Postdischarge support by discharge planning nurses for older adults at acute hospitals: A 30-day prospective observational study

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Aim: We aimed to describe postdischarge support and its incidence rate in elderly patients with discharge planning; moreover, we aimed to assess the characteristics of patients who received postdischarge support.

Methods: This 30-day prospective observational study was conducted for 3 months at discharge planning departments in 35 acute care hospitals in Japan. The mailed questionnaire comprised questions about the characteristics of the hospital and discharge planning nurses (DPNs) and clinical activities regarding discharge planning and postdischarge support. Multilevel logistic analysis was performed to determine postdischarge support-related factors.

Results: Responses from 34 hospitals and 49 DPNs with 322 practice cases were received and all eligible DPNs and 312 cases were analyzed. During the 30-day postdischarge period, 197 cases had received postdischarge support from DPNs (support rate, 63.1%). The most frequently conducted contents were collecting and sharing information regarding postdischarge status. The terminal stage [odds ratio (OR), 2.48; 95% confidence interval (CI), 1.20–5.13] and needs of medical care after discharge (OR, 3.06; 95% CI, 1.44–6.48) significantly correlated with receiving postdischarge support.

Conclusion: For patients with high medical care needs, DPNs frequently conducted “collecting and sharing information regarding postdischarge status” after discharge. Guidelines are warranted for the systematic implementation of postdischarge support and continued care.

Key words: discharge planning; prospective study; postdischarge support; elderly patients

I Introduction

1. Current status of discharge planning in Japan

Undoubtedly, Japan has become the world aging society front runner, with people aged >65 years already constituting >27% of the total population¹. With advancing aging population, vulnerable elders constitute approximately 70% of all hospitalized patients in Japan².

In 2003, the Diagnosis Procedure Combination (DPC), a Japanese case–mix classification system linked to a per diem inclusive payment scheme, was introduced. Consequently, the average length of hospital stay at general hospitals decreased from 20.7 to 16.8 days during the last 11 years. However,
with shortening length of hospital stay, discharge of patients with unresolved medical issues or those needing daily support is increasing, necessitating discharge planning from hospitals to home. Such individuals might often have complex needs and require ongoing postdischarge support. Hence, providing appropriate continuity of care to older patients for safe and timely transfer from hospital to home has become imperative.

2. Discharge planning and postdischarge support

The critical elements of high-quality discharge planning care are as follows: (1) early identification of patients, (2) patient/family education, (3) assessment and counseling, (4) plan development, (5) coordination and implementation, and (6) postdischarge follow-up. Hansen et al. demonstrated that successful interventions to decrease readmission are usually those that focus on postdischarge follow-up, while inpatient-only interventions have reported less success. Likewise, Naylor et al. highlighted that postdischarge support involved reviewing the discharge plan with patients or primary caregivers over the telephone, ensuring a follow-up with primary care specialists, home care, or community-based services, and communicating effectively among inpatients team and community-based health care team.

The concept of discharge planning involves postdischarge follow-up support. A discharge plan at a hospital intends to estimate the needs of patients following discharge from the hospital before discharge occurs. Notably, patients’ needs change after discharge. Hospitalized patients encounter extreme challenges of anticipating the complex and unexpected realities of the postdischarge period. Hence, unmet needs tend to occur after discharge. As assessment during hospitalization is inadequate to grasp the patients’ needs after discharge, it is essential to continue re-assessing needs postdischarge. Nevertheless, there is a limit to perform re-assessment after discharge with hospital nurses alone.

To date, how and who implement specific contents of postdischarge support remain unclear, making it necessary to grasp support contents used in the practice of postdischarge support. Perhaps, elucidating the characteristics of postdischarge support could be useful, resulting in an overall enhancement in the quality of discharge planning. Hence, this study aims to (a) evaluate the implementation rate of postdischarge support in elderly patients with discharge planning, (b) assess the characteristics of patients provided postdischarge support, and (c) elucidate what and with whom to implement specific contents of postdischarge support.

II Methods

1. Study design and setting

This was a prospective observational study for each client of nursing practice that older adults received from discharge planning nurses (DPNs) during and after hospitalization. The study period was between August and November 2016. The participants were informed about the purpose and methods of the study, confidentiality, the voluntary participation, the right to refuse participation, and anonymous nature of participation. They were reassured that they could withdraw their consent at any time. This study was approved by the Research Ethics Committee of the Graduate School of Medicine, The University of Tokyo (number: 11272) and was conducted in accordance with the Declaration of Helsinki.

2. Definitions

In this study, we defined “discharge planning nurse” as a nurse who belongs to a “department in the hospital in which the staff is responsible for discharge planning.” “Postdischarge support” re-
ferred to nursing practice provided during a 30-day period after discharge by DPNs. If DPNs provided post-discharge support once or more, the patient was determined as having received postdischarge support by DPNs.

3. Setting and recruitments of participants

The criterion for inclusion in the study sample was a general hospital in Kanto area with 200 or more acute-care beds and those hospitals that participated in our 2015 national survey and agreed to collaborate with further study. Furthermore, we used purposeful sampling to recruit hospitals with inclusion criteria. As participants, we selected professional DPNs with >5 years of nursing experience and those who were exclusively engaged in discharge planning currently. We mailed documents related to the study design to the candidate hospitals in July 2016. If the directors of hospitals or the nursing departments agreed to participate in this study, the nursing directors introduced us to DPNs, whom we explained the study design directly. Following the explanation from the researchers on how to complete the questionnaire, DPNs received the questionnaire directly. DPNs provided information on the questionnaire, including support performed during the 30 days following discharge and followed up on each case. All questionnaires were completed by DPNs who participated in this study. The researcher regularly contacted DPNs by phone or e-mail to affirm their progress. If DPNs had queries about this study, they could contact the researcher through phone or e-mail at any time. All questionnaires were returned by mail.

4. Eligible cases

Eligible cases for the clinical practice activities questionnaire were patients who received discharge planning by DPNs and all patients to discharge from hospital to their home. Additionally, we enrolled patients aged >65 years, at a hospital for, at least, 1 day or longer, and planned discharge directly to home (including private residential home). DPNs in charge of corresponding cases explained the discharge planning process during hospitalization, following which they explained all contents of postdischarge support provided during the 30 days following discharge each time. Furthermore, they filled up one questionnaire sheet on each support on a daily basis. Finally, they checked patients’ status at 30 days postdischarge.

5. Sample size

We predicted that postdischarge support occurred in 50% of eligible cases from a clinical viewpoint. We considered that the sample size of 250 practice case was sufficient to identify uncommonly care contents that could occur in <10% among postdischarge supported patients.

6. Questionnaire

The survey form contained one booklet in the former half about the characteristics for practice cases, and the second half to answer the postdischarge support (patients discharged from August to October 2016). Furthermore, survey forms for the characteristics of hospitals and DPNs were distributed in one envelope.

1) Characteristics of hospitals

The questionnaire included the establishing body, number of beds, average length of hospital stay, type of hospital, number of discharge planning department staff, and introduced discharge planning systems in hospital (as of August 1, 2016).

2) Characteristics of DPNs

Information on the following eight items related to DPN characteristics was collected: sex, age, qualifications, years of nursing experience, years of DPN experience, experience working as part of a community nursing staff, job title, and nursing education level (as of August 1, 2016).

3) Characteristics of practice cases and provided postdischarge support

This section of the questionnaire was divided
into two parts. The first half contained each patient’s profile and the discharge planning process. Nine items asked about each nursing practice case of discharge planning were follows: (1) patient and family caregiver characteristics (e.g., age, sex, and patients’ disease), (2) length of hospital stay, (3) type of admission, (4) type of patient needs or problems at the time of discharge, (5) care level at discharge, (6) the contents of the discharge planning process by DPNs, (7) location of discharge (home or other), (8) unscheduled acute care visits during 30-day after discharge, and (9) status 30-day after discharge; these variables were selected on the basis of previous studies that reported the discharge planning process and a screening tool for discharge planning. All items were extracted from patients medical records and records of discharge planning by DPNs.

The latter half of the questionnaire contained all contents of postdischarge support provided during the 30 days following discharge. To develop the questionnaire about postdischarge support, we conducted a short interview concerning postdischarge support of 9 DPNs who were making pioneering efforts in five acute care hospitals in June 2016. We aimed to develop variables of contents of postdischarge support.

The contents of postdischarge support are as follows. (1) collecting and share information about postdischarge status, (2) mediation to facilitate use of appropriate social support, (3) teaching and advising about medical/nursing care for patients at home, (4) decision-making support, (5) preparation for emergency procedure, (6) mental support and counseling for patients and family caregivers, (7) decision-making support, and (8) teaching and informing about social resources for patients and family caregivers. The surface validity was established by 12 members of a nursing research group and three nurses in charge of discharge planning.

Counting methods of postdischarge support were as follows: 1) all practice of postdischarge support were recorded by DPNs on each day that has occurred, 2) DPNs recorded what and with whom implement contents of postdischarge support.

7. Statistical analysis

First, we conducted a descriptive analysis of the characteristics of hospitals/DPNs and practice cases of discharge planning. Second, we identified factors related to postdischarge support using bivariate and multilevel analyses. Previous studies have shown that hospital–level systems were related to discharge planning practice for each hospital. We conceptualized the analysis in a multilevel structure, comprising practice case (individual–level) and nested within each hospital (hospital–level). Next, we fitted the data using multilevel logistic regression procedures with a random intercept model, adjusting for both practice case and hospital levels as fixed effects and setting postdischarge support as the dependent variable. When selecting independent variables for individual levels, we considered variables with the implementation of postdischarge support empirically sound and used \( P < 0.05 \). Of note, the implementation of “coordination with health center” was excluded because of its small number. Third, focusing on reciprocal actions with DPN and patient/family caregiver, in-hospital and out-of-hospital staff, we compiled the postdischarge support by DPNs. All data of support and support destinations are expressed by \( n \) and \( \% \). Furthermore, the criterion for statistical significance was set at \( P < 0.05 \). In this study, IBM–SPSS ver. 24.0 for Windows was used to perform all statistical analyses.

III Results

1. Characteristics of hospitals and DPNs

The figure shows a flowchart of study participa-
tion. Of 35 hospitals and 50 DPNs who were enrolled in this survey, 34 hospitals (response rate, 97.1%) and 49 DPNs (response rate, 98.0%) returned responses. On average 1.44 DPNs (range, 1–4) participated in this survey from each hospital. Overall, 322 practice case questionnaires were returned by DPNs (mean, 6.6 practice cases per DPNs; range, 2–11) Of these, 34 hospitals, 49 DPNs, and 312 practice cases fulfilled all eligibility criteria and, thus, were analyzed.

Tables 1 and 2 summarize the background characteristics of the examined hospitals and DPNs.

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Table 1  Characteristics of hospitals (n = 34)

| Characteristic                                                                 | n (%) or Mean ± SD [range] |
|-------------------------------------------------------------------------------|-----------------------------|
| **Establishing body**                                                         |                             |
| Public sector                                                                  | 8 (23.5)                    |
| Private sector                                                                 | 26 (76.5)                   |
| **Number of beds**                                                            |                             |
| Referred to the hospital                                                       | 471.3 ± 159.1 [220–917]     |
| **Average length of hospital stay (days)**                                    | 12.9 ± 2.0                  |
| **Type of hospital (multiple answer)**                                        |                             |
| Regional medical care support hospital                                        | 17 (50.0)                   |
| Cancer cooperation hospital                                                    | 17 (50.0)                   |
| Hospitals with beds for hospice care                                          | 9 (26.5)                    |
| Hospitals with beds for rehabilitation care                                   | 4 (11.8)                    |
| Hospital with DPC system                                                      | 32 (94.1)                   |
| Accreditation by Japan Council for Quality Health Care                        | 30 (88.2)                   |
| **Number of discharge planning department staff**                             |                             |
| Total                                                                         | 8.7 ± 5.2 [1–20]            |
| Nurse/ Public health nurse                                                    | 3.0 ± 2.0 [1–9]             |
| Medical social worker                                                         | 4.6 ± 3.1 [0–17]            |
| Clerical staff                                                                | 1.0 ± 2.0 [0–8]             |
| **Introduced DP systems in hospital (multiple answer)**                       |                             |
| Assignment of DP liaison nurses in wards                                     | 18 (52.9)                   |
| Screening tool for identifying outpatients in need of DP                     | 6 (17.6)                    |
| Intervention on system for outpatient with planned admission                | 6 (17.6)                    |
| Early screening system for identifying patients in need of DP                | 33 (97.1)                   |
| Multidisciplinary team conference at each ward                               | 28 (82.4)                   |
| Routine conference by DP team at each ward                                    | 19 (55.9)                   |
| Manual for DP system                                                          | 28 (82.4)                   |

Note. DP: discharge planning
The mean of average length of stay of these hospitals was 12.9 days. The discharge planning department displayed an average of 8.7 persons, three of whom were DPNs. The examined DPNs had sufficient nursing experience (average: 22.7 years).

2. Characteristics of cases

Of 312 practice cases, 197 had received any postdischarge support by DPNs during the 30 days following discharge (support rate, 63.1%). Table 3 presents the case characteristics in this study. In addition, postdischarge support was conducted more frequently among younger patients \((P < 0.001)\) and those with emergency admission \((P = 0.027)\). Regarding patients’ needs and problems, postdischarge support correlated with the type of disease \((P < 0.001)\), terminal stage \((P < 0.001)\), and needs of medical care after discharge \((P < 0.001)\).

3. Factors associated with postdischarge support: multivariate analysis

Table 4 presents the results of the multilevel regression analysis. Postdischarge support significantly correlated with the terminal stage \((OR: 2.48; 95\% CI: 1.20–5.13)\) and needs of medical care after discharge \((OR, 3.06; 95\% CI: 1.44–6.48)\).

4. Postdischarge support

For 197 cases with postdischarge support, the total support time was 1144 times during the 30

| Table 2  Characteristics of DPNs \((n = 49)\) |
|---------|----------------|
| Sex: Female | 49 (100) |
| Age group (years) | |
| 30-39 | 10 (20.4) |
| 40-49 | 24 (49.0) |
| 50-59 | 13 (26.5) |
| Over 60 | 2 (4.1) |
| Qualification | |
| Public health nurse | 7 (14.3) |
| Care manager | 12 (24.5) |
| CN/CNS | 6 (12.2) |
| Years of nursing experience (years) | 22.7 \(\pm\) 7.9 |
| 5-9 | 1 (2.0) |
| 10-19 | 18 (36.7) |
| 20-29 | 21 (42.9) |
| Over 30 | 9 (18.4) |
| Years of DPN experience (years) | 3.6 \(\pm\) 2.9 |
| 1-4 | 36 (73.5) |
| 5-9 | 12 (24.5) |
| Over 10 | 1 (2.0) |
| Community nursing experience | |
| Any | 17 (34.7) |
| as Visiting nurse | 13 (26.5) |
| Care manager | 7 (14.3) |
| Job title | |
| Administrative | 32 (65.3) |
| No title | 17 (34.7) |
| Nursing education level | |
| Nursing vocational school | 36 (73.5) |
| 3-year college | 5 (10.2) |
| 4-year university/ college | 5 (10.2) |
| Graduate school | 3 (6.1) |

Note. CN: Certified Nurse, CNS: Certified Nurse Specialist, DPN: Discharge planning nurse
| Characteristics of cases in strata of postdischarge support | Total (N=312) | Postdischarge support | p-value |
|-------------------------------------------------------------|---------------|-----------------------|---------|
| | | Once or more (n=197) | Never (n=115) | |
| | n (%) or Mean±SD | n (%) or Mean±SD | n (%) or Mean±SD | |
| Age (years) | 79.4±7.9 | 77.8±7.9 | 82.1±7.4 | < 0.001 |
| Sex: Male | 153 (49.0) | 100 (50.8) | 53 (46.1) | 0.426 |
| Length of hospital stay (days) | 31.7±33.1 | 33.4±37.7 | 28.8±23.0 | 0.808 |
| Disease | | | | |
| Malignant neoplasms | 128 (41.0) | 100 (50.8) | 28 (24.3) | < 0.001 |
| Respiratory disease | 43 (13.8) | 28 (14.2) | 15 (13.0) | |
| Cardiovascular disease | 28 (9.0) | 13 (6.6) | 15 (13.0) | |
| Type of admission | | | | |
| Emergency | 251 (80.4) | 151 (76.6) | 100 (87.0) | 0.027 |
| Scheduled | 61 (19.6) | 46 (23.4) | 15 (13.0) | |
| Family caregiver | | | | |
| Identified | 265 (84.9) | 165 (83.8) | 100 (87.0) | 0.446 |
| Care giver’s age (n=265) | 64.5±13.4 | 64.1±13.5 | 65.0±13.2 | 0.620 |
| Patient needs and problems* | | | | |
| Terminal stage † | 99 (31.7) | 82 (41.6) | 17 (14.8) | < 0.001 |
| Needs of medical care after discharge | 168 (53.8) | 131 (66.5) | 37 (32.3) | < 0.001 |
| Lack of compliance | 50 (16.0) | 30 (15.2) | 20 (17.4) | 0.615 |
| Problems of ADL | 177 (56.7) | 106 (53.8) | 71 (61.7) | 0.172 |
| Needs of daily support | 159 (51.0) | 89 (45.2) | 70 (60.9) | 0.007 |
| Elderly care by the elderly | 82 (26.3) | 50 (25.4) | 32 (27.8) | 0.636 |
| Care needs for dementia | 45 (14.4) | 29 (14.7) | 16 (13.9) | 0.845 |
| Psychological problem | 17 (5.4) | 13 (6.6) | 4 (3.5) | 0.241 |
| Care level at discharge | | | | |
| No application (incl. independent) | 20 (6.4) | 16 (8.1) | 4 (3.5) | 0.148 |
| Support need 1 ~ Care need 2 | 89 (28.9) | 49 (24.9) | 40 (34.8) | |
| Care need 3 ~ Care need 5 | 80 (25.6) | 51 (25.9) | 29 (25.2) | |
| Waiting for application | 123 (39.4) | 81 (41.1) | 42 (36.5) | |
| Contents of the discharge planning process by DPNs | | | | |
| 1. Explanation about patient’s own disease and condition | 133 (42.9) | 76 (38.6) | 57 (49.0) | 0.058 |
| 2. Coordination about discharge day | 292 (94.7) | 131 (66.5) | 71 (61.7) | 0.286 |
| 3. Development of discharge planning | 139 (44.0) | 91 (46.2) | 48 (41.7) | 0.445 |
| 4. Adjustment of relationship between patient and family | 84 (26.9) | 50 (25.4) | 34 (29.6) | 0.421 |
| 5. Counseling and mental support for family caregiver | 119 (38.1) | 82 (41.6) | 37 (32.3) | 0.097 |
| 6. Counseling and mental support for patient | 67 (21.5) | 53 (26.9) | 14 (12.2) | 0.002 |
| 7. Education to patient about self-care | 88 (28.2) | 56 (28.4) | 32 (27.8) | 0.909 |
| 8. Education to patient and family caregiver about self-management | 46 (14.7) | 30 (15.2) | 16 (13.9) | 0.752 |
| 9. Coordination about simple self-care | 72 (23.1) | 46 (23.4) | 26 (22.6) | 0.881 |
| 10. Ensuring follow-up with home care or community-based services, etc. | 141 (45.2) | 89 (45.2) | 52 (45.2) | 0.995 |
| 11. Referral to useful social resource | 108 (34.0) | 126 (64.0) | 72 (62.6) | 0.811 |
| 12. Coordination with Care manager | 141 (45.2) | 90 (45.7) | 51 (44.3) | 0.819 |
| 13. Coordination with primary care physicians | 106 (34.0) | 73 (37.1) | 33 (29.2) | 0.133 |
| 14. Coordination with home visit nursing | 159 (51.0) | 120 (60.9) | 39 (33.9) | < 0.001 |
| 15. Coordination with home visit care | 14 (4.5) | 6 (3.0) | 8 (7.0) | 0.107 |
| 16. Coordination with health center | 17 (5.4) | 7 (3.0) | 10 (8.7) | |
| 17. Ordering medical equipment | 82 (26.3) | 60 (30.5) | 22 (19.1) | 0.028 |
| 18. Hold a conference with hospital staff | 109 (34.9) | 67 (34.0) | 42 (36.5) | 0.654 |
| 19. Hold a conference with multidisciplinary staff | 159 (51.0) | 102 (51.8) | 57 (49.6) | 0.706 |
| 20. Home visit before discharge by nurse | 10 (3.2) | 7 (3.6) | 3 (2.6) | 0.462 |
| Location of discharge | | | | |
| Home | 305 (97.8) | 193 (98.0) | 112 (97.4) | 0.511 |
| Private residential home | 7 (2.2) | 4 (2.0) | 3 (2.6) | |
| Unscheduled acute care visits during 30-day after discharge | 67 (21.5) | 47 (23.9) | 20 (17.4) | 0.248 |
| Status at 30-day after discharge | | | | |
| Home care | 226 (72.4) | 139 (70.6) | 87 (75.7) | 0.218 |
| Death | 39 (12.5) | 30 (15.2) | 9 (7.9) | |
| Hospitalization | 34 (10.9) | 22 (11.2) | 12 (10.4) | |
| Private residential home | 5 (1.6) | 3 (1.5) | 2 (1.7) | |
| Unknown | 8 (2.6) | 3 (1.5) | 5 (4.3) | |

*a Mann-Whitney test, b Chi-square test, c Fisher’s exact test*

† "Terminal stage" indicates a state that will progress until death with near absolute certainty, regardless of treatment and was evaluated from patient medical records written by physicians.

- Total (N=312)
- Postdischarge support
  - Once or more (n=197)
  - Never (n=115)
- p-value
days after discharge. Table 5 presents persons involved in postdischarge support and the proportions by the postdischarge support contents. DPNs conducted postdischarge support for patients, their in-hospital and out-of-hospital staff. For patients, the most frequently conducted contents comprised collecting and sharing information (n = 73, 47.4%), followed by mental support and counseling (n = 21, 13.6%). Family caregivers received collecting and sharing information (n = 97, 40.4%), mental support and counseling (n = 21, 13.6%), and decision-making support (n = 29, 12.1%). Postdischarge support was less likely to occur between DPNs and outpatient nurses, except for collecting and sharing information. In addition, the most commonly involved persons were home visiting nurses.

Support between DPNs and home visiting nurses, such as collecting and sharing information (n = 73, 47.4%), mediation to facilitate the use of appropriate social support (n = 17, 10.8%), and teaching and advising about medical/nursing care (n = 13, 7.9%) were the most common contents.

### Table 4

**Associated factors with postdischarge support (n = 312)**

| Variables                              | OR(95%CI) | p-value |
|----------------------------------------|-----------|---------|
| Patient age (year)                     | 0.96 (0.93–1.00) | 0.051 |
| Emergency admission †                  | 0.92 (0.44–1.89) | 0.812 |
| Malignant neoplasms †                  | 1.37 (0.61–3.04) | 0.444 |
| Respiratory disease †                  | 1.98 (0.60–6.49) | 0.258 |
| Cardiovascular disease †               | 0.98 (0.36–2.65) | 0.964 |
| Terminal stage †                       | 2.48 (1.20–5.13) | 0.014 |
| Needs of medical care after discharge †| 3.06 (1.44–6.48) | 0.004 |
| Needs of daily support †               | 0.65 (0.37–1.13) | 0.127 |
| Counseling and mental support for patient † | 1.94 (0.97–3.88) | 0.062 |
| Coordination with home visit nursing † | 1.49 (0.65–3.42) | 0.345 |
| To order medical equipment †           | 0.88 (0.51–1.54) | 0.660 |

AIC = 1461.72, BIC = 1465.41

Note: OR = odds ratio, CI = confidence interval. † Reference category: not present

### Table 5

**The persons and practice contents that received interaction from DPN within 30-day postdischarge (postdischarge support: n = 1,144, for 197 cases)**

| Practice                                                                 | Patient | Family caregiver | In-hospital staff | Out-of-hospital staff | Total |
|-------------------------------------------------------------------------|---------|------------------|-------------------|-----------------------|-------|
| Collecting and sharing information about postdischarge status (e.g. home care, skills, knowledge, and patients' and family caregivers' perception of disease condition) | 73(47.4) | 97(40.4) | 43(45.7) | 32(58.2) | 18(51.4) | 42(56.0) | 159(56.2) | 76(52.4) | 35(55.6) | 575(50.3) |
| Mediation to facilitate the use of appropriate social support           | 7(4.5)  | 17(7.1)          | 19(20.2)          | 6(10.9)               | 5(14.3) | 10(13.3) | 35(12.4) | 27(18.6) | 20(31.7) | 146(12.8) |
| Teaching and advising about medical/nursing care                        | 19(12.3) | 26(10.8)        | 7(7.4)            | 4(7.3)                | 7(20.0) | 7(9.3)  | 54(19.1) | 19(13.1) | 34(4.8)  | 146(12.8) |
| Preparation for emergency procedure                                     | ____     | ____             | 13(13.8)          | 9(16.4)               | 1(2.9)  | 11(14.7) | 22(7.8)  | 13(9.0)  | 2(3.2)   | 71(6.2)   |
| Mental support and counseling                                           | 21(13.6) | 41(17.1)         | ____               | ____                  | ____    | ____     | ____     | ____     | ____      | 62(5.4)   |
| Decision-making support                                                 | 16(10.4) | 28(12.1)         | 8(8.5)            | 2(3.6)                | 1(2.9)  | ____     | ____     | ____     | ____      | 56(4.9)   |
| Teaching and informing about social resources                            | 16(10.4) | 26(10.8)         | ____               | ____                  | ____    | ____     | ____     | ____     | ____      | 42(3.7)   |
| Other                                                                   | 2(1.3)  | 4(1.7)           | 14(4.3)           | 2(3.6)                | 3(8.6)  | 5(6.7)  | 13(4.8)  | 10(6.9)  | 3(4.8)   | 46(4.0)   |
| Total                                                                   | 154(100) | 240(100)         | 94(100)           | 55(100)               | 35(100) | 75(100) | 283(100) | 145(100) | 63(100)  | 1,144     |
159, 56.2%), teaching and advising about medical/nursing care (n = 54, 19.1%), mediation to facilitate the use of appropriate social support (n = 35, 12.4%), and preparation for emergency procedure (n = 22, 7.8%) were provided more often. Furthermore, the most often conducted contents for care managers were collecting and sharing information (n = 76, 52.4%), followed by mediation to facilitate the use of appropriate social support (n = 27, 18.6%).

IV Discussion

This study elucidated various contents of postdischarge support for older adults discharged from acute hospitals. To the best of our knowledge, this is the first exploratory and prospective study to investigate postdischarge support by DPNs at acute hospitals in Japan.

In this study, the average length of hospital stay was 12.9 days, which was much prolonged than other developed countries; however, it was shorter than other acute care hospitals in Japan. On average, 8.7 persons played discharge planning role, and 3.0 DPNs were in charge of the discharge planning department, which is approximately 1.6 and 2.5 times more than that reported in another study. Of note, this study was conducted at acute care hospitals, which are keenly working on discharge planning in Japan. Perhaps, acute care hospitals are sensitive to postdischarge support needs and respond to them accordingly. Furthermore, the contents of nursing practice data coming in from these objects might represent the essence of support needed for postdischarge support.

Over 60% of older adults from acute care hospitals with discharge planning from DPNs received postdischarge support by DPNs. The practice cases in the terminal stage and need of medical care after discharge tended to receive postdischarge support. It is highly likely that patients in the terminal phase of the disease would change day by day and deteriorate their condition and symptoms even after discharge. In particular, the transition from hospital to home for elderly patients could be challenging. Some studies have demonstrated that shortly after hospital discharge, many older adults experience problems. Reportedly, multidisciplinary medical and home care team members need to act according to a symptom or the changeable condition of a patient as soon as possible. To support such postdischarge needs, acute hospitals need to promote collaboration and share care with medical institutions offering home medical care, depending on the region. Besides the progression of aging, practice cases in the terminal stage and complex needs will continue increasing. Furthermore, shortening of the hospital stay and an upsurge in at home care are anticipated; hence, postdischarge support for vulnerable patients after discharge could become crucial in the future.

One of the major postdischarge support for patient/family caregivers was mental support and counseling from DPNs (patients, 13.6%; family caregivers, 17.1%), and family caregivers also received decision-making support (12.1%). Postdischarge, patient/family caregivers tend to be anxious about physical conditions, medical care, nursing care, and actions during emergencies. Additionally, anxiety changes with the passage of time and increases after discharge. Regarding DPNs’ abilities to successfully implement discharge planning, Tomura et al. reported that DPNs advised multidisciplinary and multiagency staff, facilitating the latter to master medical care and care skills. This study suggests that DPNs play an educational role, not only during the discharge planning process but also after discharge. The interaction between DPNs and care manager involved mediation in facilitating the use of appropri-
ate social support. Compared with nurses, care managers encounter difficulties in estimating possible changes in medical condition, prognosis, and medical procedure\(^{22, 33}\). Hence, it is sometimes challenging for care managers to use appropriate social support promptly for patients who are likely to change after hospitalization such as terminal patients and patients with high medical dependence.

This study has several limitations. First, hospitals in this study were from the Kanto area in Japan; this selection bias limits the generalizability of the results. Second, the study duration was only 3 months from August to November. Thus, the observation period should be longer to consider the seasonal effects on DPNs' practice. Finally, some of the questionnaires may not have been completed/ were not completed because of the self-reporting nature of the study. Despite these limitations, this study demonstrates the extent of postdischarge support provided in the current system.

We should consider future research as follows. First, only DPNs engaging in pioneering efforts participated in this study—all from the Kanto area in Japan. Thus, DPNs from other geographical areas should be examined using random selection to enhance the generalizability of the results. Second, this study entails the perspective of DPNs alone; consequently, it did not cover all postdischarge support provided to patients. Hence, studies from the perspective of stakeholder are warranted. Third, our study had not examined the association between DPNs characteristics and the practice of postdischarge support. Future analysis may need to consider DPNs characteristics. Fourth, this study did not elucidate the benefit of postdischarge support by DPNs. Hence, further studies focusing on the effects of DPNs providing postdischarge support to elderly patients at acute hospitals are needed.

Currently, no guidelines exist for DPNs providing postdischarge support in Japan. Perhaps, the findings of this study could help DPNs enhance their skills and use it to develop guidelines for postdischarge support. Furthermore, given the aging population, shorter hospital stays, and more number of patients with postdischarge medical or nursing care requirements, the establishment of a postdischarge support system would be necessary.

V Conclusions

In this study, \(>60\%\) of elderly patients received postdischarge support. To the best of our knowledge, this is one of the first assessments of postdischarge support for elderly patients at acute care hospitals in Japan, suggesting that it is more frequent than would have been estimated. The multi-level logistic analyses revealed that the terminal stage and needs of medical care after discharge correlate with postdischarge support. Even after discharge, DPNs conducted nursing interventions for older adults by being their in charge, providing support to patients/family caregivers and multidisciplinary team members for facilitating seamless care from hospitals to home. Overall, this study reveals that for patients with high postdischarge medical care needs, cooperation with patients/family caregivers and their multidisciplinary team members is crucial even after discharge. Hence, guidelines are warranted for the systematic implementation of postdischarge support.

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Postdischarge support by discharge planning nurses for older adults at acute hospitals: A 30-day prospective observational study

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和文抄録

目的: 入院中に退院支援を受けて自宅退院した高齢患者ケースが、急性期病院の退院支援部署看護師から退院後にうけた支援の内容と発生率、および退院後支援をうけた患者の特徴を明らかにする。

方法: 日本国内の35箇所の急性期病院で退院支援を専門に担う部署を対象とし、質問紙を用いた30日間の前向き観察研究を3ヶ月間実施した。質問紙は、病院・退院支援看護師（Discharge Planning Nurse: DPN）の特徴、各DPNが担当する高齢患者ケースに対する入院中・退院後支援の内容に関する項目で構成された。退院後支援をうけた患者の要因を明らかにするため、マルチレベルロジスティック分析を行った。

結果: 34病院49名のDPNから寄せられた322ケースのうち、適格基準を満たした312ケースを分析した。退院後30日間で、312ケースのうち197ケースがDPNから退院後支援をうけていた（支援率: 63.1%）。主な実践は、【退院後の療養状況に関する情報収集および共有】であった。退院時点でターミナル状態であること（OR 2.48, 95%CI 1.20 ～ 5.13）、および退院後も継続する医療ニーズを有していること（OR 3.06, 95%CI 1.44 ～ 6.48）は、退院後支援をうけることと有意に関連していた。

結論: 退院後も継続する医療ニーズが高い患者に対し、急性期病院に所属する看護師は院内外多職種チームメンバーとともに情報収集・共有を行なっていた。退院後の継続的な協力・支援を体系的に実施するためのガイドラインなどを検討していく必要性がある。