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ORIGINAL RESEARCH

Interdisciplinary Shadowing and Case Discussion Improve Medical Students' Self-Efficacy and Attitude Toward Discharge Planning

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Background: The Discharge Planning Curriculum (DPC) is a 4-hour course for penultimate-year medical students at a tertiary teaching hospital in Taiwan. The course begins with a 30-minute introduction, followed by the students shadowing discharge planning case managers as they visit patients on the wards. After patient visits, the students engaged in a 1-hour case discussion. Our research assessed the effectiveness of the DPC for medical students.

Methods: This mixed methods study recruited medical students participating in family medicine rotations between October 2017 and May 2018. To determine the impact of the DPC, we quantitatively analyzed questionnaire responses to measure changes in self-efficacy, attitude toward discharge planning, and course satisfaction before and after completing the DPC. Additionally, we conducted qualitative focus group interviews to gain insight into the students' learning experiences and applied thematic analysis to the interview data.

Results: Our study found two quantitative results: 1) The DPC significantly improved self-efficacy and attitude toward discharge planning ($p < 0.001$). 2) The medical students acquired knowledge about home care, assistive device application, long-term care facility referral, home rehabilitation, and home care services, and more than 95% of the students reported being satisfied with the course. In addition, the focus group interviews revealed that medical students learned several aspects of discharge planning through the curriculum, including an understanding of various aspects of discharge planning through the curriculum, the importance of early discharge planning, the roles of doctors and case managers, and the challenges faced in the process.

Conclusion: The DPC helped medical students understand different team members' roles in discharge planning and appreciate the challenges that case managers face in this process. The DPC improved medical students' attitudes toward discharge planning. The curriculum can be a valuable tool in training future healthcare providers in effective transitional care.

Keywords: continuity of patient care, curriculum evaluation, interdisciplinary training, patient discharge, undergraduate medical education

Background

Discharge planning is an essential part of care transition. It is a systematic and dynamic process involving evaluation, preparation, and coordination. Its aim is the development of an individualized discharge plan ensuring that each patient has continuing care and follow-up that meets the patient's postdischarge needs.[1,2] Effective discharge planning yields benefits for patients, including decreases in length of hospital stay and readmission rates.[3]

Discharge planning case managers, nurses, social workers, and physicians play essential roles in patient discharge. These health-care professionals' knowledge, awareness, and motivation regarding discharge planning are critical to the success of service delivery,[4,5] especially with regard to physician support and engagement.[2,6] Physicians are expected to perform safe and effective transitions of care, which is one of the subcompetencies in system-based practice.[7] In addition, the Ministry of Health and Welfare of Taiwan has continually promoted a long-term care policy, under which physicians

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are expected to practice discharge planning and provide long-term care services.[8] However, many physicians are not adequately prepared to perform transitional care tasks.[9–11] Hospital-provided training courses can improve physicians' performance and attitudes toward discharge planning.[10,12] A nationwide survey in the United States revealed that few internal medicine residency programs provide a formal discharge planning curriculum (DPC).[13] In Taiwan, discharge planning training is mandatory in the Postgraduate Year General Medicine Training Program but not in clerkship programs.[14]

Most medical students are involved in discharge tasks early in their clerkship.[15] If medical students receive formal transitional care training, they can better understand the physician's role in care transitions, enabling them to practice discharge planning when they become resident doctors.[10,15] A literature review revealed that several medical schools in the US provide discharge planning training to third- and fourth-year medical students in internal medicine clerkships. These schools use didactic sessions, experiential learning, postdischarge home visits, and group discussions to improve their students' self-efficacy in, appreciation of, and attitudes toward discharge planning.[16–19] Most of these courses are conducted during subinternships or internships. Discharge planning training begins early during their clerkship. Thus, we created an experience-based learning program for discharge planning for penultimate-year medical students. This study examined the program's effects on student knowledge, self-efficacy, and attitudes toward discharge planning and investigated student learning experiences.

Methods

Discharge Planning Curriculum

The DPC aimed to introduce medical students to the following: the practice of discharge planning, patient and family needs for care transitions, the roles of discharge planning team members, and the importance of discharge planning. The DPC was taught to medical students undertaking family medicine clerkships in an urban tertiary teaching hospital. Family medicine is one of the core clerkship areas for fifth-year (penultimate-year) medical students, with a total of 2 weeks of rotation required. The DPC involved a 4-hour introductory course, with 3 hours dedicated to interdisciplinary inpatient visit shadowing and 1 hour to case discussion. The preceptor was a family physician, and the assistant preceptor was a discharge planning case manager with a background in nursing. Following a 30-min introduction, the students were divided into groups of 2 or 3 to shadow discharge planning case managers visiting patients in wards. Each student was asked to complete a patient visit record, which included a summary of the patient's medical condition, functional level, behavioral status, cognition, support system, financial status, and discharge disposition plan and the needs of the patient and their family. After patient visits, the students participated in case discussions for 1 hour. During discussions, the students gave briefings on the patients they visited. The family physician guided the students to identify the patients' needs for care transition and develop a discharge plan, followed by informing patients of the services provided by the discharge planning case manager.

Before completing the DPC, the students attended a 2-hour lesson on postacute and long-term care, which was part of the preclerkship family medicine curriculum for the fourth year of medical school. The lecture helped medical students develop their factual and conceptual knowledge regarding transitions of care, enabling them to understand postacute care and long-term care systems. When focusing on understanding these systems, the students came to accord greater importance to these elements.[20] The DPC, however, helped the students to develop conceptual and procedural knowledge, enabling them to understand the operation mode of clinical service transitions and apply assessment methods to determine patient care needs. Because the students took this course, when they later embarked on their internships, they were expected to assess patient needs in care transitions prior to hospital discharge and collaborate with interdisciplinary teams.

Study Methods and Tools

This study was conducted from October 2017 to May 2018 using a mixed methods design.

In the quantitative section of the study, a one-group pretest–posttest study design was used and data were collected from the participants before and after completing the DPC using self-developed questionnaires. The questionnaires were reviewed in expert meetings (including two nurses and three family physicians) and revised

according to the experts' feedback. All questions were based on a 6-point Likert scale (*strongly disagree, disagree, somewhat disagree, somewhat agree, agree*, and *strongly agree*). The pretest questionnaire included 10 self-efficacy -related questions and 4 attitude-related questions. The posttest questionnaire included the questions from the pretest questionnaire, one additional question about course content, and three additional questions about course satisfaction. IBM SPSS 22.0 was used for statistical analysis. A paired *t*-test was used to analyze the self-efficacy-related and attitude-related data collected before and after course completion. A P value <0.05 indicated significance.

The qualitative part of the research involved focus groups where participants discussed their participation in discharge planning visits and what they learned through experience and content sharing in case discussions. Convenience sampling was used to recruit participants undertaking family medicine clerkships. During recruitment, the study assistant explained the purpose of the interviews to the participants. Participation in interviews was voluntary, with participants receiving vouchers for their time, and those who did not participate were assured that there would be no bearing on their clerkship grades. Three focus groups were conducted from March to April 2018. The host of the interviews was a family medicine doctor. Each interview lasted between 40 and 50 minutes. In total, 29 students participated in focus groups and were divided into three groups of 9 to 10 members each. Interviews were transcribed and analyzed by researchers using thematic analysis, and the study team discussed the results.

Study Ethics

This study was conducted according to the guidelines of the Declaration of Helsinki and approved by the Institutional Review Board of the Tri-Service General Hospital, Taipei, Taiwan (TSGHIRB 1–107-05-007). Written informed consent for publication was obtained from each participant.

Results

Questionnaire Analysis

One hundred and thirteen medical students finished this curriculum. The questionnaire response rates in pretest and posttest were 76.1% and 70.8% respectively. The pretest and posttest scores indicated an increase in medical students' self-efficacy for discharge planning (Table 1). The average total scores for self-efficacy were 31.85 ± 8.75 in the pretest and 50.68 ± 7.61 in the posttest, indicating a significant improvement ($p < 0.001$). In addition, students' attitudes toward participation in discharge planning improved after course completion (Table 2). The average scores for attitude were 19.00 ± 2.98 in the pretest and 21.99 ± 2.99 in the posttest, with the posttest score exhibiting a significant improvement ($p < 0.001$).

Table 1 Medical Students' Self-Efficacy Before and After Completing the Discharge Planning Curriculum[a]

Questions	Pretest (n = 86) Mean ± SD	Posttest (n = 80) Mean ± SD	P value[b]
S1. I am aware of the appropriate time to initiate discharge planning for patients	3.01 ± 1.06	4.94 ± 0.88	<0.001
S2. I know which patients are at high-risk and require discharge planning services	3.16 ± 1.12	4.95 ± 0.87	<0.001
S3. I know which professionals must be involved in discharge planning	2.99 ± 1.12	5.14 ± 0.85	<0.001
S4. I know the doctor's role and responsibilities in discharge planning	3.28 ± 1.04	4.98 ± 0.86	<0.001
S5. I am familiar with the roles and responsibilities of other professionals involved in discharge planning	3.00 ± 1.08	4.94 ± 0.92	<0.001
S6. I know how to evaluate patients' disability or tubes	2.85 ± 1.08	4.88 ± 0.83	<0.001
S7. I know how to evaluate patients' post-discharge care needs	2.85 ± 1.02	4.86 ± 0.85	<0.001
S8. I am familiar with long-term care resources and services for patients after discharge	2.95 ± 0.99	5.01 ± 0.82	<0.001
S9. I know which patients should be referred for post-acute care	2.88 ± 0.95	4.79 ± 0.94	<0.001
S10. I know how to seamlessly connect patients to community-based long-term care after discharge	2.91 ± 0.93	4.89 ± 0.80	<0.001
Self-efficacy total score	29.88 ± 8.39	49.36 ± 7.24	<0.001

Notes: [a]Using 6-point Likert scale (1 = strongly disagree, 6 = strongly agree). [b]Results of paired *t*-test.

Table 2 Medical Students' Attitudes Toward Discharge Planning Before and After Completing the Discharge Planning Curriculum[a]

Questions	Pretest (n = 86) Mean ± SD	Posttest (n = 80) Mean ± SD	P value[b]
A1. Discharge planning is very helpful to patients and their family members	4.85 ± 0.98	5.56 ± 0.91	<0.001
A2. Nurses are responsible for discharge planning. Doctors are not required to participate[c]	4.93 ± 1.03	5.55 ± 0.90	<0.001
A3. Discharge planning should begin soon after the patient is admitted to the hospital	4.58 ± 0.84	5.31 ± 0.96	<0.001
A4. If patients require long-term care, their family members and they will hope that they can receive it seamlessly after discharge	4.86 ± 0.88	5.38 ± 0.96	<0.001
Attitude total score	19.21 ± 2.80	21.80 ± 3.25	<0.001

Notes: [a]Using 6-point Likert Scale (1 = strongly disagree, 6 = strongly agree). [b]Results of paired *t*-test. [c]Negatively worded question, where scores were calibrated.

Regarding what participants gained the most knowledge about during their course (Table 3), more than 60% mentioned home care, assistive device application, long-term care facility referral, and home rehabilitation. The most common long-term care procedures encountered by students during their discharge planning clerkships were home care

Table 3 Medical Students' Feedback Regarding the Discharge Planning Curriculum

Questions	Posttest (n = 80) n,%	
Q1. What have you learned about long-term care or community-based care resources (you can choose more than 1 item)		
Home care	75	93.8
Assistive device application	73	91.3
Long-term care facility referral	61	76.3
Home rehabilitation	56	70.0
Home services	50	62.5
Transportation services	45	56.3
Home respite care	41	51.3
Post-acute care	39	48.8
Disability certification application	37	46.3
Foreign care worker application	32	40.0
Home nutrition	27	33.8
Q2. Satisfaction from course content		
Strongly dissatisfied	0	0
Very dissatisfied	0	0
Neutral	3	3.8
Satisfied	23	28.8
Very satisfied	54	67.5
Q3. Satisfaction from preceptors' teaching		
Strongly dissatisfied	0	0
Very dissatisfied	0	0
Neutral	1	1.3
Satisfied	17	21.5
Very satisfied	61	77.2
Q4. Course hours planning		
Too few	0	0
A bit few	1	1.3
Just enough	75	93.8
A bit many	4	5.0
Too many	0	0

(98.3%), assistive device application (91.3%), and long-term care facility referral (76.3%). A proportion of 96.3% of students were satisfied with the course content, 98.7% were satisfied with the lecturers' teaching, and 98.8% were satisfied with the number of hours in the course.

Focus Group Analysis

During focus groups, medical students stated that they participated in discharge planning visits where they practically observed communication between the case manager and patients or family members, enabling them to understand the timing to begin discharge planning, the doctor's responsibilities, and the case manager's role and their difficulties. Consequently, they better appreciate the importance of discharge planning.

Understanding the doctor's role in discharge planning: The students learned that assessment and discharge planning should begin as soon as a patient is admitted. In addition, for patients with tubes, with disabilities, on a ventilator, or needing wound or long-term care, doctors should discuss discharge planning with the patients and their families.

> When a patient is hospitalized. The resident doctor should have a plan for the patient's transitional care. …They [resident doctors] should be able to tell whether the patient has sufficient family support 3–5 days after admission, whether the patient needs additional support, and what items the patient needs for transitional care. …Which [discharge planning] should probably begin on the day the patient requires it. (Group 3, student 2)

> When a patient is transferred from a respiratory care center [acute care] to a respiratory care ward [long-term care], …there must be some discussion of the patient's transitional care. (Group 3, student 3)

> When we change dressings or tubes, we can teach the patient's family members how to take care of the tube and wound simultaneously. When the patient is still in the hospital, we can instruct them on how to properly take care of things like changing the stoma regularly. (Group 2, student 3)

Understanding the case manager's role and the difficulties they face in discharge planning: Medical students who participated in discharge planning visits observed how the case manager collected patients' information, assessed their care needs, and provided resource referral services to patients and their family members, gaining understanding of the responsibilities of the case manager.

> The case manager visits patients when they are admitted and introduces long-term care resources to them, making the case manager a helper to patients. Long-term care is a financial burden. It is very helpful to inform patients about available resources for their subsequent care. The resident doctor takes care of patients' health-care needs when they are hospitalized. When it comes to postdischarge care needs, the case manager helps them. (Group 1, student 3)

During their visits, some students observed that other medical staff or patients treated the case manager disrespectfully. The students believed it was the doctor's responsibility to introduce the health-care team members to patients for patients to better understand what their domain of expertise is.

> It seems that the case manager was not treated with respect by other staff. …We felt sorry for the case manager because she appeared to be alone in the team. (Group 2, student 6)

> They [patients] were impolite to the case manager. I do not think the case manager was treated respectfully. It is important that patients understand that we are a team and that each team member has different duties and is equally important. (Group 3, student 5)

> We can also inform the patient that we will arrange for a case manager to meet with them. This lets the patient's family members know that someone will inform them about the patient's transitional care. (Group 2, student 2)

Affirming the importance of discharge planning: Through patient visits with the discharge planning case manager, participants learned that it is important for patients to be connected with long-term care services before they are discharged, ensuring continuity of care.

> I think that most family members do not plan for the time after patients are discharged. Thus, we must find a way to remind these family members so that they, like those who are already aware, can keep discharge planning in mind. (Group 1, student 2)

> It is just that patients are unaware of resources and their family members do not know how to access resources. I think it is important to provide patients with this information. (Group 2, student 2)

> We can tell patients where they can get help and how to handle their situation. The goal is to reassure patients that these issues can be handled in this manner, which will alleviate their concerns. …Patients will feel more at ease if you tell them directly what they are going to face and that we are here to help. (Group 3, student 8)

The students realized that effective discharge planning positively affects patients and their families. In addition, the DPC caused medical students to acknowledge the physician's role in care transition.

> Indeed, discharge planning is important for patients' subsequent care. This curriculum will help medical students who want to become doctors in the future to understand how important discharge planning is and what work is involved. (Group 1, student 1)

> During admission, we have to help patients by alleviating pain and curing them. We also need to pay attention to the difficulties they face after discharge. …We have to look after their in-hospital and postdischarge conditions. (Group 2, student 1)

Discussion

In this study, medical students improved in their self-efficacy and willingness to practice discharge planning after participation in inpatient visits and case discussions. More than 90% of participants were satisfied with the DPC. In focus groups, students demonstrated that they understood when to initiate discharge planning, the doctor and case manager's role in discharge planning, and the importance of discharge planning.

Discharge planning services aim to connect patients' acute care with postacute or community-based long-term care, ensuring a safe and seamless transition of care and the provision of high-quality health-care services.[21] Insufficient knowledge among physicians or other health-care professionals regarding hospital discharge planning is a problem.[4,5,9,10,22] Focused educational interventions can improve attitudes and skills pertaining to the transition of care.[23,24] Studies have demonstrated that medical students engaged in inpatient discharge planning activities have improved knowledge, confidence, and participation in the transition of care.[16–18] In this study, students exhibited significant improvements in their self-efficacy regarding patient assessment and collaborating with other professionals.

When patients are admitted, their doctors should arrange for interdisciplinary team care and discharge planning services as soon as possible. However, physicians in Taiwan tend to adopt a passive attitude.[14] Moreover, the role of physicians in discharge planning is unclear.[14] The involvement of doctors is essential to providing high-quality discharge planning, which demonstrates the importance of medical students and young residents participating in discharge planning.[6] The doctor's familiarity with discharge planning is crucial because the doctor is a critical member of the team. The attitude and performance of each team member are critical in the successful provision of discharge planning; this includes doctors, nurses, and social workers.[25] In this study, medical students exhibited significant improvements in their attitudes toward discharge planning and an increased appreciation of its importance after having undergone the curriculum.

Discharge planning case managers coordinate work across disciplines and settings, and between care providers and patients. In most Taiwanese hospitals, case managers are frequently asked to perform additional duties outside of discharge planning.[26–28] Their turnover has increased due to heavy workloads, low salary security, and unclear work benefits.[29] During inpatient visit shadowing in this study, medical students observed that the case manager was not treated respectfully by patients and that the relationships among health-care team members were not strong. This was unexpected. Interdisciplinary shadowing provided students with opportunities to understand the roles of different professionals, learn about the importance of communication in discharge planning, and gain respect for professionals in other disciplines.[30,31] Our findings are consistent with those of previous studies. In focus groups, medical students reflected on their negative experiences. They learned about collaborating in an interdisciplinary team, including about

team members' roles and how they work together, and gained a deeper understanding of their responsibilities as a professional health-care provider.

This study has several limitations. First, this study did not evaluate medical student knowledge and skills in discharge planning. Before beginning clinical clerkships, participants attended class-based lectures on discharge planning and long-term care. This course aimed to improve their understanding of discharge planning through experiential learning. Because of the course's time constraints, this study did not include direct observation of participant clinical performance in discharge planning. Second, because the patients visited were not selected beforehand, participants might have visited different patients from each other when taking ward rounds with the case manager, resulting in different learning experiences among participants. Medical students benefit more from consistent learning content if they participate in case discussions guided by one physician. However, in cases such as doctor–patient conflicts or disrespectful treatment of the case manager, it is impossible to ensure that every student has the same experience.

Conclusion

This study used various intervention methods, including lectures, experiential learning, and group discussion to improve medical students' understanding of discharge planning and help them better appreciate its importance. If medical students undertaking their fifth-year clerkship are provided with courses on discharge planning, they are more capable of practicing transitions of care and helping patients with disabilities receive care after discharge. This curriculum can be used as a reference for medical student education in Taiwan.

Abbreviations

DPC, discharge planning curriculum.

Data Sharing Statement

The datasets generated and/or analyzed during the current study are available from the corresponding author on reasonable request.

Ethics Approval and Consent to Participate

This study was approved by the Institutional Review Board of the Tri-Service General Hospital, Taipei, Taiwan (TSGHIRB 1-107-05-007). Written informed consent including publication of anonymized responses was obtained from all participants.

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Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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Disclosure

The authors report no conflicts of interest in this work. The authors alone are responsible for the content and writing of this article.

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