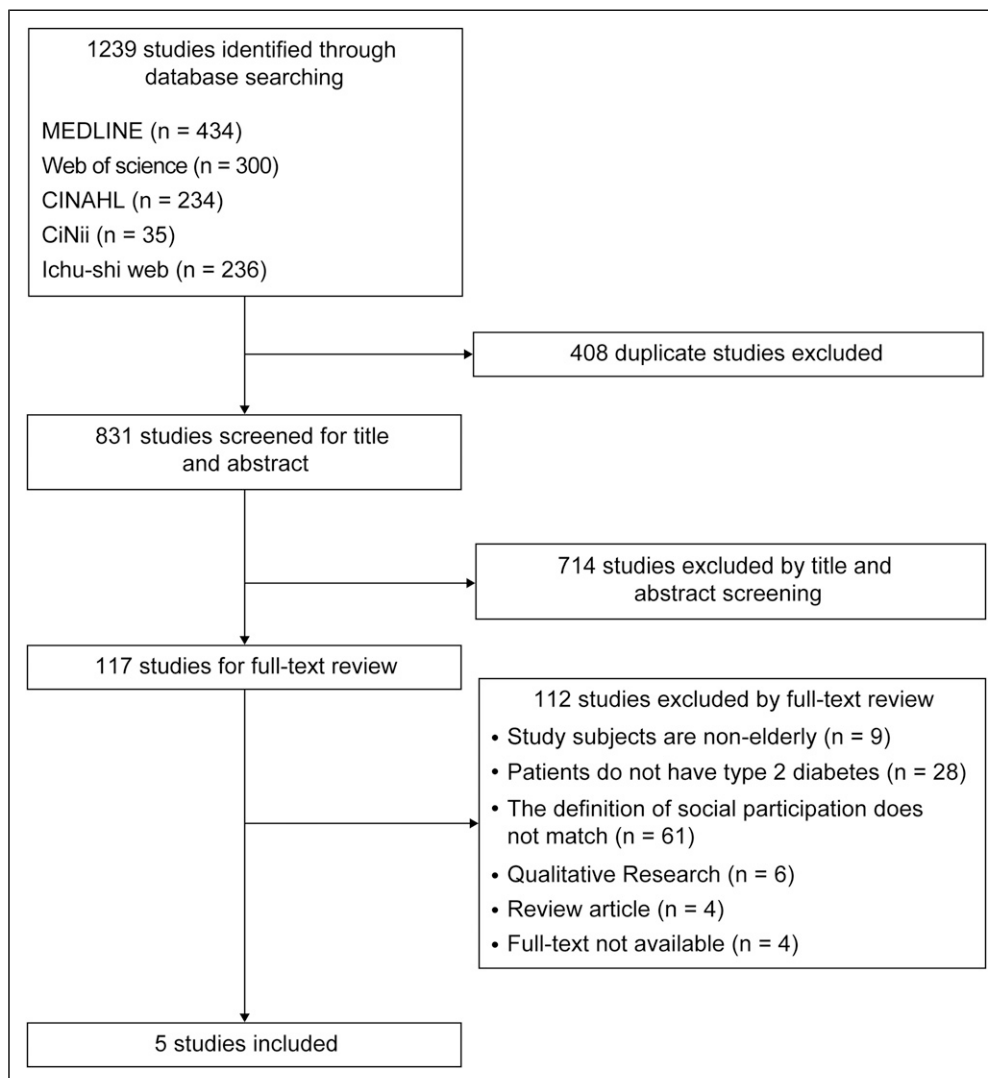


Figure 1. Study flow diagram.

deviations, or 95% confidence interval, and the dichotomous variables were presented as percentage (%).

Results

Description of Included Studies

Literature searches extracted 1239 articles, and 5 studies met the inclusion criteria (Figure 1) (Arcury et al., 2007; Hu et al., 2015; Kashiwagi et al., 2015; Koetsenruijter et al., 2015, 2016). Table 1 shows the characteristics of the studies included in this review. These five studies were cross-sectional studies conducted in the Netherlands, China, Japan, and the U.S. Of these, four studies were conducted after 2015. The mean age was 67 years, and 42% of the participants were women.

Among the five studies, four studies defined social participation as engagement in exercise, hobbies, neighborhood

associations, and volunteer activities (Koetsenruijter et al., 2015, 2016; Hu et al., 2015; Kashiwagi et al., 2015), and the remaining study defined it according to religious practices.

All the studies employed self-administered questionnaires (or interviews) to assess social participation, and the percentage of social participation ranged from 13% (the lowest) (Kashiwagi et al., 2015) to 36% (the highest) (Hu et al., 2015).

Factors Associated With Social Participation

Self-Management/Lifestyle

Several studies examined whether the following factors were associated with social participation: self-management of diabetes treatment (Koetsenruijter et al., 2016), healthy diet (Koetsenruijter et al., 2015), exercise habits and physical

Table 1. Characteristics of the studies included in the present scoping review.

Reference	Year	Region	Design of study	No. of diabetic patients	Type 2 diabetes, %	Age (years)	Women (%)	Social participation measurements	Social participation (%)	Main findings
Koetsenruijter et al.	2016	Netherlands	Cross-sectional study	1692	100	66	50	Participation in community organizations at least once a month	34	Social participation was associated with self-management skills in diabetics.
Koetsenruijter et al.	2015	Netherlands	Cross-sectional study	1692	100	66	50	Participation in a community organizations within 6 months	34	—Social participation is associated with physical activity, non-smoking, and physical and mental quality of life. —Social participation was not associated with healthier eating habits.
Hu et al.	2015	China	Cross-sectional study	436	100	67	32	Participation in sporting, religious, voluntary, hobby and community organizations	36	Social participation was not associated with physical or mental quality of life
Kashiwagi et al.	2015	Japan	Cross-sectional study	75	97.3	66	30	Participation in community organizations and hobbies at least once a week	13	Social participation is associated with health-related quality of life
Arcury et al.	2007	US	Cross-sectional study	701	100	74	49	Participation in religious services and church activities	NR	—Social participation is associated with mobility ability. —Social participation was not associated with depression, physical or mental quality of life.

activities (Koetsenruijter et al., 2015), and smoking and drinking habits (Koetsenruijter et al., 2015). Koetsenruijter et al. (2016) showed that social participation (which is defined as participation in community activities at least once in the past 6 months) was associated with the self-management of diabetes treatment. Exercise habits, physical activities, and smoking are associated with social participation (Koetsenruijter et al., 2015). No association was observed between social participation and a healthy diet (Koetsenruijter et al., 2015).

Depression

One study evaluated the relationship between social participation and depression (Arcury et al., 2007). The result showed that social participation defined as engagement in religious practice was not associated with depression.

Mobility

One study (Arcury et al., 2007) evaluated the association between social participation and mobility, and a significant association was observed.

Subjective Assessment of Health/Quality of Life

Several studies explored whether QOL (Koetsenruijter et al., 2015; Hu et al., 2015; Kashiwagi et al., 2015; Arcury et al., 2007) was associated with social participation. In terms of the association between social participation and the QOL, the results were inconsistent (the presence of the association (Koetsenruijter et al., 2015; Kashiwagi et al., 2015) and the absence of the association) (Hu et al., 2015; Arcury et al., 2007).

Discussion

This review verified that the percentage of social participation in elderly patients with diabetes was 13%–36%. The factors contributing to the social participation included self-management of treatment, lifestyle, mobility, subjective assessment of health, and QOL. However, the association between social participation and some of these factors varied according to studies. This review mainly included recent studies conducted in several countries, and these studies suggested the importance of social participation in elderly patients with diabetes.

First, we will discuss the percentage of social participation. The percentage of social participation in community-dwelling elderly patients is 18%–44% (Kanamori et al., 2014; Tomioka et al., 2017c). The present review showed a similar result at 13%–36% in elderly patients with diabetes. Nevertheless, caution should be maintained when comparing our results with others. Previous studies involving community-dwelling elderly patients (Kanamori et al., 2014; Tomioka et al., 2017c) evaluated the percentage of social participation on the basis of the type of activities (e.g., exercise, hobbies, and community activities, such as volunteer activities).

However, most studies included in this review defined social participation as engagement in any of the local activities. Hence, the percentage of social participation may be lower in elderly patients with diabetes than in the general elderly population. Many elderly patients with diabetes experience vascular complications, such as microangiopathy and macroangiopathy, and a decrease in cognitive and physical functions (Huxley et al., 2006; Sinclair et al., 2018). Such complications may decrease their social participation. In this review, the percentage of their social participation varied according to studies. This may be explained by the difference in the definition of social participation. Specifically, it was defined as participation in the following: (1) sports, hobby gatherings, neighborhood associations, and volunteer activities (Hu et al., 2015); (2) religious practices (Arcury et al., 2007); and (3) community activities at least once a week (Kashiwagi et al., 2015) or once in 6 months (Koetsenruijter et al., 2015, 2016). Differences in patient characteristics may also affect the percentage of social participation. Previous studies suggested that age, gender, an educational history, and income may be associated with the percentage of social participation (Tomioka et al., 2017c; Carver et al., 2018). Such patient characteristics differed in this review, which may affect the percentage of social participation.

Next, we will discuss the mechanism of the association between social participation and lifestyle and health outcomes. Social participation is associated with the acquisition of health-related information, a decrease in physical and mental stresses, anti-inflammatory actions, and the maintenance of motor functions (Lynch et al., 2000; Snijders et al., 2010; Takagi et al., 2013; Gleib et al., 2012; Buchman et al., 2009). These factors may be closely associated with self-management ability and physical and cognitive functions in elderly patients with diabetes (Sinclair et al., 2015, 2018). Kawauchi et al. (Kawachi & Berkman, 2014) reported that social participation affects individual health in which social propagation (i.e., spreading of information, habits, and actions to others), informal social control (i.e., the ability of groups to maintain social order), and social cohesion (i.e., the ability of collective action) are involved. These previous studies suggested that biological and social factors are associated with social participation, lifestyle, and health outcomes. In the present review, social participation was not associated with QOL in some studies. Reasons for the absence of such associations are as follows: Religious practice was included in the definition of social participation in the studies conducted by Hu et al. (Hu et al., 2015) and Arcury et al. (2007). Kanamori et al. (2014) examined the relationship between the type of social participation and long-term care needs in the future. The result confirmed that participation in sports, hobbies, and local events is effective for preventing long-term care needs. By contrast, participation in religious and political activities tends to increase the risk of long-term care needs, although there is no statistically significant difference. Many people who are eager for such

activities suffer from physical and mental anxiety (Kanamori et al., 2014), and such a fact may result in the absence of the association between social participation and the QOL. Differences in the type of community activities employed to define the social participation may lead to divergent results between our study and the previous studies.

Subsequently, we will discuss issues that are identified through this review, specifically differences between the current status of elderly patients with diabetes and our knowledge about them and future tasks that we will address for them. First, we were unable to find studies that evaluate the type and frequency of social participation associated with health outcomes. This review defined social participation as engagement in sports, hobbies, volunteer activities, and community activities, such as neighborhood associations, on the basis of previous studies. However, the frequency and the type of social participation associated with diabetes management and prevention of diabetes complications were unknown. As mentioned above, participation in sports, hobbies, and volunteer activities with a moderate frequency is essential to maintain ADL and well-being in community-dwelling elderly patients (Tomioka et al., 2018; Morrow-Howell et al., 2003). When participating in social activities, a volunteer mindset and role perception are closely associated with health outcomes (Tomioka et al., 2017c). Thus, the type of social participation is important to improve health outcomes. Second, we failed to evaluate the attitude toward social participation. There are voluntary and compulsory social participation (Kanamori et al., 2014; Rook, 1984), and the voluntary social participation is necessary to maintain self-rated health (Tomioka et al., 2017b) and physical and mental health (Tomioka et al., 2017a). On the basis of such results, the degree of motivation for social participation may affect health outcomes. Third, the number of studies involving patients with type-1 diabetes is limited, and the frequency of social interactions may vary between patients with type-1 and type-2 diabetes (it is fewer in patients with type-2 diabetes than type-1 diabetes) (Hempler et al., 2016). Further studies will be required to assess the differences in social interaction between them. Fourth, data are insufficient to analyze the association between social participation and health outcomes according to gender. The association between social participation and health outcomes is stronger in men than in women in community-dwelling elderly patients (Tomioka et al., 2017a, 2017b, 2018). However, it was difficult to assess the effect of such a gender difference on social participation in the present review, which involved elderly patients with diabetes. Additionally, further studies will be needed to evaluate their percentage of social participation and factors contributing to the social participation according to gender. Fifth, a few studies have evaluated whether social participation is associated with vascular complications, long-term care needs, and the medical economic index. Social participation is associated with the prevention of long-term care needs and a decrease in

mortality risk in community-dwelling elderly patients (Kanamori et al., 2014; Aida et al., 2011; Ishikawa et al., 2016). Nonetheless, no study has examined such an association in elderly patients with diabetes. To address critical problems, such as vascular complications, long-term care needs, and medical economics, in elderly patients with diabetes, social participation will be more important in the future. Furthermore, it may be an essential theme to examine how social participation affects these problems. Finally, the number of studies included in this review was limited. All five studies included in this review were cross-sectional studies. None of these studies had evaluated the effect of social participation on elderly patients with diabetes. In terms of factors contributing to social participation in this review, further studies may be required to clarify their causal relationships.

This was the first scoping review of the literature on social participation in elderly patients with diabetes, which is a strength of this study. This review clearly revealed our understanding of social participation in elderly patients with diabetes, differences in their current status and our knowledge, and future tasks that we will address for them. This is significant to conduct daily clinical practice and clinical studies. Nevertheless, this review had several limitations. First, although literature searches were conducted using several databases, we cannot deny the possibility that there may be relevant literature in the database that we did not use in this study. In addition, only literature written in English or Japanese was included in this review, and there may be relevant literature written in other languages. Second, this was a scoping review; therefore, the quality of literature included in this review was not evaluated. Our results should be interpreted cautiously.

Conclusions

The percentage of social participation in elderly patients with diabetes was 13%–36%. Factors contributing to social participation included self-management of treatment, lifestyle, mobility, subjective assessment of health, and QOL. However, the relationship between social participation and these factors was inconsistent. Further studies will be required to examine the causal relationship and the mechanism between social participation and contributing factors, the relationship between social participation and other outcomes, and stratified analyses in elderly patients with diabetes.

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Authors' contributions

SI carried out the design of the study and drafted the manuscript; KM worked on giving advice and reviewing from a medical point of view.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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Data statement

All data generated or analyzed during this study are included in this published article.

Ethical statement

Ethics Committee or Institutional Review Board approval is not required as this is a review article.

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