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**Current Status and Challenges of Community Medical Liaison Through  
Inter-professional Work (Ipw)  
- A Questionnaire Survey Using a Community Liaison Scale –**

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**Abstract**

**Objective:** To clarify the current status and challenges of community medical liaison through inter-professional work (IPW) in the eastern area of Shizuoka Prefecture, a questionnaire survey using a community liaison scale was conducted by nurses working for administrative bodies, in addition to medical, care, and welfare professionals whom these nurses collaborate with in their communities.

**Methods:** An anonymous, self-administered questionnaire survey was conducted by 500 subjects. Data was analyzed using SPSS ver. 22.0 to calculate descriptive statistics. Free descriptions were categorized through content analysis, followed by statistical text analysis based on natural language processing using Text Mining Studio vol. 6.0.

**Results:** Responses were obtained from 349 (69.8%) subjects. Nurses, public health nurses working for administrative bodies, and care managers in their thirties to fifties with clinical experience of 8 years or longer accounted for 68.8%. On analysis of the descriptions based on the type of profession using text mining to create bubble charts, the roles of welfare and administrative professionals who placed importance on locations and persons, were found to differ from those of other professionals.

**Discussion and Conclusion:** The findings of this study, which clarified challenges related to social resources/environments and differences in awareness of IPW among professionals in the eastern area of Shizuoka Prefecture, will be practically utilized in future approaches to establish a community-based integrated care system.

**Keywords:** Inter-professional work, collaborative practice, medical care welfare, collaboration scale, regional comprehensive care

**1. Introduction**

Currently, 1 in every 4 people is aged 65 or over in Japan. It is estimated that 1 in every 3 people will be aged 65 or over in 2030. This “2030 problem” is a current issue related to community-based medicine to be addressed on a society-wide basis in Japan. Facing changes in disease structure and a rapidly growing demand for medical care due to aging, the government has placed importance on the establishment of a community-based integrated care system, aiming at providing medical and care services that enable people to continue their daily lives in the communities they have long lived in. In home nursing, multiple professionals use their knowledge and skills to achieve the common goal of supporting care-receivers and their families

through healthcare-medicine-welfare liaison and collaboration. The shortening of the mean length of hospital stays is leading to the advancement and diversification of home care services, requiring higher specialties for healthcare, medicine, and welfare professionals. To establish a community-based integrated care system, a model for community medical liaison/inter-professional work (IPW) among medical, care, and welfare professionals is indispensable.

In the XX area, there is a network to promote community medical liaison, mainly organized by discharge coordinators engaged in such liaison, with their hospitals as hubs. A branch of the Home-visit Nursing Facility Council is also located in this area. They encourage active and direct communication toward the establishment of systems for healthcare-medicine-welfare liaison and collaboration. The researchers perform activities to communicate with these groups and establish a community-based care model with a nursing university as a base, involving public health nurses working for administrative bodies.

To clarify the current status and challenges of community medical liaison through IPW in the XX area, a questionnaire survey using a community liaison scale<sup>1)</sup> was conducted, mainly involving nursing professionals, such as visiting nurses, care managers, discharge coordinators, and public health nurses, working for administrative bodies, in addition to medical, care, and welfare professionals whom these nurses collaborate with in this area.

## **2. Method**

1) Period of data collection: March 2016 - March 2017

2) Subjects and method to obtain cooperation: The directors of the facilities/offices the persons currently in charge of liaison/IPW among medical, care, and welfare professionals in the XX area belonged to were provided with oral and written explanations through the researchers' relatives to obtain their cooperation.

3) Data collection: Mailing method

An anonymous, self-administered questionnaire survey was conducted. A letter of request specifying the study objective and a questionnaire were directly presented to the subjects. Respecting their free will to participate, responses were collected by mail from only those who consented.

4) Data analysis:

(1) Quantitative study design: Data were analyzed using SPSS ver. 22.0 to calculate descriptive statistics.

(2) Qualitative study design: Free descriptions were categorized through content analysis, followed by statistical text analysis based on natural language processing using Text Mining Studio vol. 6.0.

5) Ethical Considerations: After receiving approval from the Research Ethics Committee of xx (approval number: 27-13), privacy protection measures and participation in the study based on free will were explained using written documents.

**3. Results**

The survey was directly sent to 500 subjects, and responses were obtained from 349 (69.8%) subjects.

1. Characteristics of the persons in charge of community medical liaison and IPW in the XX area

1) Basic attributes of the respondents

The respondents were in their thirties to fifties with 8 years or longer of clinical experience. Males accounted for a small percentage in all age groups. On analysis combining the age and length of experience, inexperienced professionals were similarly rare among respondents aged 30 or over, and 22.7% were in managerial positions. Although females were a majority, the rate of males in managerial positions was slightly higher than that of females in such positions.

2) Respondents' professions

Nurses were the largest group, accounting for 45.5%, followed by public health nurses working for administrative bodies, at 21.5%, and then care managers, at 11.8%. The most common nursing domain was home-visit nursing (75), following by ward nursing (38), public health nursing (22), outpatient services (10), and discharge coordination (9). The most common type of facility/office they belonged to was administrative bodies, followed by hospitals and home-visit nursing facilities.

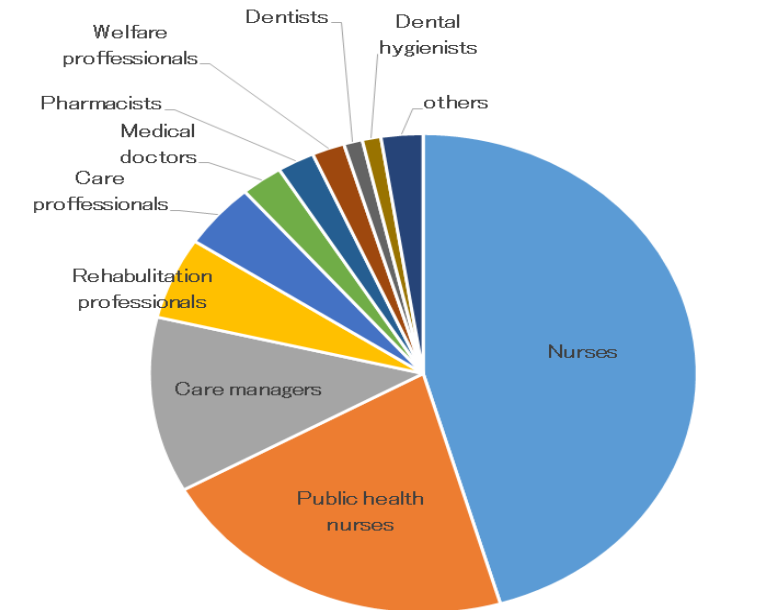


Figure 1. Respondents' Professions

2. Scores for community liaison subscales I to VII (26 questions)

On comparison of scores for subscales I to VII (26 questions), that for [VI: Being well-informed about resources available in the community] was the highest, followed by [VII: Establishing close liaison between the hospital and community through pre-discharge conferences] and [I: Actively communicating with medical professionals of other facilities]. In contrast, [III: Recognizing the names, faces, and views of those involved in the community] had the lowest score.

?? Being well-informed about resources available in the community?

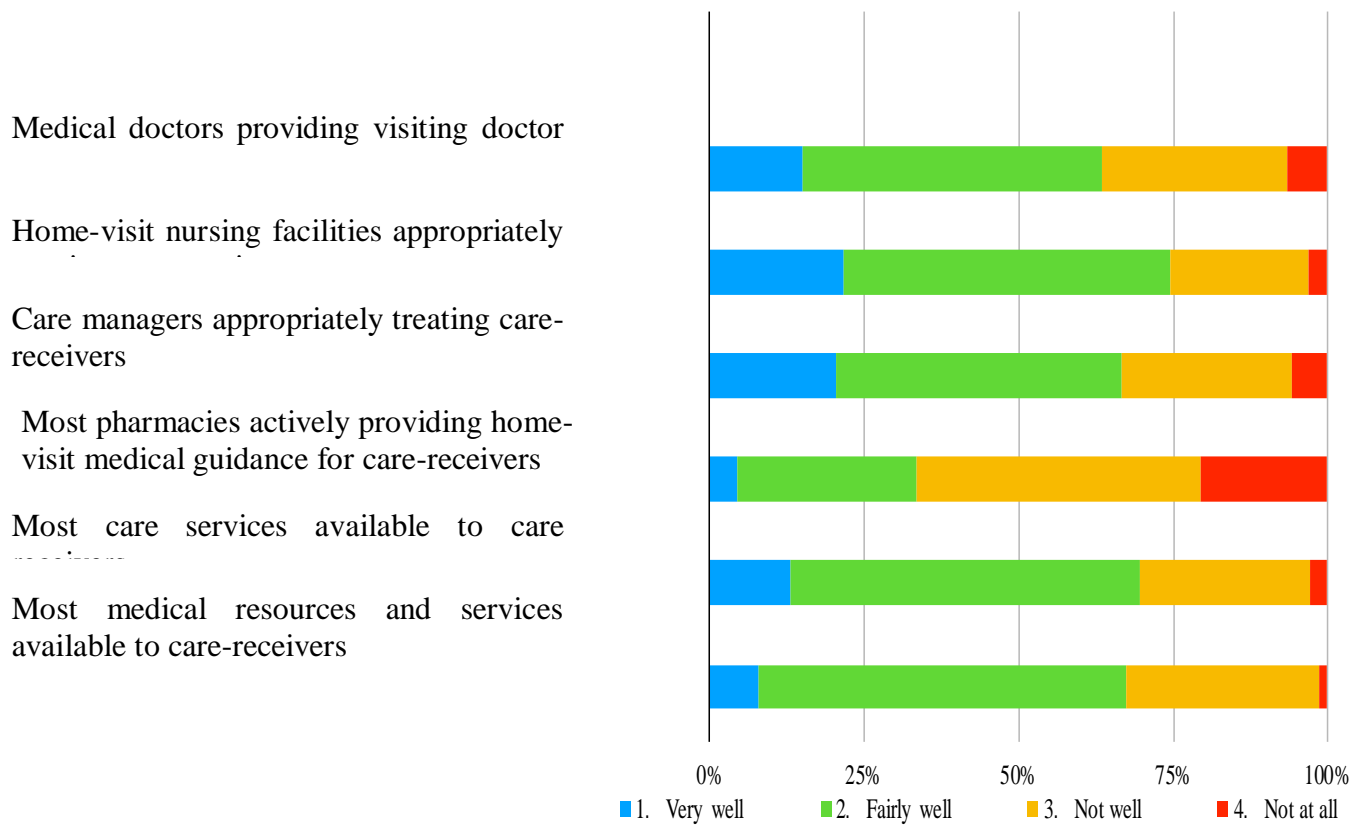


Figure 2. Community Liaison Subscale VI: Achieving the Highest Score

VII 【Establishing close liaison between the hospital and community through pre-discharge conferences】

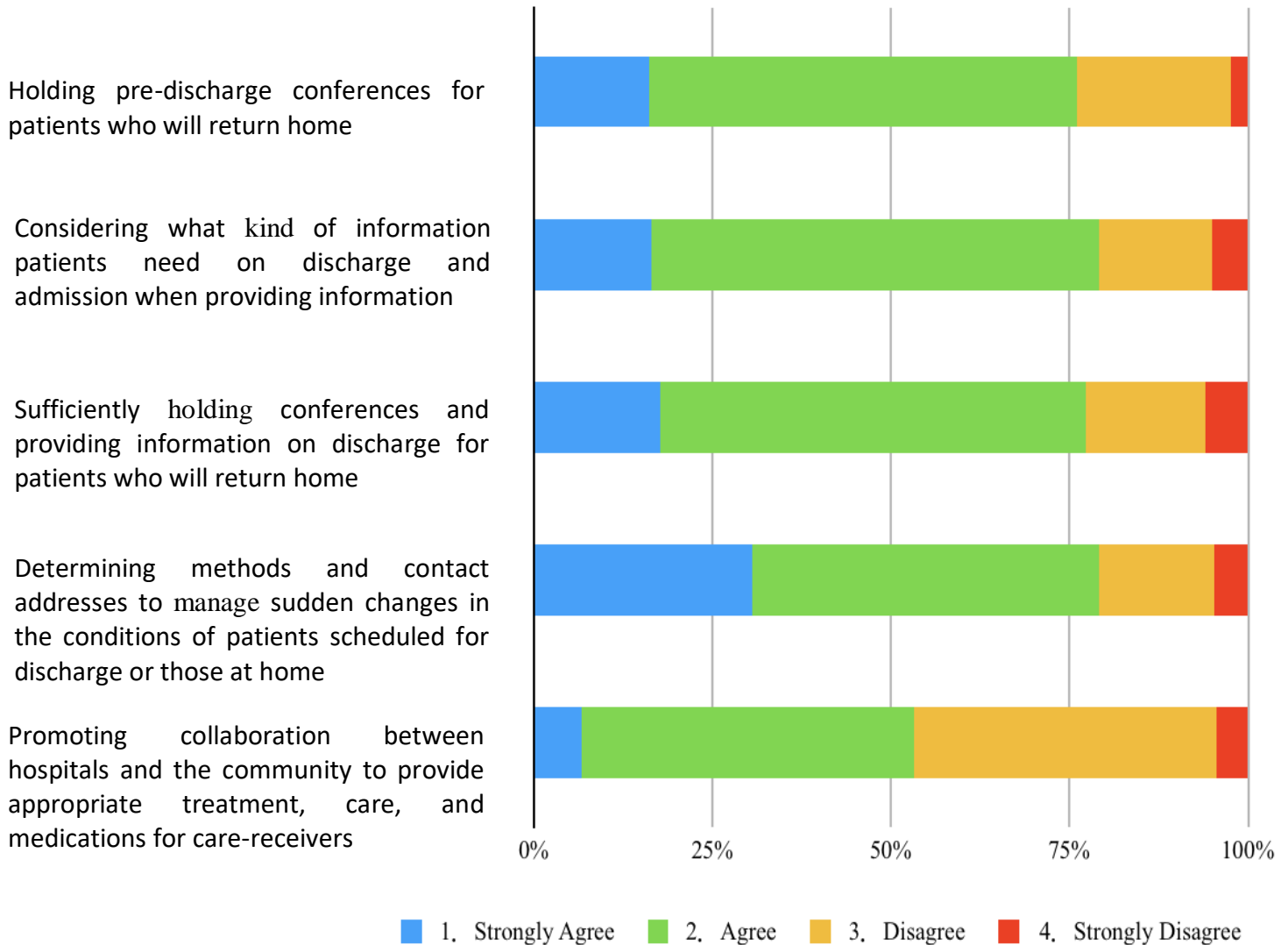


Figure 3. Community Liaison Subscale VII: Achieving the Second Highest Score

III 【Recognizing the names, faces, and views of those involved in the community】

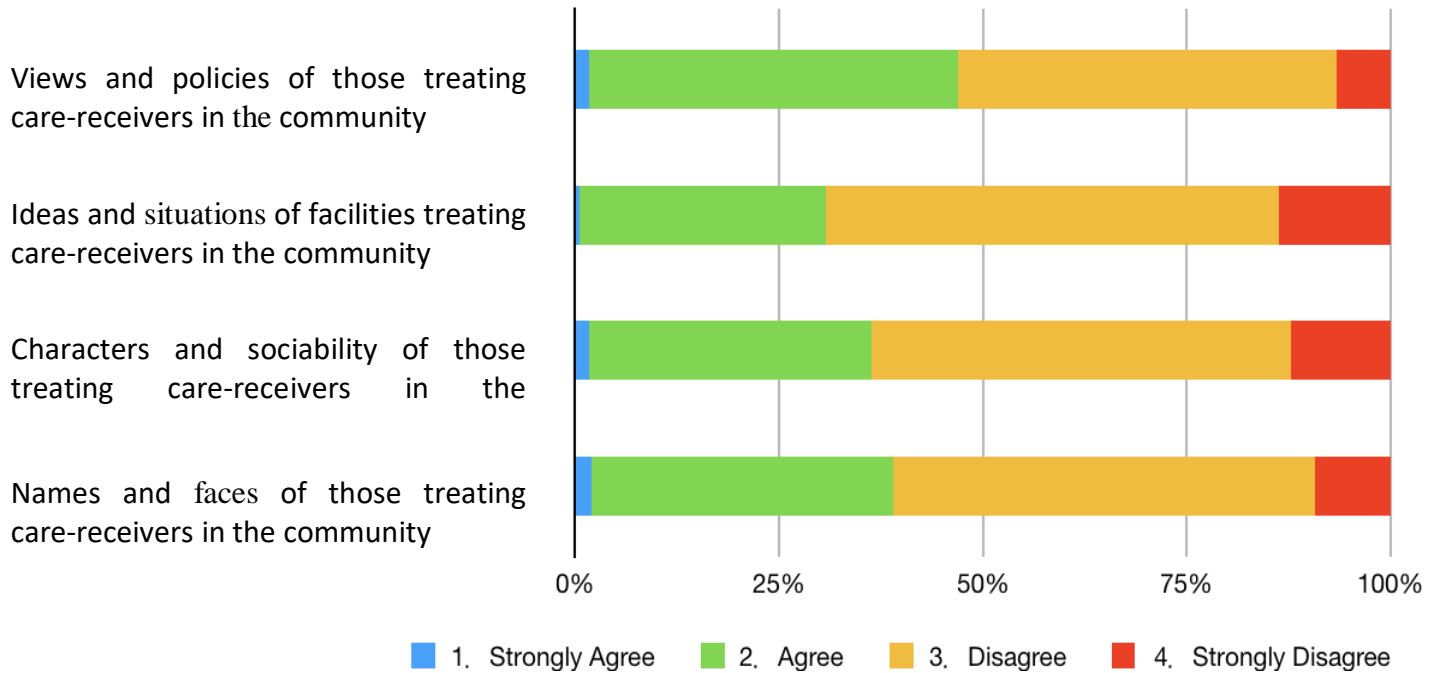


Figure 4. Community Liaison Subscale III: Achieving the Lowest Score

Furthermore, upon examining the internal consistency of the Community Liaison Scale for Medical, Care, and Welfare Professionals, sufficiently high reliability coefficients were obtained for 7 subscales and the entire scale.

Table 1. Scores Based on the Community Liaison Scale for Medical, Care, and Welfare Professionals

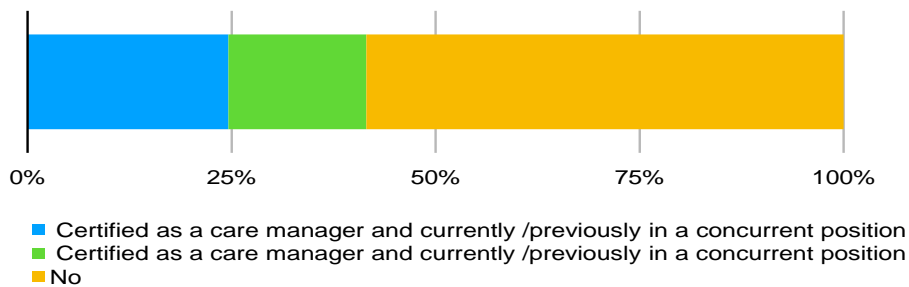
| Scale  | n   | Mean ± SD  | Minimum value | Maximum value |
|--|-----|------------|---------------|---------------|
| I: Actively communicating with medical professionals of other facilities | 340 | 14.1(±2.7) | 5.0           | 20.0          |
| II: Recognizing the roles of other types of profession in the community  | 337 | 10.6(±1.8) | 4.0           | 16.0          |

|  |     |             |      |       |
|--|-----|-------------|------|-------|
| III: Recognizing the names, faces, and views of those involved in the community                      | 332 | 9.2(±2.3)   | 4.0  | 16.0  |
| IV: Having opportunities to meet and discuss with other professionals in the community               | 327 | 9.8(±2.4)   | 4.0  | 16.0  |
| V: Establishing a network for consultation in the community  | 329 | 10.9(±2.3)  | 4.0  | 16.0  |
| VI: Being well-informed about resources available in the community                                   | 329 | 18.8(±4.1)  | 7.0  | 28.0  |
| VII: Establishing close liaison between the hospital and community through pre-discharge conferences | 304 | 14.4(±2.9)  | 5.0  | 20.0  |
| Total  | 271 | 88.2(±13.2) | 50.0 | 124.0 |

Figure 5. Status of Being Certified as a Care Manager

3. Comparison of scores between respondents certified/not certified as a care manager Respondents certified as a care manager had significantly higher scores for all sub-scales, excluding VII and the total score.

4. Comparison of scores between respondents with/without experience participating in community medical liaison/IPW-related training seminars Community medical liaison/IPW-related



4. Comparison of scores between respondents with/without experience participating in community medical liaison/IPW-related training seminars Community medical liaison/IPW-related training was mostly provided through education at external institutions, and respondents with experience participating in training seminars at and/or away from their facilities/offices

accounted for 74.3%. On comparison of those with/without experience participating in training seminars at and/or away from of their facilities/offices, the former had significantly higher scores for all subscales and the total score.

Table 2. Comparison of Community Liaison Scores between Those Certified/Not Certified as a Care Manager

n=271

| Scale   | Certified as a care manager |             | p-value |
|---|-----------------------------|-------------|---------|
|   | Yes n=112                   | No n=159    |         |
|   | Mean ± SD                   | Mean ± SD   |         |
| I Actively communicating with medical professionals of other facilities                             | 14.9(±2.3)                  | 13.6(±2.9)  | <0.01   |
| II Recognizing the roles of other types of profession in the community                              | 11.3(±1.7)                  | 10.3(±1.8)  | <0.01   |
| III Recognizing the names, faces, and views of those involved in the community                      | 10.1(±2.1)                  | 8.7(±2.2)   | <0.01   |
| IV Having opportunities to meet and discuss with other professionals in the community               | 10.3(±2.3)                  | 9.5(±2.3)   | <0.01   |
| V Establishing a network for consultation in the community  | 11.6(±1.8)                  | 10.6(±2.4)  | <0.01   |
| VI Being well-informed about resources available in the community                                   | 20.9(±3.4)                  | 17.4(±3.8)  | <0.01   |
| VII Establishing close liaison between the hospital and community through pre-discharge conferences | 14.4(±2.8)                  | 14.4(±3.0)  | 0.73    |
| Total   | 93.6(±12.0)                 | 84.4(±12.7) | <0.01   |

Figure 6. Experience Participating in Community Medical Liaison/IPW-related Training Seminars

5. Analysis of the content of free descriptions

1) Factors promoting liaison included: <direct communication to establish close relationships>, <trust-based relationship-building>, <environmental arrangements>, <understanding service users>, <working toward unified goals>, <information-sharing and exchange>, <direct verbal



communication>, <early contact>, <system development>, <mutual understanding among multiple professionals>, and <appreciation and respect>.

Table 3. Comparison of Community Liaison Scores between Those With/Without Experience Participating in Community Medical Liaison/IPW-related Training Seminars

n=267

| Scale   | Experience receiving education (training) |             | p-value |
|---|---|-------------|---------|
|   | Yes n=202                                 | No n=65     |         |
|   | Mean ± SD                                 | Mean ± SD   |         |
| I Actively communicating with medical professionals of other facilities                             | 14.6(±2.5)                                | 12.7(±2.9)  | <0.01   |
| II Recognizing the roles of other types of profession in the community                              | 10.9(±1.9)                                | 10.1(±1.6)  | <0.01   |
| III Recognizing the names, faces, and views of those involved in the community                      | 9.5(±2.2)                                 | 8.4(±2.3)   | <0.01   |
| IV Having opportunities to meet and discuss with other professionals in the community               | 10.1(±2.3)                                | 8.9(±2.2)   | <0.01   |
| V Establishing a network for consultation in the community  | 11.2(±2.1)                                | 10.4(±2.4)  | <0.01   |
| VI Being well-informed about resources available in the community                                   | 19.4 (±3.9)                               | 17.3(±4.2)  | <0.01   |
| VII Establishing close liaison between the hospital and community through pre-discharge conferences | 14.6(±2.8)                                | 13.5(±3.1)  | <0.01   |
| Total   | 90.3(±12.8)                               | 81.3(±12.1) | <0.01   |

2) Negative factors included <poor liaison in informal services>, <a paucity of coordinators>, <insufficient and inaccurate recognition of service users' needs and intentions>, <time scarcity>, <insufficient manpower>, <insufficient cooperation from medical doctors>, <lack of experience>, and <poor awareness and involvement>.

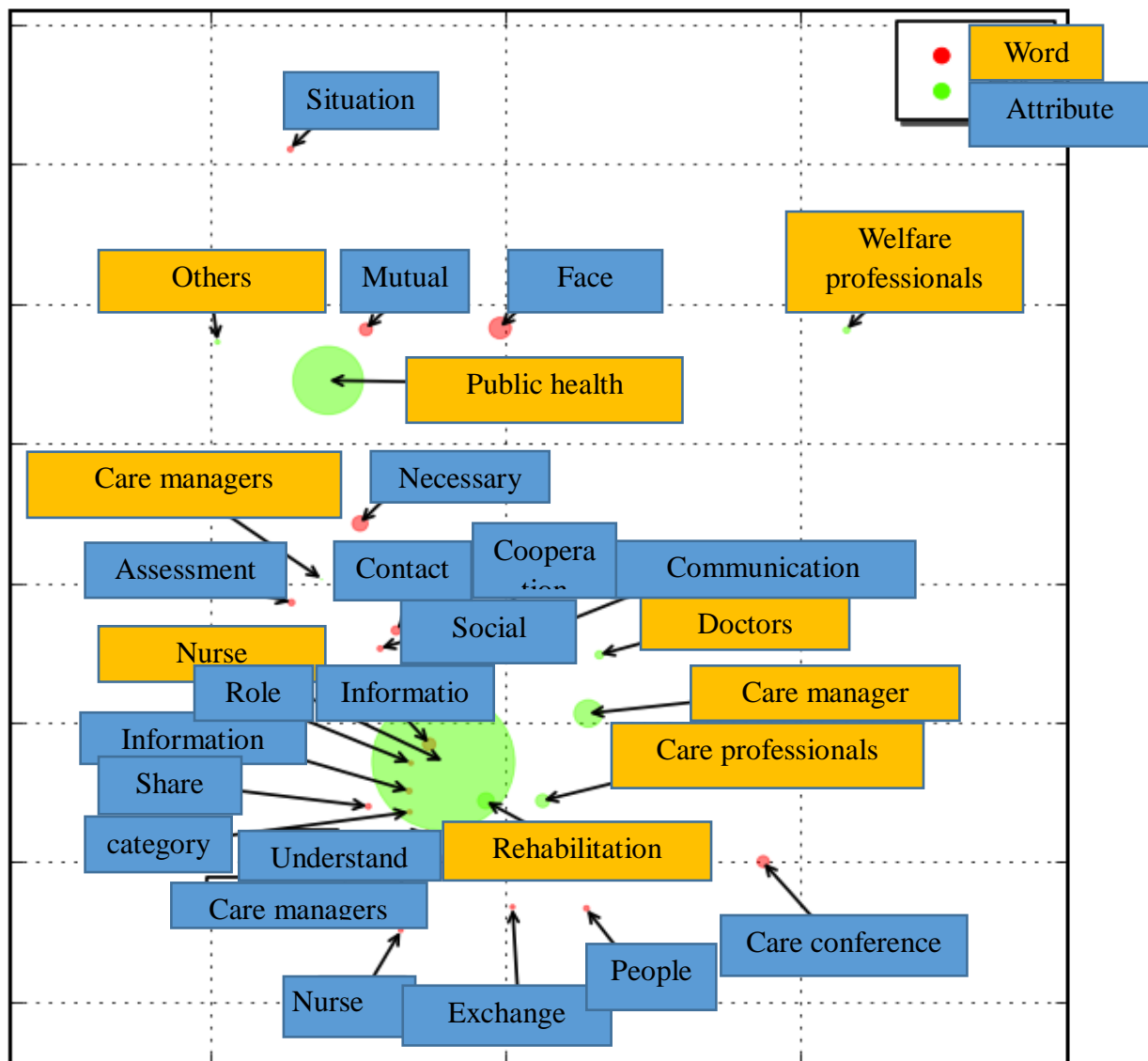
3) The respondents noted the insufficiency of the following welfare services: home-visit care services, day services, measures to help care-receivers go out, group homes, and small-scale, multi-functional care facilities.

4) The respondents also noted the insufficiency of the following medical services: inpatient care facilities, visiting doctor services, home-visit medical services, medical doctors providing end-of-life care, dentistry, institutions specializing in dementia care, emergency institutions, institutions treating patients with dementia, psychiatry, pediatrics, home-visit medication

guidance, home-visit pediatric nursing, psychiatric nursing, pediatric rehabilitation, home-visit nutritional guidance, and home-visit rehabilitation.

5) On analysis of the free descriptions based on the type of profession using text mining to create bubble charts, the words <locations> and <persons> were strongly correlated with welfare and administrative professionals, whereas the words <information exchange>, <collabo-ration>, <consultation>, <contact>, <sharing>, and <communication> were strongly correlated with professionals providing long-term care insurance-covered services in the community, represented by nurses. Such variation in the relationships with words among different professions clarified which words these professionals consider important.

Figure 8. Bubble Chart Analysis



#### **4. Discussion**

As this study sought cooperation from multiple professionals providing IPW-based medical, care, and welfare services in communities, represented by visiting nurses, discharge coordinators, and public health nurses working for administrative bodies through their relatives, the status of community-hospital liaison was generally favorable.

In summary, these professionals were well-informed about the resources available in their communities, but direct communication to establish favorable relationships among them had yet to be promoted. It was also revealed that although they had personal confidants, there were no systems to provide consultation. Conferences were held at their facilities/offices and information was provided to patients on discharge; however, the scarcity of pharmacies and treatment/medical examinations and care at home was also noted. Promotion of more specialized home-visit medical services was another challenge, demonstrating that not all professionals closely collaborated with each other. As community liaison scores markedly varied between respondents certified/not certified as a care manager and between those with/without experience participating in training seminars, care manager certification and IPW-related education may be liaison promoters.

Furthermore, the words <locations> and <persons> were strongly correlated with welfare and administrative professionals. This suggested that they place importance on these factors, considering direct communication and discussions to facilitate IPW to some extent. In contrast, the words <information exchange>, <collaboration>, <consultation>, <contact>, <sharing>, <understanding>, <communication>, <meetings of persons in charge>, and <care managers> were strongly correlated with professionals providing long-term care insurance-covered services in the community, represented by nurses. As explained by the close associations among these words, they may focus on information exchange and sharing through communication in IPW. Analysis of the relationships between different professions and words clarified which words are closely associated with each profession and what is considered important by these professionals.

The questionnaire survey involved many community-based professionals such as nurses, welfare professionals, rehabilitation professionals, care professionals, care managers, medical doctors, pharmacists, dentists, and dental hygienists. Among these professionals, nurses were the largest group, accounting for 45.5% of all respondents, confirming that they play a central role in IPW, and are actively committed to it and community medical liaison.

By adopting the Community Liaison Scale in this questionnaire survey, its usefulness to analyze tendencies in each community, such as the strong (social resources or human/physical environments) and weak points of liaison, was confirmed. This scale was also more useful to identify challenges than comparing the status of liaison among communities. Statistical text analysis using text mining to examine the relationships among different professions and words

revealed differences in opinions about which words are the most important for IPW among different professions.

As a study limitation, it should be noted that it may have been difficult to clarify the status of liaison and challenges in the community if those not actually engaged in IPW had participated in this questionnaire survey.

The findings of this study, which clarified challenges related to social resources/environments and differences in awareness of IPW among professionals in the XX area, will be practically utilized in future approaches to establish a community-based integrated care system.

### **Acknowledgments**

In the present survey, community medical liaison and IPW were investigated through the researchers' relatives. The researchers would like to express their deep gratitude to the respondents who cooperated despite their busy schedules, and heartily thank Messrs. Abe Yasushi and Morita Tatsuya who developed the Community Liaison Scale for Medical, Care, and Welfare Services, and readily permitted its use in the survey.

There is no conflict of interest with any company/organization to disclose in relation to this study.

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