Factors Related to Readiness for Hospital Discharge Among Stroke Patients in Sichuan Province, the People's Republic of China*

ปัจจัยที่มีความสัมพันธ์กับความพร้อมในการจำหน่ายจากโรงพยาบาลในผู้ป่วยโรคหลอดเลือดสมองในมณฑลเสฉวน สาธารณรัฐประชาชนจีน*

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Abstract

Readiness for hospital discharge is a characteristic of a successful health and illness transition from hospital to home. The purposes of this descriptive correlational study were 1) to study readiness for hospital discharge, the quality of discharge teaching, and care coordination among stroke patients; and 2) to explore the relationships between quality of discharge teaching, care coordination, and readiness for hospital discharge among stroke patients. The samples included 158 stroke patients admitted at neurological departments of three municipal tertiary hospitals in Sichuan province, the People's Republic of China, and they were purposively selected. The research instruments included the Data Recording Form, the Readiness for Hospital Discharge Scale (RHDS), the Quality of Discharge Teaching Scale (QDTS), and the Patient Continuity of Care Questionnaire (PCCQ). The reliability coefficients of the RHDS, QDTS, and PCCQ were 0.80, 0.88, and 0.81, respectively. Descriptive statistics and Spearman's rank-order correlation were used to analyze data.

The results of the study revealed that:

1. The overall score of readiness for hospital discharge among stroke patients was at a high level ($\bar{X}$ = 176.06, SD = 18.48), quality of discharge teaching was at a moderate level ($\bar{X}$ = 117.28, SD = 19.38), and care coordination was at a high level ($\bar{X}$ = 110.02, SD = 8.38).

2. There was a significantly moderate positive correlation between quality of discharge teaching and readiness for hospital discharge (r = .33, p = .000), and a significantly weak positive correlation between care coordination and readiness for hospital discharge (r = .23, p = .004).

The results of the study could be used baseline information for Chinese nurses to develop strategies to improve readiness for hospital discharge to facilitate stroke patients' hospital discharge.

Keywords: Readiness for hospital discharge; Quality of discharge teaching; Care coordination; Stroke patients

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บทคัดย่อ

ความพร้อมในการจำหน่ายออกจากโรงพยาบาลสู่บ้าน เป็นตัวชี้วัดถึงความสำเร็จของการเปลี่ยนผ่านด้านภาวะสุขภาพและความเจ็บป่วย งานวิจัยครั้งนี้เป็นการวิจัยเชิงสหสัมพันธ์ซึ่งมีวัตถุประสงค์เพื่อ 1) ศึกษาความพร้อมในการจำหน่ายจากโรงพยาบาล คุณภาพการสอนก่อนจำหน่าย และการประสานการดูแล ในผู้ป่วยโรคหลอดเลือดสมอง 2) ศึกษาความสัมพันธ์ระหว่างคุณภาพการสอนก่อนจำหน่าย การประสานการดูแล กับความพร้อมในการจำหน่ายในผู้ป่วยหลอดเลือดสมอง กลุ่มตัวอย่างประกอบด้วย ผู้ป่วยโรคหลอดเลือดสมองจำนวน 158 ราย ที่เข้ารับการรักษาในแผนกผู้ป่วยโรคระบบประสาทและสมอง โรงพยาบาลรัฐระดับตติยภูมิ 3 แห่ง ในมณฑลเสฉวน สาธารณรัฐประชาชนจีน กลุ่มตัวอย่างได้รับการคัดเลือกแบบเจาะจง เครื่องมือที่ใช้ในการรวบรวมข้อมูล ประกอบด้วย แบบบันทึกข้อมูลส่วนบุคคล แบบสอบถามความพร้อมในการจำหน่ายจากโรงพยาบาล (RHDS) แบบประเมินคุณภาพการสอนก่อนจำหน่าย (QDTS) และแบบสอบถามประสานการดูแลอย่างต่อเนื่องก่อนจำหน่ายจากโรงพยาบาล (PCCQ) ค่าสัมประสิทธิ์ความเชื่อมั่นของเครื่องมือ RHDS, QDTS, PCCQ เท่ากับ 0.80, 0.88, และ 0.81 ตามลำดับ วิเคราะห์ข้อมูลโดยใช้สถิติพรรณนา และสถิติ Spearman's rank-order correlation

ผลการศึกษาครั้งนี้พบว่า

1. คะแนนความพร้อมในการจำหน่ายออกจากโรงพยาบาลในผู้ป่วยโรคหลอดเลือดสมองโดยรวมอยู่ในระดับสูง ($\bar{X}$ = 176.06, SD = 18.48) คะแนนคุณภาพการสอนก่อนจำหน่ายในผู้ป่วยโรคหลอดเลือดสมองโดยรวมอยู่ในระดับปานกลาง ($\bar{X}$ = 117.28, SD = 19.38) และคะแนนการประสานการดูแลก่อนจำหน่ายออกจากโรงพยาบาลในผู้ป่วยโรคหลอดเลือดสมองโดยรวมอยู่ในระดับสูง ($\bar{X}$ = 110.02, SD = 8.38)

2. คุณภาพการสอนก่อนจำหน่ายมีความสัมพันธ์ระดับปานกลางทางบวกกับความพร้อมในการจำหน่ายจากโรงพยาบาลอย่างมีนัยสำคัญทางสถิติ (r = .33, p = .000) และการประสานการดูแลมีความสัมพันธ์ระดับต่ำทางบวกกับความพร้อมในการจำหน่ายจากโรงพยาบาลอย่างมีนัยสำคัญทางสถิติ (r = .23, p = .004)

ผลการศึกษาในครั้งนี้ สามารถใช้เป็นข้อมูลพื้นฐานสำหรับพยาบาลในประเทศจีนในการพัฒนากลยุทธ์เพื่อปรับปรุงการเตรียมความพร้อมก่อนจำหน่ายจากโรงพยาบาล และช่วยให้ผู้ป่วยโรคหลอดเลือดสมองจำหน่ายออกจากโรงพยาบาลได้อย่างสำเร็จ

คำสำคัญ: ความพร้อมในการจำหน่ายจากโรงพยาบาล คุณภาพการสอนก่อนจำหน่าย การประสานการดูแล ผู้ป่วยโรคหลอดเลือดสมอง

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Background and Significance

The situation of stroke is critical in the world, especially in China, where the latest age-standardized prevalence of stroke is statistically greater than that reported three decades ago (Wang et al., 2017). Furthermore, stroke may be the most serious threat to Chinese health within the next 20 years (Wang, Wang, Pen, & Xu, 2017).

At the time of discharge, stroke patients always maintain numerous deficits in physical and cognitive function (e.g., dysphagia, urinary and fecal incontinence, pain, hearing loss, and so on) which normally remain for a long time and bring complications, such as falls, joint contracture, anxiety, and depression. Those deficits are also statistically associated with stroke patients' social participation, psychosocial well-being, and quality of life (QoL) (Winstein et al., 2016).

In China, the hierarchical medical system is being conducted to manage stroke, where multidisciplinary cooperation focuses on hospitalization, follow-up program, and rehabilitation schemes concentrated on the post-discharge phase (Wang et al., 2016). However, only 25.93% of stroke patients received health services after discharge (Ru et al., 2013), the readmission of stroke patients in China is significantly higher than in several other countries (Miao, Zhao, Tu, Geng, & Yang, 2016). Overall, the poor management of stroke after discharge requires that stroke patients must have a good status before discharge (Ru et al., 2013).

Patients' status is always associated with the management in hospitals. Clinically, other than the discharge criteria which is frequently used, readiness for hospital discharge is also an essential characteristic (Galvin, Wills, & Coffey, 2017). Simultaneously, discharge teaching and care coordination are regarded as essentially important factors for preparing for patients' discharge from hospitals (Weiss et al., 2007). Previous studies reported discharge teaching and care coordination are the most strongly correlated factors of readiness for hospital discharge among many patients (Bobay, Jerofke, Weiss, and Yakusheva, 2010; Weiss et al., 2007). Accordingly, studying the perception of readiness for hospital discharge, quality of discharge teaching, and care coordination of stroke patients may be helpful for nurses to know stroke patients' state of discharge and experience of hospitalization. Besides, exploring the relationships between quality of discharge teaching, care coordination, and readiness for hospital discharge may be beneficial for nurses in order to facilitate stroke patients for successful discharge.

Nowadays, readiness for hospital discharge has become increasingly important for patients' safety, satisfaction, and outcomes (Weiss et al., 2007). Patients with poor readiness for hospital discharge face more adverse post-discharge issues, such as coping difficulties and increased health care utilization (e.g., ED visit, readmission) (Weiss et al., 2007; Weiss, Yakusheva, & Bobay, 2011). High readiness for hospital discharge indicates patients are in good discharge preparation and can avoid more negative consequences (Weiss et al., 2007). Besides, stroke is complicated by recurrence and post-discharge coping difficulty. Thus, determination of readiness for hospital discharge achievement among stroke patients is necessary to ensure successful hospital discharge.

Quality of discharge teaching is an essential component for nurses to prepare patients to discharge successfully (Weiss et al., 2007). Previous studies have examined improved discharge

teaching as significantly related to high satisfaction levels and decreased readmission (Anderson, 2017); weak quality of discharge teaching was associated with high post-discharge utilization costs and coping difficulties (Weiss et al., 2011). Thus, studying the quality of discharge teaching is beneficial for knowing stroke patients' perception of discharge teaching and predicting possible outcomes.

Care coordination was one priority area for health care quality improvement to benefit a broad array of patients (Corrigan & Adams, 2003). Claiborne (2006) supported that good care coordination helped stroke patients receive more benefits (e.g., cost savings, more social participation, and lower depression). Simultaneously, stroke patients with poor care coordination had decreased rates of discharge from long-term care facilities and increased 30-day mortality (Kapral et al., 2013). Therefore, studying care coordination among stroke patients during hospital stays is helpful for knowing their perceptions of care coordination and surmising the possible results.

From the literature, numerous studies found a significant relationship between quality of discharge teaching, care coordination, and readiness for hospital discharge among patients (Srirat & Panuthai, 2017; Suwan, Panuthai, Lasuka, & Khampolsiri, 2018; Suwan et al., 2016). However, no such study has been found among stroke patients. Furthermore, three existing studies (Green, 2013; Mukhoirotin, Khusniyah, & Kriswanto, 2016; Huang, Lin, Chang, Huang, Chen, & Yang, 2015) explored readiness for hospital discharge of stroke patients with the same instrument with different analysis methods in China, Indonesia, and the United States. Also, studies related to quality of discharge teaching and care coordination among stroke patients were not found.

Sichuan province is located in the southwest of China; Chengdu city is the capital of Sichuan province and has several levels of hospitals, national, provincial, and municipal, which stand as the general medical level of each city in this province. As stroke is also the leading cause of death in Sichuan province (Sichuan Province Bureau of Statistics, 2017), and studies related to readiness for hospital dishcarge and correlated factors among stroke patients in this area have not been found, it is necessary to conduct a study to fill this gap.

Objectives

This study aimed to explore:

1. Readiness for hospital discharge, quality of discharge teaching, and care coordination among stroke patients.

2.The relationships between quality of discharge teaching, care coordination, and readiness for hospital discharge among stroke patients in Sichuan province, the People's Republic of China.

Conceptual Framework

The conceptual framework of this study was based on Weiss et al.'s (2007) model of patients' transition from the hospital. Discharge from hospital to home is an illness transition, and the quality of discharge teaching and care coordination compose the nursing therapeutics that lead to readiness for hospital discharge to facilitate patients' successful hospital discharge. Readiness for hospital discharge refers to stroke patients' perception of their immediate state

and their abilities related to managing care needs in the home environment. There are four components of readiness for hospital discharge: 1) personal status, 2) knowledge, 3) coping ability, and 4) expected support. Quality of discharge teaching refers to stroke patients' perception of quality of discharge in preparation for discharge to home, in terms of the amount of content received and the skill of the nurses in delivering the content. Care coordination refers to stroke patients' perception of the management of care in terms of relationships in the hospital, information transfer, follow-up management, and communication management among several participants after chronic diseases to facilitate successful hospital discharge. Stroke patients with a high level of quality of discharge teaching and care coordination lead to a greater perception of readiness for hospital discharge. Accordingly, it is hypothesized that higher quality of discharge teaching and care coordination is associated with a greater perception of readiness for hospital discharge among stroke patients.

Methodology

This study was a descriptive correlational study conducted among stroke patients in Sichuan province, China.

Population and Sample

The target population of this study was stroke patients in Sichuan province, the People's Republic of China.

The sample of this study was stroke patients from three municipal tertiary hospitals in Chengdu City. Inclusion criteria included the following: ≥18 years; able to understand and speak Chinese language; cognitive ability intact, as determined by a score on the Mental State Questionnaire (MSQ) equal to or above 8 out of 10; and scheduled to be discharged home. The sample size was 158 calculated by Yamane's (1973) formula. The proportional stratified purposive sampling method was used for the sample selection from the neurologic departments of three municipal tertiary hospitals.

Research Instruments

The instrument for this study was a questionnaire consisting of five parts:

1. The Data Recording Form developed by the researcher, including demographic data (age, gender, educational level, religion, marital status, living status, insurance type, number of family members, and monthly family income) and clinical data (type of stroke, length of stay (LOS), whether patient had previous hospital admissions with the same or different diagnoses, activity of daily living: ADL).

2. The Modified Barthel Index (MBI) consisting of 10 items which measured ADL, with a high score indicating great independence (Min, Wu, & Yan, 2008).

3. The Readiness for Hospital Discharge Scale (RHDS)-Adult version was used to determine readiness for hospital discharge. It was developed by Weiss and Piacentine (2006) and translated into Chinese by Zhao, Feng, Yu, Gu, and Ji (2015). The 23 items included: the first item was a dichotomous yes/no question about whether patients perceived being ready for discharge; the last 22 numeric items consisted of items related to personal status (7 items), knowledge (8 items), coping ability (3 items), and expected support (4 items) with an 11-point numerical rating scale (0 = not at all, 10 = totally) and possible scores ranging from 0 to 220 (Low = 0-73; Moderate = 74-147; High = 148-220) (Kunthakhu, Watthannakitkrileart,

Pongthavornkamol, & Dumavibhat, 2009).

4. The Quality of Discharge Teaching Scale (QDTS) was used to determine the quality of discharge teaching. It was developed by Weiss and Piacentine (2006) and translated into Chinese by Wang, Wang, and Yang (2016). The 18 items included content received (6 items) and content delivery (12 items) with an eleven-point numerical rating scale (0 = not at all, 10 = a great deal or always). Possible scores ranged from 0 to 180 (Low = 0-60; Moderate = 61-120; High = 121-180) (Kunthakhu et al., 2009).

5. The Patient Continuity of Care Questionnaire (PCCQ); the before-discharge part was developed by Hadjistavropoulos, Biem, Sharpe, Bourgault-Fagnou, & Janzen (2008) and is used to measure care coordination. The 27 items include items were related to relationships in the hospital (7 items), information transfer (13 items), follow-up management (5 items), and communication management (2 items) with a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The possible scores range from 27 to 135 (Low = 27-63; Moderate = 64-100; High = 101-135) (Srirat & Panuthai, 2017). It was translated into Chinese by the researcher using the back-translation methods (Strickland, Lenz, & Waltz, 2005) without any modification.

The reliability of the instruments was tested with 15 stroke patients with the same inclusion criteria as the samples. These patients were excluded from the sample of this study. The reliability coefficients of the RHDS, QDTS, PCCQ were 0.80, 0.88, and 0.81, respectively.

Ethical Considerations

The study was approved by the Research Ethics Committee of the Faculty of Nursing, Chiang Mai University. Permission for data collection was obtained from the directors of nursing departments in the selected hospitals. All potential samples were provided with written and verbal information regarding the study purposes and processes, protection of confidentiality and anonymity, and the right to refuse, decline to participate or withdraw from the study at any time. All samples were asked to sign a written consent form by a written or thumbprint signature. Signed informed consent was obtained from all samples prior to entering the study.

Data Collection

Questionnaires, by reading with repetition but no explanation and recording answers, were used to collect data. By the day before discharge, the researcher had identified participants, read questionnaires, and recorded responses. Overall, a total of 176 stroke patients were eligible to participate in this study while 158 stroke patients (89.77%) agreed to participate in this study and provided 158 valid questionnaires.

Data Analysis

The data were analyzed using descriptive and inferential statistics at a 0.05 level of statistical significance. Spearman's rank-order correlation coefficient test was used to analyze the relationship between quality of discharge teaching, care coordination, and readiness for hospital discharge since data was non-normally distributed. The level of correlation was classified according to Burns and Grove (2010) ($r < 0.30$ = weak relationship, $0.30 \leq r < 0.50$ = moderate relationship, and ≥ 0.50 = strong relationship).

Results

1. Among the 158 stroke patients, half were female (51.27%) and aged from 32 to 94 with an average of 67.62 (SD = 12.37). The majority had a formal education (95.53%), had no religion (98.73%), and were married (84.18%). All participants were living with family members or caregivers (100%), most had urban medical insurance (91.14%), and monthly personal incomes were higher than CNY 2561 (89.87%). The number of family members ranged from 2 to 10 with an average of 4.70 (SD = 1.37).

2. Most participants were diagnosed with ischemic stroke (98.73%) and the LOS ranged from 7 to 34 days with an average of 13.16 (SD = 4.24). For 31.56% of the participant, there had been no previous hospital admission. Just over half (56.96%) of the participants were moderately dependent and needed some help in daily life, while 3.80% were heavily dependent, requiring full help in daily life.

3. Regarding readiness for discharge, 98.10% believed they were prepared for discharge, and the overall total score of readiness for hospital discharge was 176.06 (SD = 18.48) (Table 1). The overall total score of quality of discharge teaching was 117.28 (SD = 19.38) (Table 1). The overall total score for care coordination was 110.02 (SD = 8.38) (Table 1).

4. There was a moderate positive relationship between quality of discharge teaching and readiness for hospital discharge ($r = .33$, $p < .01$) (Table 2). There was a weak positive relationship between care coordination and readiness for hospital discharge ($r = .23$, $p < .01$) (Table 2).

Table 1 Actual score, mean, standard deviation, and level of readiness for hospital discharge, quality of discharge teaching, and care coordination as perceived by participants (n = 298)

Variable	Possible score	Actual score	$\bar{X}$	SD	Level
Readiness for hospital discharge	0-220	100-210	176.06	18.48	High level
Quality of discharge teaching	0-180	49-171	117.28	19.38	Moderate level
Care coordination	27-135	85-131	110.02	8.38	High level

Table 2 Spearman's rank-order correlation coefficient between quality of discharge teaching, care coordination and readiness for hospital discharge as perceived by participants (n = 158)

Total	r
Quality of discharge teaching	.33*
Care coordination	.23*

*$p < 0.01$

Discussion

1. Readiness for Hospital Discharge

In this study, 98.10% of the participant believed they were prepared at the time of discharge. One study done in a medical center in southern Taiwan reported 94.1% of patients with cerebrovascular diseases believed they were ready to go home when discharged (Huang et al., 2015). The possible reason for this result is that only 3.80% of samples were heavily dependent and needed full help in daily life, which has been found to be an inhibitor of discharge

preparedness (Chau et al., 2012). In contrast, 46.1% of the patients were heavily dependent and needed full help in daily life in the study by Huang et al. (2015). Thus, it might be the major cause for the difference between these two studies.

In this study, the total score of readiness for hospital discharge, as perceived by the participants, was at a high level ($\bar{X}$ = 176.06, SD = 18.48) (Table 1). This finding is consistent with previous studies among stroke patients in the United States (Green, 2013), and patients with cerebrovascular diseases in Taiwan, China (Huang et al., 2015).

Regarding the possible reasons for the high level of readiness for hospital discharge in this study, some demographic and clinical characteristics might be the reasons, such as educational level, marital status, living status, insurance, monthly personal income, and ADL. Firstly, 95.57% of the sample had a formal education; patients with high education have high readiness for hospital discharge (Huang et al., 2015). Second, 84.18% were married and might have been able to receive more support, resulting in a perception of good preparedness. Finally, only 3.80% of samples were heavily dependent, needing full help in their daily life, where high ADL has been found as a facilitator of perception of readiness (Chau et al., 2012). Another possible explanation might be the implementation of medical policy regarding stroke and the distribution of tertiary hospitals in Chengdu city, Sichuan province (Health and Family Planning Commission of Sichuan Province, 2018). The good implementation of referrals from a basic medical institute or secondary hospital to tertiary hospital increased the possibility of people receiving timely aid after a stroke, meaning that patients can recover better and achieve a good status by the time they are discharged (He, 2017). In addition, there are about 18 tertiary hospitals in Chengdu located in 5 districts. It is easy for patients to see a doctor when they encounter any problems. Thus, the participants might have confidence to be discharged to home. Overall, the above demographic and clinical characteristics, and the specific circumstances might be causes for the high level of readiness for hospital discharge in this study.

The reasons for the consistency of the levels of readiness for hospital discharge between this study and two other studies by Green (2013) and Huang et al. (2015) might be that comprehensive management of stroke is being conducted all over the world and this is mainly based on the AHA guidelines. Besides, Green's (2013) participants stayed at home or community hospitals to rehabilitate, while others in this study and in Huang et al. (2015) were discharged to home under similar discharge criteria. Therefore, this might cause the participants in these three studies to perceive the same level of readiness for hospital discharge.

2. Quality of discharge teaching

The results of this study showed the quality of discharge teaching of stroke patients at a moderate level ($\bar{X}$ = 117.28, SD = 19.38) (Table 1). This finding is inconsistent with previous studies among hospitalized patients in a tertiary hospital in Wuhan, China (145.93±29.51) (Wang et al., 2017), and in Chiang Mai, Thailand (146.01 ± 30.93) (Srirat & Panuthai, 2017), but consistent with Suwan et al.'s (2018) study among patients with COPD in 15 community hospitals in Chiang Mai, Thailand (104.28 ± 41.13).

Regarding possible reasons for the moderate level of quality of discharge teaching, a possible explanation is that patients might have received small amounts of teaching content.

Chen et al. (2011) reported existing nurse shortages and work overload result in nurses seldom teaching patients. Other possible reasons might include some of the demographic and clinical characteristics, such as age, living status, and previous hospital admission. Firstly, the mean age of all samples was 67.62 years (SD = 12.37). Older patients had more experience of hospitalization but received a low perception of discharge teaching, according to Liu, Huang, Li, and Yu (2016). Secondly, living with others (100%) might lead participants to mistakenly believe that other people would take care of them, leading to their ignoring the importance of teaching. Finally, 31.65% of patients had no experience receiving discharge teaching in the hospital. In conclusion, certain circumstances and several characteristics could have contributed to the patients' perception of a moderate level of quality of discharge teaching in this study.

Regarding the inconsistencies between this study and two previous studies by Wang et al. (2017) and Srirat and Panuthai (2017), a possible reason might be different diagnoses of the participants. Compared with other diseases, stroke patients need a longer duration to recover and more attention given to preventing stroke recurrence. Another possible explanation might be mild cognitive issues after stroke which may affect stroke patients resulting in short-term memory difficulties, which might influence patients' perception of quality of discharge teaching (Al-Qazzaz, Ali, Ahmad, Islam, & Mohamad, 2014). Therefore, the level of quality of discharge teaching in this study might differ from others.

Regarding the consistency between this study and the study by Suwan et al. (2018), the possible reason might be that all patients received discharge teaching from nurses both in tertiary hospitals and community hospitals. However, the impairment of both stroke and COPD might influence patients' cognitive function (Al-Qazzaz, Ali, Ahmad, Islam, & Mohamad, 2014) which could be a reason why the patients in these two studies perceived a moderate-level score on the quality of discharge teaching.

3. Care coordination

The result of this study was that care coordination, as perceived by stroke patients, was at a high level ($\bar{X}$ = 110.02, SD = 8.38) (Table 1). The findings in this study were inconsistent with Suwan et al. (2018) in which perceptions were at a moderate level (99.83 ± 16.60), but consistent with the study by Srirat and Panuthai (2017) (114.45 ± 17.66).

Regarding possible reasons for the high level of care coordination, one possible reason is that care coordination is a complex concept with some related aspects. In this study, it reflected patients' perceptions of several participants (e.g., family members, nurses, doctors, therapists) involved in facilitating the discharge. Accordingly, the perception of care coordination was not like the quality of discharge teaching which was directly based on nurses, but involved all the people who engaged in care management. Another possible explanation might be related to age, marital status, and previous hospital admission. In this study, participants had a mean age of 67.62±12.37 years; old age has been proven as a facilitator of high care coordination (Beesley et al., 2018). Besides, 84.18% of samples were married which has been confirmed as a support factor for care coordination (Beesley et al., 2018). Similarly, the 68.35% of patients who had experienced previous admission might have been able to perceive care coordination better, as shown by Beesley et al. (2018). Overall, these could be reasons why the participants perceived a high level of care coordination in this study.

As far as inconsistencies between this study and Suwan et al. (2018), possible reasons might be that the two studies were done in hospitals with different levels, and participants had significantly different LOS. There are many specialties in tertiary hospitals and multidisciplinary cooperation is emphasized more highly (Wang et al., 2016). Patients might be able to observe more healthcare providers coordinating together, thereby perceiving more favorable care coordination in tertiary hospitals. In contrast, with the limitations of human support, community hospitals are more focused on the general medical practitioner; thus, patients might see fewer healthcare providers and perceive less care coordination (Xu, 2017). Besides, the LOS in this study was 13.16 ± 4.24 days (range: 7-34), but the median LOS from Suwan et al. (2018) was 4.00 days (range :1-31). Thus, LOS might relate to care coordination and be the reason for the difference between these two studies.

In terms of the consistency of the level of care coordination between this study and the study by Srirat and Panuthai (2017) (114.45 ± 17.66) which was at a high level, a possible reason might be the conducting of multidisciplinary cooperation in tertiary hospitals. Patients can see lots of healthcare providers coordinate together to manage them, so they might feel like they are being taken care of by many participants (He, Li, & Li, 2016). Moreover, multiple healthcare providers also ensure the delivery of care for stroke patients. Therefore, patients might perceive higher care coordination in these two studies.

4. The relationship between quality of discharge teaching and readiness for hospital discharge

The result shows that there was a significant moderately positive correlation between quality of discharge teaching and readiness for hospital discharge ($r = .33$, $p < .01$) (Table 2). This result is congruent with previous studies in different contexts, for example Bobay et al. (2010) in a western country, Suwan et al. (2016) and Srirat and Panuthai (2017) in Thailand, and Zhou and Fang (2017) in China.

This finding can be explained by Weiss et al.'s (2007) model of patients' transition from the hospital, as discharge teaching was a hospital strategy to improve patients' transition condition which was manifested as readiness for hospital discharge. If there is a higher amount of discharge teaching content with professional delivery skills, the immediate state and abilities will also be higher.

Regarding discharge teaching for hospitalized stroke patients, nurses play an essential role in providing integrated and valid health education, in which self-care knowledge and skills, during both pre- and post-discharge, were included. Besides, discharge-teaching delivery influences stroke patients' reception of discharge-teaching content, and the effectiveness of discharge teaching during hospitalization. Therefore, from the combination of content received and content delivery, the quality of discharge teaching is an influencing factor on readiness for hospital discharge among stroke patients.

5. The relationship between care coordination and readiness for hospital discharge

The results of this study showed that there was a significant weak positive relationship between care coordination and readiness for hospital discharge ($r = .23$, $p < .01$) (Table 2) which is consistent with previous studies among different samples by Suwan et al. (2016) and Srirat and

Panuthai (2017) in Thailand.

This result could be explained by Weiss et al.'s (2007) model of patients' transition from the hospital, which stated that care coordination was a strategy in hospitals to assist patients in preparing for discharge. Through a series of activities by different healthcare providers involved to meet patients' needs, care coordination helps patients improve their personal status, knowledge, coping ability, and expected support, resulting in successful discharge from the hospital.

Regarding care coordination in terms of relationships in hospitals, information transfer, follow-up management, and communication management, the findings could be explained by the fact that patients received care via multidisciplinary cooperation in the hospital. The team normally includes physicians, nurses, therapists, and other professionals. Nurses in hospitals always play an essential role in health education and in coordinating the discharge planning activities with other healthcare providers. The patients normally receive oral discharge instructions and other printed instruction sheets to improve their self-care ability. In addition, knowledge about symptoms observation, medication usage, diet, excretion, and other topics are always delivered by nurses in the clinic. This coordination reveals the management of care regarding relationships, information, follow-up, and communication during hospitalization, as well as improving stroke patients to be prepared for discharge.

Conclusions

The results of this study showed that stroke patients perceived a moderate level of quality of discharge teaching, and a high level of care coordination and readiness for hospital discharge; a moderately positive relationship between quality of discharge teaching and readiness for hospital discharge; and a weakly positive relationship between care coordination and readiness for hospital discharge among stroke patients in Sichuan province, China.

Implications of Research Findings

Clinical nurses need to provide an optimal amount of discharge teaching using their professional skills and coordinating with other healthcare providers to facilitate stroke patients' successful hospital discharge, thereby improving their readiness for discharge. Nursing researchers can utilize the results of this study as basic information about predictive research among patients in healthcare settings. Nursing educators can use the results of this study as basic information regarding stroke patients for future teaching among nursing students.

Recommendations for Further Research

Regarding this study's findings, recommendations for further research include conducting descriptive studies on readiness for hospital discharge among hemorrhagic stroke patients and stroke patients in hospitals with different levels.

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