ORIGINAL RESEARCH

Building Relationships Between Community Care Professionals and Convenience Stores in Japan: Community-Based Participatory Research

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ABSTRACT

Background: Convenience stores play an important role in supporting community-dwelling older adults' lives. We started community-based participatory research (CBPR) in Nerima City, Tokyo Metropolitan area in Japan to develop a collaborative relationship to support older adults in the community-based integrated system.

Objectives: This study aimed to describe the CBPR process and evaluate building face-to-face relationships between health/social care professionals and the owners/employees of convenience stores.

Methods: Using CBPR, health/social care professionals in community general support centers (CGSCs) directly approached convenience stores based on the public support agreement between the convenience store chain company and the municipality. To evaluate the face-to-face relationship building between convenience store owners/employees and CGSCs' staff, we administered questionnaire surveys to convenience stores in Nerima City and two control cities from 2017 to 2019, and about 100 convenience stores completed the survey each year.

Results: Statistical analyses showed significant improvements in their knowledge for relationships with the CGSCs in Nerima City, including "knowledge of the CGSCs' function" (p = 0.001), "knowing individual professionals in the CGSCs" (p = 0.023), and "knowledge

of when to contact the CGSCs" (p = 0.002), compared to control cities. Helping behavior for older adults at convenience stores also increased significantly in Nerima City (p = 0.034).

Conclusions: The CGSCs' direct approach based on the public support agreement would effectively promote building relationships at convenience stores, leading to an age-friendly community.

KEYWORDS: Ageism, age-friendly society, community, community-based participatory research, health/social care professionals, home and community-based care and services

Introduction

The development of age-friendly communities has been a worldwide effort for aging societies. A cross-sector partnership approach, which includes service providers, voluntary organizations, the private sector, caregivers, and citizens' groups, can enhance collaboration in building an age-friendly community.[1, 2] In Japan, the government has introduced a community-based integrated care system,[3] which is a system that "provides appropriate living arrangements and appropriate social care such as daily life support services in addition to long-term and medical care to ensure health, safety and peace of mind in everyday life,"[4] with the aim of establishing an age-friendly community. In this community-based integrated care system, all community members—including not only health and social service agencies and municipal governments but also private-sector enterprises—are recommended to provide support to older adults, such as those with dementia.[5]

The convenience store, a private-sector enterprise familiar to community residents, plays an important role in the community-based integrated care system. There are 55,000 convenience stores across Japan, and in the Tokyo Metropolitan area, over 85% of the older adult population live within 300 m of a convenience store.[6] These stores have the characteristic of being convenient for older adults because of being moderate in size, close to their homes, and supporting their lives by providing food and other necessities.[7] Moreover,

convenience stores provide social support to older adults and promote their independence in the community. For instance, older adults in need of support/care benefit from convenience stores in terms of social activities and interactions with convenience store personnel.[7]

Further, convenience store chain companies have expanded their services targeted toward older adults, such as meal-delivery services and eat-in spaces.[6,8,9] Since 2005, the Japan Franchise Association has engaged in safety-station activities, which include providing support for older adults, and has reported that approximately 20% of all convenience stores in Japan have contributed to safeguarding older adults with dementia in the past year.[10] Many municipalities have also recognized the ability of convenience stores to support older adults in the community and have reached an agreement ("koureisha mimamori kyoutei" in Japanese) with convenience store chain companies, to promote collaborations for monitoring and supporting older customers. The agreement is to share their common goal of supporting older adults and stipulates store staff activities that support older adults directly or indirectly. While the agreement does not impose any obligations, it is expected to improve awareness among convenience store personnel and promote supporting activities for older adults in the community.[11]

This arrangement expects convenience stores to collaborate with municipalities and health/social care professionals to help older adults through the community-based integrated

care system,[5] but there are no legal regulations. There are some obstacles to this collaboration, such as convenience store owners' concerns regarding violations of customers' privacy and paucity of time to perform supporting activities due to daily work requirements.[12]

Studies have been conducted on interventions that involve providing healthy food in convenience stores, as well as health education for customers in hair salons and barbershops. These studies showed that such interventions succeeded in improving health-related factors, such as including disease perception, knowledge of disease prevention, and self-management behaviors, as well as the store's profit.[13–16] However, little is known about how health care professionals can build partnerships with private sector personnel in the context of age-friendly cities and how CBPR can contribute to this.

Therefore, we commenced with community-based participatory research (CBPR) to promote collaboration in providing support for community-dwelling older adults in a community-based integrated system. This study aims to (1) describe the CBPR process with the partnerships among the research members, and (2) evaluate the building of collaborative relationships between health/social care professionals and convenience stores in the community.

Methods

Setting

The CBPR was conducted from 2014 to 2019 in Nerima City, the Tokyo Metropolitan

area, with a population of approximately 730,000, and an aging rate of approximately 22% in 2019. Convenience stores and community general support centers (CGSCs) were targeted in the research.

Convenience Stores in Japan

A convenience store is defined as a store that sells food and drinks in a shopping area ranging between 30 to 250 m^2, and has service times of 14 hours or more per day.[17] In Japan, almost all convenience stores operate under a franchise agreement with a convenience store chain company; the owner of each store is responsible for its management.

Community General Support Centers

CGSCs were established under the long-term care system in 2005 as one-stop general consulting centers to support older adults living in the community.[18] The Japanese government regulates each CGSC by requiring three types of health/social care professionals, social workers, public health nurses/registered nurses, and care managers. The professionals working in CGSCs collaborate with various community members, including private-sector enterprises, to build a community-integrated care system. There are 25 CGSCs in Nerima City.

Study design and procedure

We used the common framework of the CBPR[19,20] to design and implement the

research: (1) needs assessment to identify issues in the community, (2) planning actions to solve the issues, (3) performing the actions, and (4) evaluation. We applied the following principles of CBPR throughout the research: collaborative and equitable partnerships, co-learning, capacity building, the integration of research and action, and system development through a cyclical and integrative process.[19,21]

In our previous CBPR, we conducted a needs assessment and found that while convenience store personnel provide support in their daily work, they face difficulties dealing with the behavior of older customers. This was due to a lack of knowledge in dealing with older adults, including those with dementia, and the lack of relationships with the health/social care professionals at the CGSCs. To address these issues, we developed an educational program with gamification, named N-impro.[22] The program was designed to improve convenience store personnel's ability to address difficult situations when supporting older adults by obtaining knowledge and creating relationships with health/social care professionals. In the current study, we performed and evaluated the subsequent actions.

Performing Actions with Partnership

The research team, including the authors, consisted of multidisciplinary professional members—nursing researchers, community health/social care professionals, convenience store owners/managers, and municipal government employees. Regular meetings were held monthly at the research site's (i.e., Nerima City) community center (a total of 30 meetings, 12

meetings each in 2017 and 2018, and 6 in 2019).

The partnerships based on previous relationships between the nursing researchers and community health/social care professionals had been expanded through the research, involving the owners/managers of convenience stores and the municipality. The convenience store owners/managers advanced the research actions considering the convenience store's features. Health/social care professionals connected with various community members and provided advice on strategies to develop the community system supporting older adults. The municipality contributed to disseminating the activities and involving the CGSC staff. The researchers managed and evaluated the research.

The researchers' process of commitment was also consistent with the "Community-Campus Partnerships for Health (CCPH)".[23] In regular research meetings, we discussed and agreed upon the mission, values, goals, measurable outcomes, and accountability for the partnership (Principle 2), aiming to serve a specific purpose (Principle 1). Clear and open communication to understand each other's needs (Principle 6) also led to fostering mutual trust, respect, genuineness, and commitment (Principle 3). The researchers made efforts to balance power among partners in the discussion (Principle 5). The educational program provision aimed to increase each partner's capacity using their strengths and assets (Principle 4). Through the processes, the partnership's principles were established with the input and

agreement of all partners (Principle 7). The evaluation results were discussed among the research members in the regular meetings and with other stakeholders in the annual report (Principle 8); the benefits of the partnership's accomplishments were shared among them (Principle 9).

Evaluation

To evaluate a series of actions by a quasi-experimental design, self-report questionnaire surveys were administered to the convenience stores and CGSCs before and after the start of the actions. This study hypothesized that the actions could: (1) facilitate the building of relationships between convenience store personnel and health/social care professionals, and (2) improve the convenience store personnel's perceptions and behaviors toward helping older adults. Therefore, the convenience store personnel's relationships with the CGSCs and their perceptions and behavior toward helping older adults were measured as outcomes.

Participants and Procedure

The participants of the questionnaire surveys were the owners/managers of all convenience stores and the managers of CGSCs in Nerima City and two control cities. Both control cities were located in the Tokyo Metropolitan area and had similar regional characteristics with Nerima City (e.g., 22% of the aging rate in Nerima City vs. 20-23% in the control cities).

There were 543, 543, and 599 participants from the convenience stores in 2017, 2018, and 2019, respectively (Table 1), and 52 participants from the CGSCs each year. The questionnaire was sent to the participants in November of every year from 2017 to 2019. The participants who agreed to answer returned it by mail.

Measurements

The questionnaire for the convenience store owners/managers asked about the characteristics of the participants and stores, the relationships with CGSCs, and the perceptions and behaviors toward helping older adults.

Participants' Characteristics

The convenience store participants' characteristics included age, sex, position (owner, manager, and other), and experience of caring for family or friends.

Relationships with CGSCs

The convenience stores' relationships with the CGSCs were measured by: (1) knowledge of the functions of the CGSCs; (2) knowledge of when they should contact the CGSCs, which was rated using a 4-point Likert-type scale ranging from 1 (not knowing at all) to 4 (knowing well); (3) knowledge of contact information of the CGSCs in the community; and (4) knowledge of individual health/social care professionals at the CGSCs, which was rated using yes (1) or no (0).

Perceptions of Helping Older Adults

The perceptions of helping older adults were evaluated using both attitudes toward persons with dementia and the sense of community. The participants' attitudes toward persons with dementia were measured using the Attitudes Toward Dementia scale[24] on a 4-point Likert-type scale ranging from 1 (disagree) to 4 (agree). The Attitudes Toward Dementia scale consists of the following subscales: "tolerance" (five items), "refusal" (four items), "feeling of distance" (three items), and "affinity" (two items). The internal consistency reliability of the total scale and of the individual subscales was acceptable (Cronbach's alpha coefficient = 0.67 to 0.79).

The sense of community was measured using the short version of the Sense of Community scale,[25,26] which was rated using a 5-point Likert-type scale ranging from 1 (disagree) to 5 (agree). The Sense of Community scale consists of the following subscales: "solidarity and proactiveness" (three items), "self-determination" (three items), "sense of attachment" (three items), and "reliance on others" (three items). The internal consistency reliability of each subscale was acceptable (Cronbach's alpha coefficient = 0.68 to 0.92).[25]

Helping Behaviors

Helping behaviors were measured by: (1) experience of emergency protection of an older adult in the past year, and (2) experience of contacting the CGSCs in the past year, and

were rated using yes (1) or no (0). Additionally, in the survey for the CGSCs' managers, the item "number of convenience stores that have contacted the CGSCs in the past year" was also measured to find convenience stores' helping behaviors.

Analysis

First, descriptive statistics for all variables were calculated. While the total score was calculated for the Attitude Toward Dementia scale, the scores of the subscale were used for the Sense of Community scale based on the original literature of scale development.[25] Second, the changes in the relationships with the CGSCs, perceptions of helping older adults, and helping behaviors were examined using the difference-in-difference method.[27] In the regression model for the difference-in-difference method, the independent variables were the exposure factor (Nerima City or not), time (2017, 2018, and 2019), and the interaction term (exposure factor * time); the coefficient of the interaction term represented the impact of the exposure factor on the outcome. Third, the outcome values in 2019 were compared using whether the stores had concluded a support agreement with the municipality and whether they knew about the research activities in Nerima City and those in the control cities.

The significance level was set at $p < .05$ (two-tailed). Statistical analysis was performed using SPSS Statistics version 22.0 for Windows.

Ethical Consideration

The questionnaire explained the purpose and methods of this study, the voluntary nature of participation, and the right to refuse participation. The ethics committee of the University of Tokyo approved the research (No. 11766).

Results

Based on the needs assessment and the initial actions (i.e., developing educational programs) in the previous study,[22] we performed and evaluated the subsequent actions.

Performing Actions

Action 1: Providing the Educational Program

We aimed to provide the educational program (N-impro) to convenience store personnel throughout Nerima City. We conducted 90-minute training courses on how to manage the educational program among health/social care professionals in all CGSCs in Nerima City, aiming to enhance their capacity to collaborate with convenience stores using the educational program; about 100 professionals of 25 CGSCs had completed the training courses. After participating in the courses, the CGSCs' staff held workshops on the educational program in their communities. They invited the convenience store personnel to the program and tried to build relationships with them; however, many owners/managers declined to participate due to their busy schedules or lack of interest.

For the implementation of the program, we also approached and negotiated with the chain's headquarters to inform merchants about the program, and reported on our progress. Through these actions, the convenience store chain companies recognized our research activities, and developed relationships with the municipality; consequently, two of the three main convenience store chain companies concluded a public agreement for supporting older adults in Nerima City in May 2018. These two companies account for 75–80% of all convenience stores in Nerima City.

Action 2: Contact Approach to Build Collaborative Relationships

In the first action, this study found it difficult to invite convenience store personnel to collectively attend the educational program; therefore, we reconsidered its action strategy. To use the support agreement effectively, the municipality, a member with partnerships in the CBPR, encouraged the health/social care professionals in the CGSCs to visit all convenience stores belonging to the chain companies that concluded the agreement (about 200 of the approximate 250 convenience stores in Nerima City) to build relationships with them.

We developed materials (magnet sheets and newsletters) to facilitate this direct contact approach. On the magnet sheet, the phone number of the CGSC in the community of each convenience store was provided. The newsletters provided examples of difficult cases that a convenience store might confront, and recommended contacting the CGSCs in such cases;

one of the N-impro situation cards of the educational program, describing the difficult situation and dilemma, was printed on the reverse side. The CGSCs' staff visited each convenience store with the materials, asked about experiences of difficulties in dealing with older customers, and explained that they could provide help in such situations; the N-impro card printed in the newsletters was used to discuss with the convenience store personnel. Moreover, they asked the stores' owners/managers to put the magnet sheet with the CGSCs' contact information on the wall of the stores' backrooms and to call the CGSCs as soon as possible when convenience store personnel found an older adult in need of help. After the first contact with the convenience stores, the CGSCs' staff continued to contact (i.e., visit or call) the stores and regularly asked whether they had trouble dealing with older customers.

Based on the collaboration led by the researchers in Action 1, the municipality decided to shift the responsibility and initiatives to the municipality in Action 2, to promote an age-friendly community by themselves.

Evaluation

Ninety-seven convenience store participants completed the survey (valid response rate: 17.9%; n = 37 in Nerima vs. n = 60 in the control cities) in 2017, 103 (19.0%; n = 50 vs. n = 53) in 2018, and 108 (18.0%; n = 52 vs. n = 56) in 2019. Twenty CGSCs returned the questionnaire (valid response rate: 38.5%) in 2017, 26 (50%) in 2018, and 31 (59.6%) in

2019.

Participants' Characteristics

Table 2 shows the descriptive statistics of the convenience store participants. Altogether, the mean age (± standard deviation) was 46.9 ±13.0 years and 77% were men; 56% were owners of convenience stores.

Effect on Relationships, Perceptions, and Behaviors (Table 3)

The analyses showed significant improvements in the relationships with the CGSCs, such as "knowledge of the functions of the CGSCs" (p = 0.001), "knowing individual health/social care professionals in the CGSCs" (p = 0.023), and "knowledge of when to contact the CGSCs" (p = 0.002), among the participants in Nerima City when compared to those in the control cities. The attitudes toward dementia and sense of community did not change over time between the cities.

Regarding the helping behaviors, the convenience stores with "experience of emergency protection of an older adult" increased significantly in Nerima City (p = 0.034), while "experience of contacting the CGSCs in the past year" also increased but not significantly (p = 0.177). The number of older customers for whom the convenience stores' personnel had contacted the CGSC in Nerima City increased over time and was higher than that of the control cities.

Table 4 shows the results of comparing the values on the relationships, perceptions, and behaviors toward helping older adults in 2019 from the concluding agreement and knowledge of research activities. Among the three groups, the participants in Nerima City who knew about the research activities based on the concluding agreement had the most effective relationships with the CGSCs (i.e., knowledge of the CGSCs' functions, contact information, individual health/social care professionals, and when to contact the CGSCs: $p < .001$, respectively), and had the experience of contacting the CGSCs in the past year ($p < .001$), followed by those who did not know about the activities despite the concluding agreement. The mean of the total scores of the Attitude Toward Dementia scale, and the "solidarity/proactiveness" and "reliance on others" subscales of the Sense of Community scale were also the highest among the participants who knew about the research activities (*p* = .001, .003, and .002, respectively).

The outcome values of the participants of the stores without agreements were comparable with those in the control cities.

Discussion

This study describes the CBPR process and evaluates building collaborative relationships between the health/social care professionals and convenience store personnel in a community-based integrated care system. To the best of our knowledge, this is the first

study to construct collaborative relationships with private-sector enterprises to support older adults in the community. The research process could be applied to similar efforts in other countries and other private-sector fields for the future development of an age-friendly community.

This study applied the principles of CBPR, such as facilitating collaborative and equitable partnerships, co-learning, capacity building, integrating research and action, and system development through a cyclical and iterative process.[19,21] First, the researchers effectively organized partnerships with multi-professional members, attempted to play suitable roles, and supported members in utilizing their strengths in the research process based on the CCPH's principles for partnerships.[23] This is consistent with the statement that the researcher's role in CBPR is as a facilitator who supports community members as they solve community issues,[28] and that their role changes according to the research stage.[29] Second, the researchers encouraged the members to co-learn and build their capacity to perform actions to collaborate with convenience stores. Third, the researchers integrated the research and actions and reconsidered the action strategies through the cyclical and integrative process.

Since the first action of providing an educational program failed to involve the convenience store personnel, the researchers modified the strategy, and the CGSCs' staff

directly visited the convenience stores instead. As a consequence of the action's success, the municipal government decided to continue to collaborate with convenience stores to develop an age-friendly community. Mosavel et al. state that sustainability beyond the prescribed research focus is often difficult for academic/community partnerships.[30] Nonetheless, the municipality's decision demonstrated that the research process based on the CBPR principles worked effectively to enhance sustainability.

The results of the questionnaire survey showed that the direct approach to convenience stores, based on the public support agreement, could promote more effective collaborations in the community-based integrated care system. The relationships between the convenience stores' personnel and CGSCs, and the helping behaviors of the convenience stores, significantly improved at the community level in Nerima City. Additionally, the sub-analysis of the 2019 survey data showed that convenience stores that concluded the support agreement with the municipality and knew about this study's activities had the most relationships with the CGSCs, and had positive perceptions and behaviors of supporting older adults; this was generally followed by those that knew about the concluding agreement but did not know about the research activities.

Some researchers have suggested a collaboration continuum[31,32]; among them, Frey et al.[32] suggest five collaboration levels: networking, cooperation, coordination, coalition, and

collaboration. “Networking” concerns awareness of an organization but little communication; “cooperation” is where organizations provide information to each other and communicate formally; “coordination” is where organizations share information and resources using frequent communication; while “coalition” and “collaboration” are where organizations share decision-making with mutual trust.

The results of the current study suggest that the process of development and dissemination of the educational program (Action 1) was effective for building organizational relationships between the convenience store chain companies and the municipality, and for concluding the agreement (i.e., building “networking”), though the educational program as an isolated product was insufficient. Additionally, the subsequent direct contact approach based on the agreement (Action 2) facilitated progress to building individual relationships between the convenience stores’ personnel and the health/social care professionals in the CGSC (i.e., “cooperation” or “coordination”). Thus, this study implied that the two-step strategy for building organizational and individual relationships would be effective for community health/social care professionals to promote collaborations with the private-sector enterprises in the community. To promote conclusion of the support agreement (the network-building step), actions for the private-sector enterprises to recognize that their work is helpful for older adults would be effective.

The remaining issue concerns how to access convenience stores. Despite the concluding agreement, about 70% of the respondents from the convenience stores in Nerima City did not know about this study's research activities because the CGSCs' staff could not meet the convenience store owners/managers, mainly because of the owner/managers' busy schedules, and they had fewer relationships, lower perceptions of supporting older adults, and fewer helping behaviors. Future studies should consider additional strategies to ensure that the CGSCs' staff can talk to the owners/managers. For example, the support agreement may be able to enact concrete collaboration behaviors of the stores and CGSCs, such as holding meetings to discuss supporting older adults.

This study has several limitations. First, because the response rate of the questionnaire survey was low, the effectiveness of the actions might be overestimated. Second, this study could not follow the over-time changes of the individual participants in the outcomes because their identification information was not available. Future studies should conduct an evaluation all over Nerima City to identify changes in the helping behaviors of individual convenience stores. Third, the relationships with CGSCs were measured using single-item questions; its reliability and validity were not confirmed. Finally, the parallel trend assumption for the difference-in-differences analysis was not confirmed because there was only one time point of observation prior to the intervention.

In conclusion, the two-step strategy to build organizational and individual collaborative relationships, which includes the dissemination of the educational program and direct approach to the convenience stores' personnel based on the public support agreement, was effective in promoting the helping behaviors in convenience stores. The strategy could be applied to other private sectors, such as supermarkets, banking services, and newspaper delivery services, and in other countries, contributing to constructing an age-friendly community in a community-based integrated care system.

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References

1. Greenfield EA, Oberlink M, Scharlach AE, Neal MB, Stafford PB. Age-friendly community initiatives: conceptual issues and key questions. Gerontologist. 2015 April 01;55(2):191-8.

2. Lui CW, Everingham JA, Warburton J, Cuthill M, Bartlett H. What makes a community age-friendly: A review of international literature. Australas J Ageing. 2009 September 01;28(3):116-21.

3. Hatano Y, Matsumoto M, Okita M, Inoue K, Takeuchi K, Tsutsui T, Nishimura S, Hayashi T. The vanguard of community-based integrated care in Japan: the effect of a rural town on national policy. Int J Integr Care. 2017 Apr 27;17(2):2.

4. General Affairs of the Cabinet Secretary (National Congress for Social Security). Second Session Meeting of the National Congress for Social Security ((Medical, Nursing, Social) Social Security Services) Interim Report. 2008.

5. Ministry of Health, Labour and Welfare. Issues for consideration of constructing community-based integrated care system in the future. report of research project on sustainable long-term care insurance system and community-based integrated care system. Tokyo, Japan: Ministry of Health, Labour, and Welfare. Available from: https://doi.org/10.5334/ijic.3218

6. Takemoto R. Japan as a society dependent on convenience stores: is survival without convenience stores impossible in the era of super-aging? Discuss Japan—Japan Foreign Policy Forum. 2016 March 18;30. Retrieved from https://www.japanpolicyforum.jp/society/pt201603180117545438.html

7. Igarashi A, Matsumoto H, Suzuki M, Aoki S, Aburayama K, Murata S, Hamada T, Yamamoto-Mitani N. Use of convenience stores in community-dwelling older adults who utilize home help services offered under the long-term care insurance: A cross-sectional questionnaire survey for older adult cases that convenience store provides support in daily life. Japan Socio-Gerontological Society. 2018;40(3):283-91.

8. Kodera A. Japan's convenience stores catering more to elderly as demographics shift. The Japan Times. 2015 May 7. Retrieved from

https://www.japantimes.co.jp/news/2015/05/07/business/japans-convenience-stores-catering-elderly-demographics-shift/#.W90nOZP7Tic

9. Takemoto R. Convenience store refugee: from retail stores to "lifeline". 1st ed. Tokyo: Chuokoron-Shinsha, Inc.; 2016 (in Japanese).

10. Japan Franchise Association. Report on safety station activity's questionnaire survey for convenience store. Japan Franchise Association; 2018.

11. Nakamura Y, Matsumoto H, Yamamoto-Mitani N, Suzuki M, Igarashi A. Impact of support agreement between municipalities and convenience store chain companies on store staff's support activities for older adults. Health Policy. 2018 Dec;122(12):1377-1383. Epub 2018 Sep 28.

12. Yamanoi R, Ishida K, Asai M, Senoo K. Strengths and obstacles related to mobilizing community businesses: Qualitative analysis of interviews with employees of comprehensive community support centers. Japanese Journal of Social Welfare. 2014;54(5):41-53.

13. Linnan LA, D'Angelo H, Harrington CB. A literature synthesis of health promotion research in salons and barbershops. Am J Prev Med. 2014 July 01;47(1):77-85.

14. Baquero B, Anderson Steeves E, Polacsek M, De Marco M, Chapman L, Leone LA, Simon C. Evaluating the implementation and impact of a healthier checkout programme at a regional convenience store chain. Public Health Nutr. 2021 August 01;24(11):3520-9.

15. Adam A, Jensen JD. What is the effectiveness of obesity related interventions at retail grocery stores and supermarkets? —a systematic review. BMC Public Health. 2016 December 28;16(1):1247.

16. Minaker LM, Lynch M, Cook BE, Mah CL. Exploring sales data during a healthy corner store intervention in Toronto: the Food Retail Environments Shaping Health (FRESH) project. Health Promot Chronic Dis Prev Can. 2017 October 01;37(10):342-9.

17. Commercial statistics [Internet].; 2017 [cited 2020/08/15]. Available from: https://www.meti.go.jp/statistics/tyo/syougyo/index.html

18. Takada J, Meguro K, Sato Y, Chiba Y, Kurihara Project members. Life concerns of elderly people living at home determined as by Community General Support Center staff:

implications for organizing a more effective integrated community care system. The Kurihara Project. Psychogeriatrics. 2014 September 01;14(3):188-95.

19. Israel BA, Schulz AJ, Parker EA, Becker AB. Review of community-based research: assessing partnership approaches to improve public health. Annu Rev Public Health. 1998;19:173-202.

20. Stringer ET. Action research. 4th ed. Thousand Oaks: Sage; 2014.

21. Israel BA, Schulz AJ, Parker EA, Becker AB, Allen III AJ, Guzman JR. Critical issues in developing and following CBPR principles. In: Minkler M, Wallerstein N, editors. Community-based participatory research for health: From process to outcomes. San Francisco, CA: Jossey-Bass; 2008. p. 47-66.

22. Igarashi A, Matsumoto H, Takaoka M, Kugai H, Suzuki M, Yamamoto-Mitani N. Educational program for promoting collaboration between community care professionals and convenience stores. J Appl Gerontol. 2020;39(7):760-9.

23. Seifer SD, Connors K, editors. Community campus partnerships for health. Faculty toolkit for service-learning in higher education. Scotts Valley, CA: National Service Learning Clearinghouse; 2007. Unit 2: Establishing community campus partnerships for service learning; p. 11-41.

24. Kim K, Kuroda K. Factors related to attitudes toward people with dementia: Development Attitude toward Dementia Scale and Dementia Knowledge Scale. Bulletin of Social Medicine. 2011;28(1):43-55.

25. Ishimori M, Okamoto T, Kato J. Development of the short version of the Community Consciousness Scale. The Japanese Journal of Experimental Social Psychology. 2013;53(1):22-9.

26. Ishimori M. Relationship between sense of community and motivation to participate in NPO activities. The Nonprofit Review. 2007;7(2):67-73.

27. Dimick JB, Ryan AM. Methods for evaluating changes in health care policy: the difference-in-differences approach. JAMA. 2014 December 10;312(22):2401-2.

28. Stringer E, Dwyer R. Action Research in Human Services. New Jersey: Prentice Hall; 2005.

29. Stoecker R. Are academics irrelevant?: Approaches and roles for scholars in CBPR. In: Minkler M, Wallerstein N, editors. Community-based participatory research for health: From process to outcomes. San Francisco, CA: Jossey-Bass; 2008. p. 107-20.

30. Mosavel M, Winship J, Liggins V, Cox T, Roberts M, Jones D S. Community-based participatory research and sustainability: The Petersburg wellness consortium. J Community Engagem Scholarsh. 2019;11(2):Article 7. Retrieved from https://digitalcommons.northgeorgia.edu/jces/vol11/iss2/7/?utm_source=digitalcommons.northgeorgia.edu%2Fjces%2Fvol11%2Fiss2%2F7&utm_medium=PDF&utm_campaign=PDFCoverPages

31. Collaboration for a change [Internet].; 2002 [cited 11/17/2020]. Available from: http://tennessee.edu/wp-content/uploads/2019/07/Himmelman-Collaboration-for-a-Change.pdf.

32. Frey BB, Lohmeier JH, Lee SW, Tollefson N. Measuring collaboration among grant partners. Am J Eval. 2006;27:383-392.

Table 1. Number of distributed and answered questionnaires

	2017			2018			2019		
	Distributed	Answered	Response rate	Distributed	Answered	Response rate	Distributed	Answered	Response rate
Nerima City	**242**	**37**	**(15.3%)**	**249**	**50**	**(20.1%)**	**243**	**52**	**(21.4%)**
Control Cities	**301**	**60**	**(19.9%)**	**294**	**53**	**(18.0%)**	**356**	**57**	**(16.0%)**
A City	214	48	(22.4%)	203	38	(18.7%)	229	36	(15.7%)
B City	87	12	(13.8%)	91	15	(16.5%)	127	21	(16.5%)

Table 2. Characteristics of convenience store participants

		2017			2018			2019		
		Nerima (n = 37)	Control Cities (n = 60)	*p*-value	Nerima (n = 50)	Control Cities (n = 53)	*p*-value	Nerima (n = 52)	Control Cities (n = 57)	*p*-value
		n (%) or mean ± SD	n (%) or mean ± SD		n (%) or mean ± SD	n (%) or mean ± SD		n (%) or mean ± SD	n (%) or mean ± SD	
Convenience store survey										
Age		44.9 ± 14.6	48.4 ± 14.1	0.250	49.0 ± 13.6	47.2 ± 10.3	0.458	46.2 ± 13.5	45.3 ± 12.1	0.726
Sex	Male	29 (80.6)	46 (76.7)	0.655	40 (81.6)	40 (75.5)	0.450	40 (76.9)	39 (70.9)	0.479
	Female	7 (19.4)	14 (23.3)		9 (18.4)	13 (24.5)		12 (23.1)	16 (29.1)	
Position	Owner	21 (60.0)	34 (56.7)	0.486	28 (63.6)	30 (57.7)	0.116	29 (55.8)	24 (44.4)	0.510
	Manager	14 (40.0)	22 (36.7)		11 (25.0)	21 (40.4)		20 (38.5)	23 (42.6)	
	Full-time worker	0 (0.0)	2 (3.3)		2 (4.5)	1 (1.9)		2 (3.8)	4 (7.4)	
	Part-time worker	0 (0.0)	2 (3.3)		3 (6.8)	0 (0.0)		1 (1.9)	3 (5.6)	
Experiences of caring for family or friends	Yes	10 (28.6)	27 (45.0)	0.113	23 (46.9)	24 (45.3)	0.867	27 (51.9)	25 (44.6)	0.449
	No	25 (71.4)	33 (55.0)		26 (53.1)	29 (54.7)		25 (48.1)	31 (55.4)	

Note: SD = Standard deviation.

Table 3. Effects of the actions on relationships, perceptions, and helping behaviors of convenience stores

		2017		2018		2019		
		Nerima (n = 37)	Control Cities (n = 60)	Nerima (n = 50)	Control Cities (n = 53)	Nerima (n = 52)	Control Cities (n = 57)	
	range	n (%) or mean ± SD	n (%) or mean ± SD	n (%) or mean ± SD	n (%) or mean ± SD	n (%) or mean ± SD	n (%) or mean ± SD	*p*-value
Convenience store survey								
Relationship with the *CGSCs*								
Knowing the functions of the CGSCs	1—4	1.8 ± 0.8	1.8 ± 0.9	2.4 ± 0.9	1.7 ± 0.8	2.7 ± 1.0	1.9 ± 0.9	0.001 ***
Knowing when to contact the CGSCs	1—4	1.6 ± 0.6	1.5 ± 0.8	2.3 ± 0.9	1.5 ± 0.7	2.6 ± 1.1	1.7 ± 0.8	0.002 **
Knowing the contact information of the CGSCs	Yes	7 (19.4)	10 (16.7)	15 (30.6)	2 (3.8)	32 (64.0)	9 (15.8)	0.007 **
	No	29 (80.6)	50 (83.3)	34 (69.4)	51 (96.2)	18 (36.0)	48 (84.2)	
Knowing individual professionals at the CGSCs	Yes	3 (8.3)	4 (6.7)	16 (32.0)	2 (3.8)	21 (41.2)	2 (3.5)	0.023 *
	No	33 (91.7)	56 (93.3)	34 (68.0)	51 (96.2)	30 (58.8)	55 (96.5)	
Perceptions of helping older adults								
Total score of Attitude Toward Dementia scale	14—56	38.5 ± 6.3	36.3 ± 5.5	39.3 ± 6.6	37.3 ± 5.5	41.3 ± 6.3	38.4 ± 5.7	0.625
Sense of Community scale								
Solidarity and proactiveness	3—15	10.5 ± 2.4	8.7 ± 2.4	10.1 ± 2.3	8.4 ± 2.8	10.2 ± 2.8	8.8 ± 3.0	0.562
Self-determination	3—15	11.2 ± 2.1	10.7 ± 1.9	11.5 ± 1.6	10.9 ± 2.0	11.4 ± 1.7	11.1 ± 2.1	0.704
Sense of attachment	3—15	9.6 ± 2.6	9.9 ± 3.3	10.3 ± 2.7	9.6 ± 2.9	10.3 ± 3.1	10.1 ± 2.8	0.498
Reliance on others	3—15	10.6 ± 2.3	9.6 ± 2.5	9.9 ± 2.3	9.3 ± 2.0	9.9 ± 2.2	8.9 ± 2.5	0.987
Helping behavior								
Experience of protecting older adults in the past year	Yes	14 (37.8)	25 (41.7)	23 (46.0)	22 (41.5)	26 (50.0)	14 (24.6)	0.034 *
	No	23 (62.2)	35 (58.3)	27 (54.0)	31 (58.5)	26 (50.0)	43 (75.4)	
Experience of contacting the CGSCs in the past year	Yes	2 (5.4)	3 (5.0)	7 (14.3)	1 (1.9)	13 (26.0)	3 (5.3)	0.177
	No	35 (94.6)	57 (95.0)	42 (85.7)	52 (98.1)	37 (74.0)	54 (94.7)	
Community General Support Center survey		(n = 11)	(n = 9)	(n = 19)	(n = 7)	(n = 20)	(n = 11)	
Number of customers for whom the convenience stores had contacted the CGSC in the past year		0.45 ± 0.52	0.22 ± 0.44	0.32 ± 0.48	0.43 ± 0.54	1.08 ± 1.34	0.45 ± 0.69	

Note: Percentage was calculated excepting for missing values; SD = Standard deviation; CGSC = Community general support center.

*p < 0.05; **p < 0.01; ***p < 0.001.

Table 4. Relationships, perceptions, and helping behaviors from having knowledge of the activities and concluding agreement in 2019

		Nerima				
		Concluding agreement and knowing activities (n = 9)	Concluding agreement and not knowing activities (n = 20)	Not concluding agreement (n = 21)	Control Cities (n = 57)	*p*-value
	range	n (%) or mean ± SD	n (%) or mean ± SD	n (%) or mean ± SD	n (%) or mean ± SD	
Convenience store survey						
Relationships with the CGSCs						
Knowing the functions of the CGSC	1—4	3.5 ± 0.5	2.3 ± 0.9	1.9 ± 0.8	1.9 ± 0.9	<0.001 ***
Knowing when to contact the CGSCs	1—4	3.4 ± 0.7	2.2 ± 1.0	1.7 ± 0.7	1.7 ± 0.8	<0.001 ***
Knowing the contact information of the CGSCs		21 (100)	9 (47.4)	2 (22.2)	9 (15.8)	<0.001 ***
Knowing individual professionals at the CGSCs		15 (71.4)	4 (20.0)	2 (22.2)	2 (3.5)	<0.001 ***
Perceptions of helping older adults						
Total score of Attitude Toward Dementia scale	14—56	44.0 ± 6.4	40.2 ± 5.4	36.3 ± 5.3	38.4 ± 5.7	0.001 **
Sense of Community scale						
Solidarity and proactiveness	3—15	11.5 ± 2.2	9.5 ± 3.1	8.8 ± 1.9	8.8 ± 3.0	0.003 **
Self-determination	3—15	11.6 ± 1.8	11.3 ± 1.6	10.9 ± 1.9	11.1 ± 2.1	0.686
Sense of attachment	3—15	11.4 ± 2.9	9.5 ± 2.9	8.9 ± 3.6	10.1 ± 2.8	0.085
Reliance on others	3—15	11.2 ± 2.1	8.9 ± 1.9	9.2 ± 1.3	8.9 ± 2.5	0.002 **
Helping behavior						
Experience of protecting older adults in the past year		12 (57.1)	9 (45.0)	5 (55.6)	14 (24.6)	0.026 *
Experience of contacting the CGSCs in the past year		9 (42.9)	4 (20.0)	0 (0.0)	3 (5.3)	<0.001 ***

Note: Percentage was calculated excepting for missing values; SD = Standard deviation; CGSC = Community general support center.

*p < 0.05; **p < 0.01; ***p < 0.001.