

Looking at the state of activities being conducted overseas, it appears that also in Japan, 1) enhanced outcome evaluation, 2) the development of objective and quantitative indices and 3) the operation as a system are required.

(2) Care quality evaluation at special elderly nursing homes—attempts to use data of certification of requiring long-term care

In the revision of the Long-Term Care Insurance Act, care quality evaluation has been the focus of attention. Therefore, we aimed to develop care quality evaluation indices that could be used to make comparisons between special elderly nursing homes. In consideration of costs for data collection, we created indices from existing official data, which is made up of individual certifications of requiring care level and of eligibility for benefits from long-term care insurance.

Firstly, we developed 11 indices that could be created from the data of the certification and verified the reliability and validity of these indices. Next, we verified criterion-related validity between evaluation using these indices and the evaluation by three visiting surveyors who were blinded to evaluation results of indices.

A. Care quality index development

The certification data of requiring long-term care provided by 40 insurers was combined with benefits provision data, by which used facility is detected. We analyzed 4,923 people (91 facilities) who were using special elderly nursing homes at the two time points of June 2007 and November 2008. Care quality was evaluated using 11 indices according to the rate of maintenance or improvement in required care level one year later. We investigated the extent of differences between facilities and the correlations between indices⁷⁰⁾.

The results indicated that the maintenance or improvement rates for the more comprehensive indices of required care level, degree of being bedridden and degree of dementia independence were all approximately 76%. Difference between maximum values (facilities with high maintenance or improvement rates) and minimum values (facilities with many individuals exhibiting exacerbation) ranging from approximately 21 points (the rate of walking) to approximately 74 points (the rate of contracture) were observed. Many indices showed a difference of approximately 40 points. Excluding the index of proportion of those without pressure ulcers in both of the two time points, the other 10 indices were highly correlated with each other and showed significant positive correlations.

Of the 11 indices created, the maintenance or improvement rate of required care level could be used as a comprehensive index, and the rate of meal intake and urination/excretion could be used as specific indices.

The following items need to be discussed. When creating indices, who should be included into the subject of the evaluation and to what extent should users' attributes be adjusted? When utilizing existing data for care quality evaluation, there is the advantage of no additional efforts needed in gathering data for evaluation. However, it requires the development of simplified data handling methods for accumulating and creating longitudinal data, and

furthermore, to construct a management system for the effective utilization of evaluation results within nursing homes.

B. Comparison of care quality with blind visit surveys

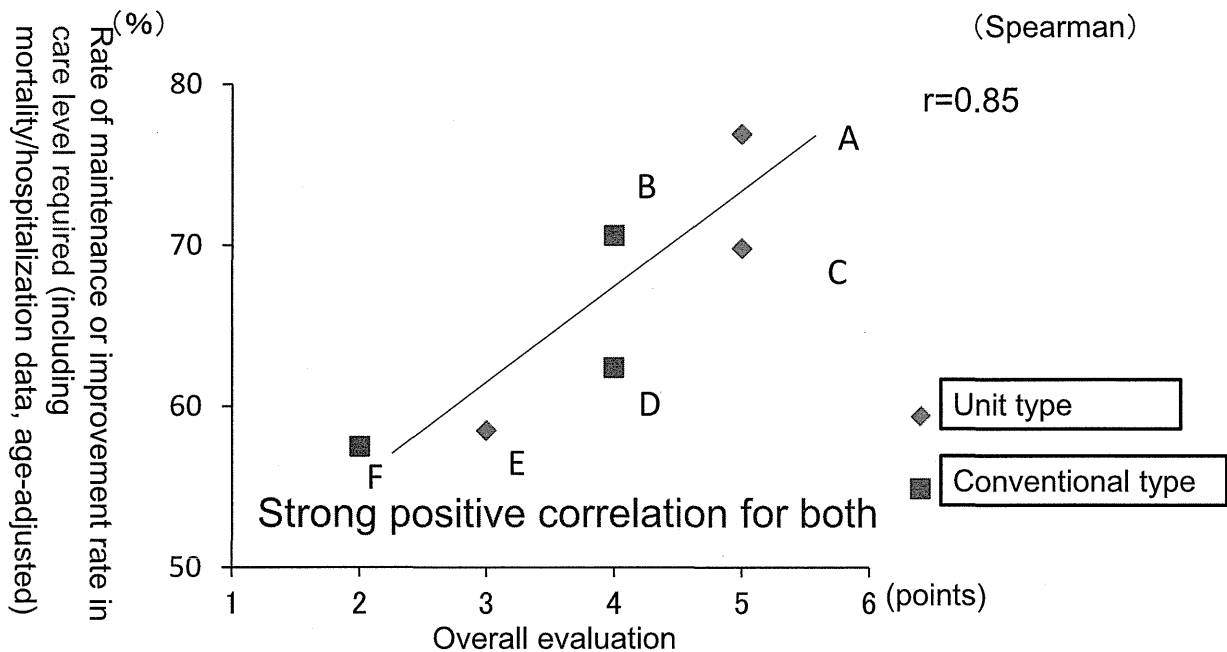
To investigate whether the index, maintenance or improvement rate of required care level could actually be used to evaluate the care quality of special elderly nursing homes, we investigated criterion-related validity. Evaluation results of 4-hour visit surveys by three individuals who have a detailed knowledge of elderly care were used as a reference for the criterion-related validity test, in which the correlations between these results and the rates of required care level indices created from the existing official data are examined⁷¹⁾. Six special elderly nursing homes for which insurers provided data related to long-term care insurance were targeted for the analysis. The indices of the rate of required care level for a total of 33 facilities was calculated and these facilities were divided into high, medium and low score groups. We then selected three facilities each from the high, medium and low score groups. The three visiting surveyors, who were blinded to (did not know) the indices score, evaluated care quality through 4 hours of observation and interviews at the target facilities. Evaluation by the surveyors covered care-related items such as meals, bathing, excretion, mobility and functional training care, along with other items such as the atmosphere between employees and users (elderly), and overall evaluation. These were assessed according to six ranks, which were very poor, poor, somewhat poor, somewhat good, good and very good. We then examined the correlation between the results of “overall evaluation” of care quality based on consensus among the surveyors and the rate of maintenance or improvement in requiring care level.

We found a moderate to high correlation coefficient ranging from 0.53 to 0.85 between care quality evaluation by surveyors and the indices of the rate of requiring care level (Figure 6).

As data related to certification for long-term care insurance has already been standardized and digitized, it is theoretically possible to calculate the indices, the rate of maintenance or improvement in requiring care level at all special elderly nursing homes throughout Japan. However, although we actually ask many insurers to provide data for long-term care insurance, we were not able to obtain the data for reasons such as the protection of personal information. New measures such as the utilization of data from general databases of long-term care insurance constructed by the government are necessary. If “big data” could be obtained, it would be simple to create multiple indices from such data, however, it would be necessary to confirm the validity of whether it reflected care quality. Based on the present results, it appears that when care quality evaluation by visiting surveyors is used as a reference there is high criterion-related validity for the index in regard to the rate of maintenance or improvement in requiring care level. As it is important that care quality evaluation indices are accepted by industrial bodies, we believe that further joint research involving facilities and validity test using data on more cases at more facilities is necessary.

Figure 6

Correlation between “overall evaluation” by visiting surveyors and “rate of maintenance or improvement in care-required level”



III-4. End-of-life care quality

Finally, we will present end-of-life care quality evaluation.

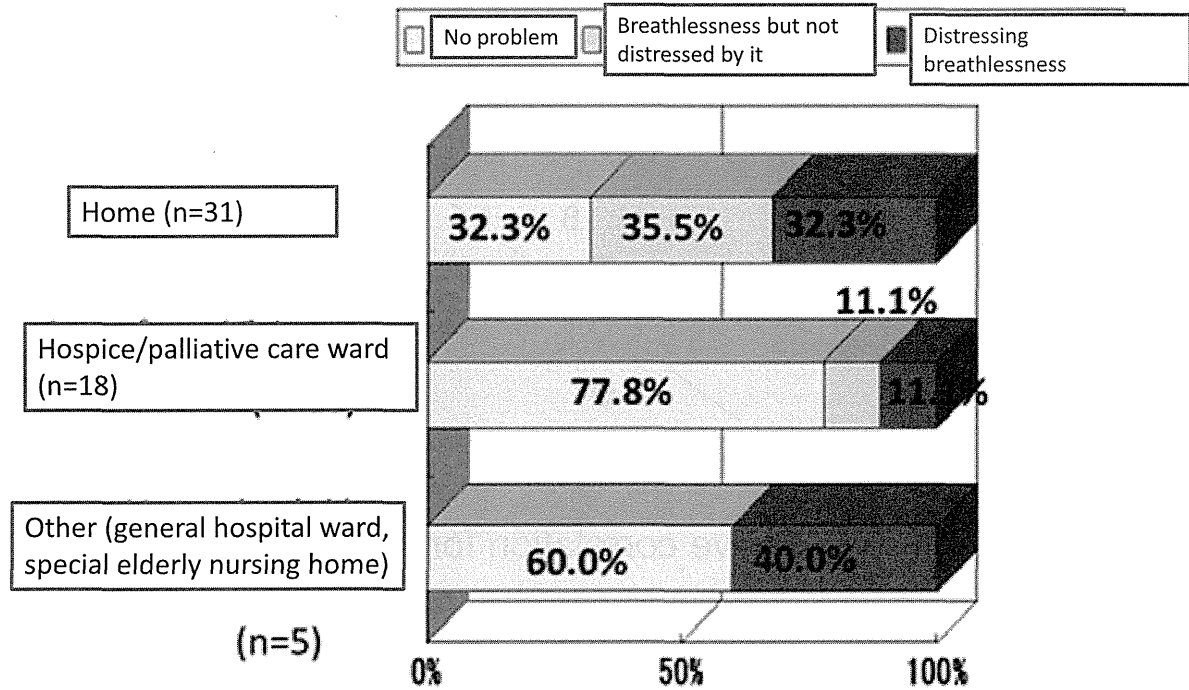
As the aging of society further progresses, the number of people who pass away is also increasing. In 2008, approximately 1.15 million people died in Japan. 30 years from then it is expected that this figure will increase by 1.5 times to approximately 1.7 million people per year^{10;72}.

It is difficult but not impossible to evaluate end-of-life care quality. For example, the Minimum Data Set for palliative care (MDS-PC) is utilized to demonstrate that even amongst cancer patients, the proportion of patients who experience breathlessness and distress during exertion differs according to the place of care⁷³. If this type of evaluation were made mandatory and databases were constructed, comparisons of different methods of care and inter-facility comparisons would also be possible.

IV. Possibilities and Future Challenges

We have reviewed our achievements in evaluation research of care quality from (1) health (care prevention) to (2) rehabilitation medicine, (3) long-term care and (4) end-of-life care. Based on the above, we will summarize the possibilities and future challenges in these fields.

Figure 7
Breathlessness upon exertion – Cancer (n=54)



IV-1. Possibilities for large-scale databases

Many of the studies that we have introduced were conducted using databases constructed with the participation of multiple municipalities or facilities. These databases had several advantages which cannot be obtained from databases created from single municipalities or facilities¹⁰⁾.

Firstly, as multiple municipalities or facilities participate, the recorded data is of a large scale, increasing statistical power. Secondly, it can be examined whether the results from single municipalities or facilities has enough universality to show reproducibility also in the results from the other municipalities or facilities. Thirdly, if comparisons are made between municipalities or facilities in consideration of the differences between the subjects such as of the resident, patient and admitted persons, treatment and care outcomes along with efficiency benchmarks (comparison using numerical indices) can be examined. Fourthly, controlled studies can be performed. In general, because the same intervention technology or program (protocol) is often commonly used at a certain municipality or facility, it is difficult to find control groups for single municipality or facility databases. To verify the effectiveness or efficiency, outcomes need to be compared between different programs (protocols) as controls. The acquisition of data from multiple municipalities and facilities makes it possible to conduct comparisons with such control groups.

IV-2. Five viewpoints for effectiveness evaluation

However, attention must be paid to the fact that simply establishing a large-scale database does not ensure meaningful evaluation. Based on our experience in many evaluation research projects, we will present five important viewpoints for the evaluation of health and long-term care policies and care: (1) evaluation to promote the management cycle, rather than ranking, (2) support of management-led bottom-up type evaluation, (3) frameworks for evaluation that mutually complements with multi-level analysis (macro, mezzo, micro) and multiple elements, (4) multi-dimensional/multilateral evaluation with multiple evaluation criteria and methods, and (5) management of comparisons and evaluations between multiple municipal bodies or agencies by means of benchmarks created using databases¹⁰.

IV-2-1. Evaluation to promote the management (PDCA) cycle, rather than ranking

Firstly, the objective is visualization. The aim of evaluation is to manage the methods of intervention (involving policies, programs etc.) and increase effectiveness, efficiency and equity. Evaluation equates to the checking part of the Plan-Do-Check-Action (PDCA) management cycle. The aim of evaluation should not be ranking, but rather “visualizing,” leading to challenges for actions toward new improvements and keys for overcoming the challenges.

IV-2-2. Support of management-led bottom-up evaluation

Next, let us consider who will lead these “visualization” initiatives. Even if forcing goals on staff with a top-down approach and making objective assessment using indices by external agencies such as researchers or central government, the results of evaluation which are unlikely to be accepted or utilized by management who may in fact exhibit opposition, would be of little significance. “Visualization” requires not merely evaluation, but management-led initiatives, problem-solving or ideas and attitudes that lead to subsequent quality improvement.

IV-2-3. Frameworks for evaluation that mutually complement multi-level analysis (macro, mezzo, micro) and multiple elements

Thirdly, evaluation frameworks must be comprehensive in each of the macro-mezzo-micro levels. In each level, frameworks grasping correlations between many components are necessary. If there is no framework that can grasp elements and interactive relationships as evaluation targets, there is the risk of conducting incorrect evaluation such as assessment indicating that “home care is economical,” which does not take into consideration cost burden to families (“cost shift”).

IV-2-4 Multi-dimensional/multilateral evaluation with multiple evaluation criteria and methods

The fourth issue is comprehensiveness in evaluation criteria and autonomy. As shown in figure 8, elements and criteria that are targeted for evaluation must be multifaceted, including (1) input (investment, resources), (2) processes, (3) environment, (4) individuals/action, (5) outcomes (effectiveness, results), (6) efficiency and (7) equity.

Furthermore, different evaluation standpoints lead to different quality or criteria for evaluation being emphasized. Accordingly, multidimensional evaluation with different viewpoints is also necessary.

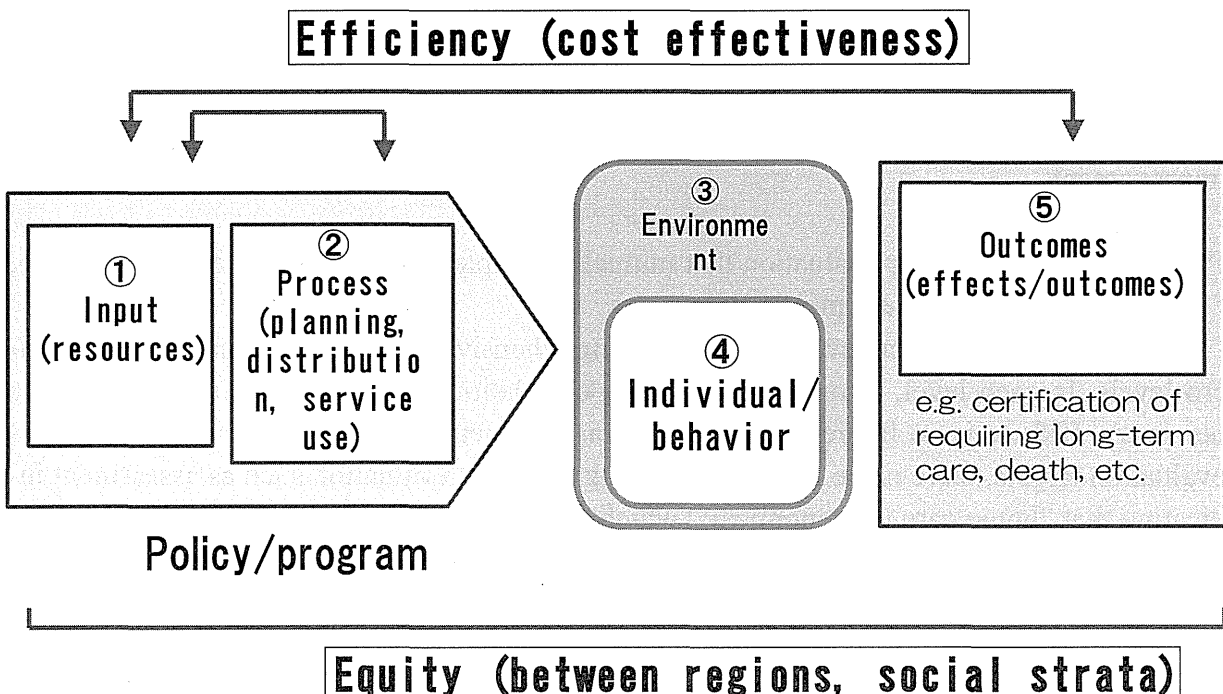
IV-2-5. Management of comparisons and evaluations between multiple municipal bodies or agencies by means of benchmarks created using databases

An infrastructure for program evaluation based on the above principles could be provided by the database in which many management bodies such as facilities and municipal bodies participate. The construction of such a database would not necessarily offer perfect evaluation, but it could make multilateral evaluation possible. Furthermore, the participation of management in data collection or the process of development of evaluation indices could increase the likelihood of utilizing the evaluation with the agreement and understanding of management.

If such research is continued in addition to repeatedly revising indices or systems based on evidence and opinions from management to frontline staff, it would be possible to set tar-

Figure 8

Five elements and two aspects of policy evaluation indices groups



gets or carry out planning based on evidence and to evaluate current status, process, outcome, cost effectiveness and “visualization.”

IV-3. Challenges in large-scale database development

Large-scale databases have the aforementioned significance and possibilities. However, there are several reasons why data banks have only been previously developed in some areas. These challenges also need to be overcome for the development of more large-scale databases, data management systems and the accumulation of health services research or program evaluation.

We will consider these challenges separately in the four categories: (1) development, (2) data collection, (3) utilization after data collection and (4) challenges related to human resources.

(1) Challenges related to development stage include development bodies and development costs. Independently gathering data involves cost, and it takes 10 years to gather data, develop indices, verify its validity and improve it. Therefore, it is difficult to conduct such continuous research for research groups funded by competitive short-term research grants. Bodies with long-term stable resources will be required to continue development after a prototype system is developed. In countries such as the United Kingdom, such development is conducted by the government.

(2) There are challenges related to data collection such as not being allowed to obtain such even in the case of existing data or individual identifiers necessary for longitudinal follow-up and measures for reducing the cost burden for participating facilities and municipalities⁵⁹. To effectively, efficiently and fairly use limited social security resources, the usage of data owned by municipal bodies etc. will allow little progress without legal support for data use even for public purposes.

(3) If data is not utilized after being gathered, data collection and evaluation will not continue. Good practice examples for utilization need to be gathered.

(4) With regard to challenges related to human resources, there are hardly any postgraduate schools that cultivate human resources capable of conducting evaluation research, and research funds are also scarce. For example, even in university medical schools, the number of faculty posts in the field of social medicine, which is responsible for health services research, is decreasing. Under such circumstances, human resources are not being cultivated, and research is not being conducted.

From my experiences of health services research, I consider that the current status in which evaluations are lacking is extremely poor in terms of cost efficiency compared to societies with evaluation systems established under initiatives by the national government. It is hoped that the challenges mentioned in this report will be overcome.

V. Conclusion

To allocate limited social security resources efficiently, the viewpoint of cost effectiveness analysis is essential. It requires the measurement of effectiveness as well as costs. However, health services research evaluating effectiveness (quality) of health, medical and long-term care has lagged in Japan. We have presented examples of health services research that we have been involved in and discussed achievements, potentials and future challenges of the “visualization” of quality and effectiveness.

Through health services research achievements, by utilizing existing data and adding independent data, the sort of quality evaluation presented in this report is possible. It was obvious that many programs for care prevention, rehabilitation medicine, long-term care and end-of-life care were moderately effective at best and sometimes less so. For acceptance of further burdens in increasing public healthcare and social security costs by Japanese citizens, it is essential to establish a framework that eliminates waste and improves care quality and equity by increasing health and long-term care costs. To do this, the “visualization” of effectiveness (quality), efficiency and equity is required. If costs are simply reduced uniformly without distinguishing between effective and ineffective programs/policies through evaluative research, it will engender the absence of care prevention and good rehabilitation medicine which will lead to an increase in people requiring long-term care and cause older individuals to suffer more during the end-of-life period. In healthcare, “pain” is different to the metaphorical pain of, for example, resisting the urge to buy a desired luxury item. It refers to literal “pain,” that deprives people of the most basic human right of “life.”

The full-scale development of “the era of evaluation and accountability” and “the era of visualization” in Japan requires the construction of large-scale databases in each field, accumulation of evaluation and management research using these databases and the development of management systems utilizing these visualizations and evidence produced.

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高齢者うつの地域診断指標としての社会的サポートの可能性—2013年日本老年学的評価研究（JAGES）より—

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抄録

高齢者うつの地域診断指標に, 社会的サポートがなりうるかを検証した. 要介護認定を受けていない65歳以上を対象とした日本老年学的評価研究(JAGES)の29市町村を分析対象とした(配布数193,694, 回収率71.1%). 目的変数を市町村のうつ(GOS5点以上)割合, 説明変数を社会的サポートの授受割合とした. 市町村の高齢者うつ割合は21.5~36.2%と約15%ポイント(約1.7倍)もの地域差があり, これに社会的サポートの授受割合が関連したことから, 社会的サポートが高齢者うつの地域診断指標になりうる可能性が示唆された. また「家族や親戚以外」からのサポートの授受もうつと関連しており, 単独世帯の高齢者の増加が見込まれるなか, 周囲の人とのかかわりを増やし, サポートの授受ができる関係を促す環境整備が地域での高齢者のうつ予防に必要であると考えられた.

キーワード: 高齢者, うつ, 地域診断, 社会的サポート, 日本老年学的評価研究

地域づくりによる介護予防のエビデンス

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II 未公表報告

地域単位の健康関連ソーシャル・キャピタル指標の開発
～地域診断への応用にむけて～

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研究要旨

本研究では、介護保険の一次予防対策に活用可能な地域診断指標として、地域単位の健康関連ソーシャル・キャピタル指標を開発した。日本老年学的評価研究（JAGES）プロジェクトによって収集された在宅で要介護認定を受けていない高齢者 123,760 人（702 学区・包括区）の調査データを使用した。専門家の意見・判断による内容的妥当性、健康指標との基準関連妥当性、内的整合性に基づく信頼性、探索的因子分析・確証的因子分析の因子的妥当性という観点から多次元的な健康関連ソーシャル・キャピタル指標を抽出した。分析の結果、53 の候補指標から以下の 11 指標が抽出された（ボランティアのグループへの参加割合、スポーツ関係のグループやクラブへの参加割合、趣味関係のグループへの参加割合、学習・教養サークルへの参加割合、特技や経験を他者に伝える活動への参加割合、地域への信頼割合、互酬性の規範割合、地域への愛着割合、情緒的サポートの受領割合、情緒的サポートの提供割合、手段的サポートの受領割合）。因子分析の結果、これらの 11 指標は「市民参加（固有値=3.317, α =.797）」「社会的連帯（固有値=2.633, α =.853）」「互酬性（固有値=1.424, α =.732）」と命名できる類型に整理された。確証的因子分析によれば、本モデルがデータと概ね適合していることが確認された。横断データという限界はあるものの、理論的・統計的な根拠のある地域単位のソーシャル・キャピタル指標を開発することができた。

A. 研究目的

ソーシャル・キャピタルが人々の健康や保健行動と密接な関連があることは多くの研究で報告されている（De Silva et al. 2005; De Silva 2006; Murayama et al. 2012; Story et al. 2013; Nyqvist et al. 2013; McPherson et al. 2013; Nyqvist et al. 2014; Choi et al. 2014）。ソーシャル・キャピタル自体にも多様な定義が存在するが、地域包括ケアシステムの構築やそ

のためのアセスメントを考えた場合、より頑健で標準的な地域単位でのソーシャル・キャピタル指標の開発が求められる。

これまでもソーシャル・キャピタル指標の開発は様々に試みられている（Kouvonen et al. 2006; Takakura et al. 2014; Paiva et al. 2014; Looman et al. 2006; Primack et al. 2014）が、高齢者を対象にした地域単位のソーシャル・キャピタル指標はほとんど

ない。とくに、多くの先行研究では、対象地域が限られているほか、二次分析に基づく分析であるために、たとえば認知的側面と構造的側面のようなソーシャル・キャピタルの多次元性を捉えることができていないという課題もある (De Silva 2006; Harpham 2008)。

そこで、本研究では、大規模調査データに基づいて、妥当性と信頼性が担保された地域単位でのソーシャル・キャピタル指標の開発を試みた。なお、ソーシャル・キャピタルの定義については、Kawachi & Berkmanの定義 (Kawachi et al. 2014) に準拠している。また、保健・福祉分野における地域診断への活用を視野に入れているため、ソーシャル・キャピタル概念そのものではなく、健康に関連するソーシャル・キャピタルに焦点をあてた。

B. 研究方法

1. データの概要

JAGES (Japan Gerontological Evaluation Study) プロジェクトの一環として、2013年10～11月にかけて自記式の郵送調査を実施した。832学区・包括区に居住している要介護認定を受けていない高齢者129,739名の回答を得た。ここでは、はずれ値の影響を考慮し、回答者が50名未満の学区・包括区を除外した702学区・包括区123,760名を分析した。地域単位での回答者数は平均176 (SD=226) 名であった。本分析では、地域単位でのソーシャル・キャピタル指標を開発するために、個人の回答結果を地域単位で集計した。

2. ソーシャル・キャピタル指標の抽出

本調査の項目から53のソーシャル・キャピタルに関連する候補指標を抽出した (図表1・付表1)。なお、本指標群は、ソーシャル・キャピタル研究に取り組む専門家ワーキンググループによって内容的妥当性の観点から検討されたものである。具体的には、各種の社会活動 (ボランティア活動、スポーツの会、趣味の会、老人クラブ、町内会・自治会、学習・教養サークル、介護予防・健康づくり、特技や経験伝達の活動、地域行事など) への参加割合、社会的統合に関する変数 (友人等との交流頻度、ソーシャル・サポート

の授受割合、近所の協力関係)、地域への信頼・互酬性の規範・愛着などが含まれている。

3. 精神的健康の指標

健康関連ソーシャル・キャピタル指標の抽出に際しては、外的基準として健康度自己評価と抑うつ傾向を使用した。両指標とも、医療的状況や保健行動、心理社会的要因に関わらず、死亡を予測しうる指標であることが確認されている (Idler et al. 1997; Royall et al. 2007)。健康度自己評価 [SRH] については、「現在のあなたの健康状態はいかがですか」という設問に対して、とてもよい/まあよい/あまりよくない/よくないの4件法で把握した。抑うつ傾向については、15項目の Geriatric Depression Scale [GDS] を使用し、5点以上を抑うつ傾向ありと区分した (Yesavage et al. 1983; Sheikh et al. 1986)。

4. 解析方法

本研究で行った指標抽出の経過は図表2の通りである。はじめに、当該市町村の高齢化率と可住地人口密度を調整した偏相関を用いて、53の候補指標と健康指標との関連の強さを確認した。これにより、地域単位での健康度自己評価 [SRH] もしくは抑うつ傾向 [GDS] と中等度以上 ($r > .150$) の相関関係のある指標群を抽出した。なお、同変数のカテゴリ違いや類似変数の場合には、健康指標により強い相関がある変数を採用した。

つづいて、抽出された指標群について因子分析を行い、共通性の低い項目を除外した。また、クロンバックの α に基づいて、内的整合性を確認した。そのうえで、探索的因子分析 (最尤法、プロマックス回転) および確証的因子分析により、抽出された項目群の因子的妥当性を確認した。なお、確証的因子分析に際しては、誤差共分散項を導出することでモデル適合度を改善する試みは行わなかった。

解析には Stata 12.1 を使用した。

C. 研究結果

偏相関分析により、地域単位において健康指標と一定以上の関連が認められた変数として、53指標から14指標が抽出された (図表3)。その後、因子分析により、共通性の低い3指標 (友人・知

人と会う頻度、交流のある友人・知人数、気軽に立ち寄れる家や施設)を除外し、11指標が抽出された。なお、11指標での内的整合性(α)は「.752」と、項目が少ない割には高く、ある程度、信頼性が保たれている指標群といえる(図表4)。

抽出された11指標について探索的因子分析(最尤法、プロマックス回転)を行ったところ、3因子が抽出された(図表5)。3因子の累積寄与率は67.0%であった。第1因子は、ボランティア活動への参加割合、スポーツの会参加割合、趣味の会参加割合、学習教養の会参加割合、経験伝達活動への参加割合が主に関連しており、「市民参加(Civic participation)」因子と命名した($\alpha=.797$, 固有値 3.317)。第2因子は、地域への信頼、互酬性の規範、愛着が密接に関連しており、「社会的連帯(Social cohesion)」因子と命名した($\alpha=.853$, 固有値 2.633)。第3因子は、情緒的サポートの受領割合・提供割合、手段的サポートの受領割合が密接に関連しており、「互酬性(Reciprocity)」因子と命名した($\alpha=.732$, 固有値 1.424)。社会的連帯因子と互酬性因子には有意な正の相関関係が認められた($r=.436, p<.001$)。確認的因子分析によれば、本モデルは概ねデータに適合していることが示唆された(RMSEA=.089, CFI=.925, TLI=.899, SRMR=.058)。

さいごに、地域診断としての活用場面を想定し、本指標の因子得点・疑似因子得点(因子負荷量に基づく重み付け値)・単純加算得点という3つの算出方法と健康指標との関連を検討したところ、いずれの算出方法を用いても結果は大きく異なることが確認された(図表6)。最も簡便な単純加算得点でみた場合、市民参加得点が10点高い地区に居住している高齢者は0.8%ポイント健康度自己評価が不良な人が少なく($r=-.368$)、1.1%ポイント抑うつ傾向にある人が多い($r=-.432$)ことが示された。同様に、社会的連帯得点が10点高い地区では0.9%ポイント($r=-.289$)、互酬性得点が10点高い地区では2.0%ポイント($r=-.220$)、抑うつ傾向にある人が多いという結果であった。

D. 考察

本研究では、心理尺度の開発手続きに準じて、地域単位のソーシャル・キャピタル指標の開発を試みたところ、「市民参加」「社会的連帯」「互酬性」と命名できる3因子・11項目の指標が抽出された。因子分析による共通性およびクロンバックの α による内的整合性の評価、探索的因子分析・確認的因子分析の結果によれば、この11項目の信頼性および妥当性は概ね良好といえる。他国での有益性についてはさらなる検討が必要ではあるものの、日本の公衆衛生の研究・実践において活用可能な地域単位のソーシャル・キャピタル指標を開発することができたといえる。市民参加、社会的連帯、互酬性という次元はソーシャル・キャピタル概念の基本的な要素であり(Murayama et al. 2012; Harpham 2008; Kawachi et al. 2014; Islam et al. 2006)、理論的にも整合的といえる。本結果によれば、3つの因子で構成されるというモデルは統学的にも妥当であった。

これまでの公衆衛生におけるソーシャル・キャピタル研究では、ソーシャル・キャピタルの測定を目的にしたわけではない既存調査の二次分析に基づくものが多く、測定の指標とともに結果も様々に報告されてきた。投票率や犯罪率などをソーシャル・キャピタルの代理指標として用いた研究もあるが、それらは必ずしもソーシャル・キャピタルという概念を直接測定するものではない。共通の指標に基づく知見の積み重ねという意味でも、本研究によって開発された新しい地域単位のソーシャル・キャピタル指標が本領域の有益なツールとして活用されることが望まれる。

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