Prevalence of home visiting nurse service clients who received insufficient number of nurse visits in the Japanese long-term care insurance

Takashi Naruse
Department of community health nursing, Division of Health Sciences and Nursing, Graduate School of Medicine, The University of Tokyo

Atsuko Taguchi
Department of community health nursing, Division of Health Sciences and Nursing, Graduate School of Medicine, The University of Tokyo

Satoko Nagata
Department of community health nursing, Division of Health Sciences and Nursing, Graduate School of Medicine, The University of Tokyo

Yuki Kuwahara
Department of community health nursing, Division of Health Sciences and Nursing, Graduate School of Medicine, The University of Tokyo

Sachiyo Murashima
Department of community health nursing, Division of Health Sciences and Nursing, Graduate School of Medicine, The University of Tokyo

Received 15 September 2011; Accepted 6 January 2012

Abstract

The Long-Term Care Insurance (LTCI) system was established in Japan to support independence among its elderly population. This system provides home visiting nurse services, which enable clients to maintain their independence and receive continuous home care; however, it is unclear whether the current number of nurse visits is sufficient. We re-analyzed a large sample of data on clients using home visiting nurse services under the LTCI system to derive the prevalence of home visiting nurse service clients who received an insufficient number of visits and its correlates. Among 2,666 clients from 64 home visiting nursing agencies located in eight districts in Japan, 372 clients (14%) did not receive a sufficient number of visits. Using multivariable logistic regression analysis, clients who were physically dependent, had a non-neurologic disorder, and who have used home visiting nurse services less than one year were likely to receive an insufficient number of visits. When opportunities for care are limited, nurses cannot provide sufficient care. Our results reveal that decision makers and agencies should evaluate whether the number of home nursing visits is sufficient, and care managers and home visiting nurses should pay more attention to short-term users.

Key words
home visiting nurse service, insufficient number of visit, long term care insurance system

1. Introduction

The increasing health care cost for the disabled elderly in developed countries is an important issue. Prolonging home care is an effective means of reducing health care costs (Akiyama et al 2011), as it allows elderly disabled persons to maintain their independence and, in many cases, their homes. In Japan, where the elderly population is rising faster than in any other country (Weinberger 2007), the public Long-Term Care Insurance (LTCI) system was established to support independence among the older population, in part by introducing home care services (Murashima et al 2003). To ensure their independence and provide effective home care, LTCI clients can tailor the services to conform to their own care plan. Usually, the care plan is made by care managers, who are the professionals in the care management of elders.

The care management process is comprised of intake, assessment, analysis of needs, care planning (including the amount of services), and implementation of services, monitoring, and evaluation (Japan visiting nurse foundation 2001). Among the LTCI services, home visiting nurse service (HVNS) is one of the important services for clients' independence and continuous home care (Clark 2008). Since HVNS tends to be needed more among elderly who require medical treatment and assessment in home care (Naruse et al 2011), there has been a rising need for HVNS in Japan due to the aging population and the move toward deinstitutionalization. However, the consumption of HVNS in the LTCI in 2010 increased by 130% since 2001, whereas consumption of other services increased 170% during the same period (Japan Ministry of Health, Labor and Welfare 2001, Japan Ministry of Health, Labor and Welfare 2010). The fact that HVNS has not risen as quickly as other services could be due to one of two reasons: the demand for HVNS was already met and HVNS was not needed as much as others, or the demand for HVNS were unmet and more HVNS resources and visits were needed.

An unmet need for HVNS indicates a serious problem that must be addressed, whether or not any HVNS service is currently being provided (Leese et al 1998). If the needs remain unmet, the elderly population may be at risk for a variety of adverse outcomes (Branch 2000). For clients to obtain a positive outcome, nurses need sufficient time to provide direct care (Duffield et al 2008, Finfgeld-Connett 2008). Nagata showed that among the Japanese frail elderly population, whose care need levels in LTCI system are classified as higher than level one, about 40% of those who needed HVNS did not use it (Nagata et al 2010). Nagata enhanced the importance of strategies for encouraging use of HVNS for non-users. Naruse et al (2011) conducted a structured interview examination of family caregivers of Japanese frail elderly and found that unmet needs for HVNS were greater during early morning and nighttime hours than during daytime hours. In the aforementioned study, some clients using HVNS did not receive a sufficient number of visits; however, prevalence rates were not available.

Decision makers and health care agencies have a mandate to identify the unmet needs of the population and to conduct long-range planning based on needs assessments (Harlow and Turner 1993). In order to obtain a better understanding of and to foster the HVNS system, this study attempts to (a) determine the prevalence of HVNS clients who received an insufficient number of HVNS visits, and (b) identify its correlates.

2. Method

2. 1 Data collection

The present study analyzed data on individuals who were enrolled in a previous study that estimated the future service demands for HVNS (Murashima 2009). For this study, eight districts in eight prefectures were selected: Miyagi, Chiba, Nagano, Shizuoka, Shiga, Shimane, Kagawa, and Fukuoka. These areas were selected based on the following methodology: (1) we ranked the total of all 47 Japanese prefectures according to their utilization rate of HVNS for persons over 65 years old; (2) we created eight groups, ranging from a very-high-rate prefecture group to a very-low-rate group; (3) we selected eight prefectures with the feasibility of conducting a large sampling survey in mind; and (4) we selected the eight districts whose demographic prevalence was similar to the prefecture in which they were located.

Clients of all HVNS agencies from the eight districts were included in this study as participants. Participants had to be over 40 years and had to have received at least one visit in November 2008. Of the 99 agencies found

in the eight prefectures, 64 (64.6%) agreed to participate, and data on 3,344 clients were collected. Between November 2008 and January 2009, study questionnaires were mailed to the 64 agencies. If they agreed to participate, the nursing managers gathered their clients' information, including demographic characteristics from charts and assessments of their service needs. Completed questionnaires were mailed back to the researcher.

Three thousand four hundred thirty four clients' data that were returned, and 667 (19.4%) used HVNS through their medical insurance. The medical insurance system users included children and young adults; thus, to avoid the confounding effect of their generational differences with long-term care insurance clients, only data from the 2,767 clients (80.6%) who used HVNS under the long-term care insurance system were included for analysis. Among them, 2,666 (77.6%) were suitable for analysis, and 101 (2.9%) were excluded due to incomplete data regarding their need for HVNS visits.

Since principle demographic data, except for names, were gathered from examination of clients' charts by the HVNS agencies, study participants were not informed that they were included in this study. The Ethics Committee of the Graduate School of Medicine, the University of Tokyo approved this study.

2. 2 Measures

2. 2. 1 Demographic variables

Clients' age, sex, care level in the LTCI system, severity of dementia, physical independence, and presence of conditions or impairment were examined as demographic variables.

Severity of dementia and physical independence were assessed using the degree of independent living for the elderly (Hirakawa et al 2005) and the independence index of dementia (Onishi et al 2005). These scales were established by the Japanese Ministry of Health and Welfare and are commonly used among the Japanese community health agencies to assess daily conditions of the elderly.

2. 2. 2 Utilization and sufficiency of HVNS visit

Years of HVNS utilization and frequency of HVNS visit were examined. Years of HVNS utilization was categorized as either less than one year or greater than or equal to one year. Using December 2008 as the assessment period, the number of visits was categorized into three groups: one to three visits per month ("rarely": less than one visit per week); four to seven ("sometimes": one to two visits per week); and more than eight ("frequently": more than two visits per week).

According to Bradshaw (1972), normative needs are those defined by professionals or experts according to their own standards. In this study, the following question was included in the instrument: "According to your assessment, how many HVNS visits did the client need in December 2009?" When the number of needed visits was larger than the number of actual visits, the client was categorized as one who received an insufficient number of HVNS visits. In this study, no clients were judged as needing fewer visits than their actual number of visits. We then defined the sufficiency of participants' HVNS visits by grouping them into one of two categories: "insufficient" or "sufficient."

2. 3 Data Analysis

The association between demographic variables, years of utilization, frequency, and sufficiency of HVNS visits was examined using unpaired t-test and chi-squared test. Multivariate logistic regression analysis was used to identify the factors relative to an insufficient number of visits. In the regression model, all demographic variables and years of utilization were included as independent variables adjusted for frequency of visits. Data were analyzed using SPSS version 17.0 for Windows. The significance level was set at 0.05.

Table 1. Demographic characteristics of participants

Table 1. Demographic characteristics of participants

Characteristic	Total (n=2,666) n (%)	Client with sufficient visits (n=2,294) n (%)	Client with insufficient visits (n=372) n (%)	*p*
Age (years) (mean (SD)) (Range)	81.9 (9.5) (44 - 106)	81.8 (9.5) (44 - 106)	82.2 (9.5) (54 - 103)	*.506*[b)]
Gender				
Male	1,064 (39.9)	921 (40.1)	143 (38.4)	*.524*[c)]
Female	1,600 (60.0)	1,371 (59.8)	229 (61.6)	
Care-level needed[a)]				
Need support, level 1	599 (22.5)	507 (22.1)	92 (24.7)	*.657*[c)]
Level 2, 3	955 (35.8)	830 (36.2)	125 (33.6)	
Level 4, 5	1,111 (41.7)	957 (41.7)	154 (41.4)	
Severity of dementia				
Independent	1,709 (64.1)	1,464 (63.8)	245 (65.9)	*.657*[c)]
Need help for daily living	826 (31.0)	713 (31.1)	113 (30.4)	
Physical independence				
Independent	1,128 (42.3)	982 (42.8)	146 (39.2)	*.187*[c)]
Chair/bed bound	1,429 (53.6)	1,218 (53.1)	211 (56.7)	
Presence of conditions or impairments				
Cardiovascular	1,115 (41.8)	955 (41.6)	160 (43.0)	*.617*[c)]
Neurologic	316 (11.9)	290 (12.6)	26 (7.0)	*.002*[c)]
Musculoskeletal	287 (10.8)	250 (10.9)	37 (9.9)	*.583*[c)]
Cancer	168 (6.3)	147 (6.4)	21 (5.6)	*.574*[c)]
Respiratory	182 (6.8)	150 (6.5)	32 (8.6)	*.143*[c)]
Psychiatric	123 (4.6)	106 (4.6)	17 (4.6)	*.965*[c)]
Years of utilization of home visiting nurse service				
< 1 year	964 (36.2)	788 (34.4)	176 (47.3)	*< .001*[c)]
> = 1 year	1,701 (63.8)	1,506 (65.6)	195 (52.4)	
Utilization of home visiting nurse service				
1 to 3 visits per month	833 (31.2)	632 (27.6)	201 (54.0)	*< .001*[c)]
4 to 7 visits per month	1,271 (47.7)	1,127 (49.1)	144 (38.7)	
More than 8 visits per month	562 (21.1)	535 (23.3)	27 (7.3)	

Notes:
Numbers are Mean (SD) (Range) or n (%)
a) Care level needed = client's levels of care needs decided in Long term Care Insurance system; "need support" = need preventive care but not help in daily life "Level 1" = need help in daily life, "Level 2" = moderate care needed; "Level 3" = considerable care needed; "Level 4" = critical care needed; "Level 5" = maximum care needed

3. Results

3. 1 Demographic characteristics of participants

Table 1 presents the demographic characteristics of participants. Among the 2,666 participants, 372 (14.0%) had an insufficient number of visits from the HVNS. The participants' average age was 81.9 years. Regarding gender, 60.0% were female. With regard to required care level, 22.5% of clients were at need support level or level 1, 35.8% were at levels 2 and 3, and 41.7% were at levels 4 and 5. Thirty-one percent of clients needed help with daily activities due to dementia symptoms, and 53.6% were chair- or bed-bound. The most common disorders were cardiovascular disorders (41.8%), followed by neurological disorders (11.9%), and musculoskeletal disorders (10.8%).

3. 2 Multivariate logistic regression analysis for insufficient HVNS visits

Table 2 presents the multivariate logistic regression analysis. Physically dependent clients and clients who had used HVNS less than one

Table 2. Multi-variable logistic regression analysis for having unmet needs

n=2,516

		Insufficient visits[a)]			
		OR	*95% CI*		*p*
Age		.999	.986	1.012	.825
Gender	female	1.000			
	male	.975	.757	1.256	.844
Care level needed[b)]	need support, level 1	1.000			.134
	level 2, 3	.699	.475	1.030	.070
	level 4, 5	.740	.536	1.023	.068
Severity of dementia	independent	1.000			
	need help for daily living	.836	.628	1.112	.218
Physical independence	independent	1.000			
	chair/bed bound	1.696	1.251	2.298	.001
Conditions or impairments[c)]	Cardiovascular	1.028	.776	1.361	.848
	Neurologic	.602	.378	.961	.033
	Musculoskeletal	.808	.534	1.224	.314
	Cancer	.722	.424	1.229	.231
	Respiratory	1.242	.784	1.966	.356
	Psychiatric	1.057	.597	1.872	.849
Years of utilization	> = 1 year	1.000			
	< 1 year	1.699	1.348	2.142	< .001

Notes:
a) "Clinent with sufficient visits" = 0, "client with insufficient visits" = 1
b) Care level needed = client's levels of care needs decided in Long term Care Insurance system; "need support" = need preventive care but not help in daily life "Level 1" = need help in daily life, "Level 2" = moderate care needed; "Level 3" = considerable care needed; "Level 4" = critical care needed; "Level 5" = maximum care needed
c) For each disorders, "not impaired/disabled" = 0, "impaired/disabled" = 1

year were likely to receive an insufficient number of HVNS visits (OR = 1.696, p = .001, CI: 1.251, 2.298; OR = 1.699, p < .001, CI: 1.348, 2.142). Clients with neurological disorders (OR = .602, p = .033, CI: .378, .961) were likely to receive a sufficient number of visits.

4. Discussion

The main objective of this study was to investigate the prevalence of insufficient HVNS visits and reveal the relevant factors among HVNS clients. Decision makers and health care agencies have a mandate to conduct long-range planning based on a needs assessment of the population (Harlow and Turner 1993).

We found that approximately 14% of HVNS clients did not receive a sufficient number of HVNS visits. According to our findings, the fact that elderly people receive HVNS does not necessarily mean that their HVNS needs are met adequately.

In the multivariate analyses, the elderly individuals who used HVNS for less than one year tended to receive an insufficient number of HVNS visits. During the first year, care management was considered to be under adjustment and unstable, and it was inadequate for providing HVNS. In the LTCI system, care managers−not nurses−are the ones who make care delivery plans, including those for HVNS. Under LTCI, the clients use services under budget limitations (Murashima et al 2003). The results might reflect competition between HVNS and other home visitation services, especially

home help services that physically dependent clients require more than the independent elderly (Naruse et al 2011). The fee for an HVNS visit is two-and-a-half times as expensive as that for home help services under the LTCI. Thus, it will be difficult to increase the frequency of HVNS. Under Japan's LTCI system, nurses need to negotiate with their clients and care managers in order to provide high-quality nursing care and to ensure adequate utilization of HVNS as soon as care begins. Before starting HVNS utilization, it is important that home visiting nurses succeed in contacting those clients who might require HVNS. At this point, we propose a referral system where health care professionals, such as ward nurses and nurses at discharge planning departments, talk with home visiting nurses and introduce them to clients HVNS as needed.

The current study has some limitations. Initially, estimates of the sufficient number of HVNS visits relied on nursing managers' judgments, which may differ from the clients' perceptions. However, estimates by home visiting nurse managers who regularly supervise their clients' needs are likely to be at least as valid as those made by others are. Secondly, information about caregivers and the utilization of other LTCI services should have been included in the regression analysis to describe the characteristics of clients who receive an insufficient number of HVNS visits. At last, we focused on the number of HVNS visit. However, it is only a part of quality of HVNS. To evaluate the quality of HVNS, other variables like appropriateness of provided care and client satisfaction should be included in analysis.

Despite these limitations, we were able to reveal the prevalence of HVNS clients who did not receive a sufficient number of visits, and we found that this insufficiency tends to be greater among short-term users. When care opportunities are limited, nurses cannot provide sufficient care (Duffield et al 2008, Finfgeld-Connett 2008). Our results emphasize that decision makers and agencies should evaluate the sufficiency of HVNS visits among clients, and care managers and home visiting nurses should pay more attention to short-term users.

Acknowledgement

Financial support for the original study was provided by the 2008 Health Labor Sciences Research Program in Japan.

References

Akiyama N, Fukuda T, Shiroiwa T et al (2011). Investigating factors that influence health care costs for disabled elderly in Japan. Journal of Health Care and Society 21(2), 175-188.

Bradshaw J (1972). The concept of human need. New Society 30, 640-643.

Duffield C, Gardner G and Cartling-Paull C (2008). Nursing work and the use of nursing time. Journal of Clinical Nursing 17, 3269-3274.

Finfgeld-Connett D (2008). Meta-synthesis of caring in nursing. JCN 17, 196-204.

Harlow K and Turner MJ (1993). State units and convergence models: Needs assessment revisited. The Gerontologist 33, 190-199.

Hirakawa Y, Masuda Y, Kimata T et al (2005). Effects of home massage rehabilitation therapy for the bed-ridden elderly: A pilot trial with a three-month follow-up. Clinical Rehabilitation 19, 20-27.

Japan Ministry of Health, Labor and Welfare (2001). Kaigokyuufu-hi jittai chousa geppou [Temporary monthly payment by LTCI] (Summary) http://www.mhlw.go.jp/toukei/saikin/hw/kaigo/kyufu/0110-1.html.

Japan Ministry of Health, Labor and Welfare (2010). Kaigokyuufu-hi jittai chousa geppou

[Temporary monthly payment by LTCI] (Summary) http://www.mhlw.go.jp/toukei/saikin/hw/kaigo/kyufu/2010/10hyo02.html.

Japan visiting nurse foundation (2001). Kaihatsu no Mokuteki to katei [The purpose and process of developing care management]. In Shimanouchi S and Uchida E (Eds), Nihonban seijin, koureisha-yo asesumento to kea puran (3rd ed.) pp11-30. Publishers association of Japanese nursing association, Tokyo, Japan.

Branch LG (2000). Assessment of chronic care need and use. Gerontologist 40(4), 390-396.

Leese M, Johnson S, Slade M et al (1998). User perspective on needs and satisfaction with mental health services. PRISM Psychosis Study 8. British Journal of Psychiatry 173, 409-415.

Weinberger MB (2007). Population aging: A global overview. In Robinson M, William N, Clarence P et al. (Eds.), Global Health & Global Aging, pp15-30. Jossey-Bass, San Francisco.

Clark MJ (2008). Care of clients in the home setting. In Community health nursing, pp575-602. Upper Saddle River, New Jersey.

Murashima S (2009). Homon kango jukyu keikakusakutei ni kansuru chosakenkyu jigyo [Health Labor Sciences Research Rep. A large sample surveillance for estimation of service supply and demand in home visiting nursing]. Department of Community Health Nursing, University of Tokyo, Tokyo.

Murashima S, Yokoyama A, Nagata S et al (2003). The implementation of long-term care insurance in Japan: focused on the trend of home care. Home Health Care Management & Practice 15(5), 407-415.

Nagata S, Taguchi A, Naruse T et al (2010). Actual situation and characteristics of the clients who are judged to need home-visiting nurse services by certified care managers and the comparison of users and non-users of home-visiting nurse services among them. Japanese Journal of Public Health 57(12), 1084-1093.

Naruse T, Nagata S, Taguchi A et al (2011). Classification tree model identifies home-based service needs of Japanese long-term care insurance consumers. Public Health Nursing 28(3), 223-232.

Onishi J, Suzuki Y, Umegaki H et al (2005). Influence of behavioral and psychological symptoms of dementia (BPSD) and environment of care on caregivers' burden. Archives of Gerontology and Geriatrics 41, 159-168.

Author for corresponndence

Takashi Naruse
Department of community health nursing,
Division of Health Sciences and Nursing,
Graduate School of Medicine
The University of Tokyo
7-3-1 Hongo, Bunkyo-ku, Tokyo 113-0033, Japan
takanaruse-tky@umin.ac.jp