RESEARCH COMMUNICATION

Development and Area Adaptation of Flow Charts Related to Gynecologic Oncology Nursing Practices

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Abstract

Aim: This one group semi-experimental study was performed to develop and adapt flow charts of nursing practices applied to gynecologic oncology patients to the field. Methods: The research was conducted between October 2008 and March 2009 in 6 hospitals in Istanbul (3 health ministry hospitals, 2 private hospitals and 1 university hospital) with effective programs. The scope of the study included 97 midwives/nurses who had been working as caregivers of gynecologic oncology patients in this unit at least for 6 months and who participated in this study voluntarily; 87 people composed the sample because of the absence of others on vacation or sick leave when the data were collected or who did not wish to participate. The data were in descriptive information form collected via "Forms to Determine the Efficiency of Flow Charts". Before data collection, risks related to gynecologic oncology problems were identified, a literature scanning was made for existing flow charts based on actual practices and the discovered charts were reviewed. As a result of the evaluations, it was decided to create 15 flow charts intended for risks, symptoms, operation processes and discharge. Questionnaires to determine activity were applied to participants before and after practice. Results: As a result of the study, it was determined that the efficiency of the flow charts increased significantly ($p < 0.01$) after practice of the participants, nosignificant relationships ($p > 0.01$) being apparent with age group, education level, occupational period in the job and in the gynecologic oncology field and evaluations of the practice before and after it was applied. Conclusion: The results of the study revealed that nursing participants in university and private hospitals and who supported the existence of a flow chart in the field evaluated the flow charts positively.

Keywords: Flow chart - gynecologic oncology - care standards - nursing approach

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Introduction

The diagram showing the specific steps in a process with graphic symbols is called a "Flow Chart". Various steps in a process are defined by using a flow chart and it is also made sure that all of the work provided is understood by everyone. Creating a flow chart gives the opportunity to look at the necessary steps to be taken in a particular process more closely. Flow charts contribute in determining who and how to join in the process, and they also help in identifying the areas that need more improvement. The main purpose for creating flow charts is to ensure understandability of the events determine the areas for possible future development (Bektas, 1997; Veyisoglu et al., 2000, Wong et al., 2000; Biff et al., 2001; Shargh et al., 2005).

In our country, certain occupations are largely independent in defining and identifying the limits of the functions in their scope. However, limits of the nursing profession are yet to be determined. Today, as in all areas of the field of health, the place of the standardization in nursing services is also clear. While working with standards is a part of daily life in developed countries, its importance has recently begun to be appreciated in our country (Nural, 1992; Gombul, 1993; Yilmaz, 2001).

Nurses should develop the standards in their own area of practice in the areas of quality, determine these standards on behalf of the cost-effective care, inspect and evaluate these standards and continously develop these determined standards in their area for our country to reach its objective of making nursing education and service equal to the European Union (EU) standards (Das, 1999; Unlu, 1999). Standard provides visual support in the nursing care in forms of care maps and flow charts and makes these flow charts appear more clearly without missing any step in the nursing care services. Creation of standards towards nursing practice and flow charts gaining interoperability will meet the needs of an effective, timely, patient-employee satisfying, limited, goal-achieving and measurable nursing care services. Standard provides visual support in the nursing care in forms of care maps and flow charts and makes these flow charts appear more clearly without missing any step in the nursing care services.

Cancer, due to the disease itself and the adverse effects of its treatment is a long and difficult period for health professional caring for these patients. In the complete

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and timely evaluation of the symptoms occurring in this process and giving an effective, timely, patient-employee satisfying, limited, goal-achieving and measurable nursing care services, systematic approach is important. This study was planned as a single grup half-experimental study in order to develop the flow charts given to the oncology patients and adapt these charts to the field. Flow charts developed and adapted to the area of the nursing field are thought to be a resourceful guide for the nurses, nursing students and academicians working in the field.

Materials and Methods

Aim and research type

This study was planned as a single grup half-experimental study in order to develop the flow charts given to the oncology patients and adapt these charts to the field.

Place and time of the study

This study was carried out between 13.10.2008-13.03.2009 in 6 hospitals serving in the Anatolian and European sides of Istanbul (3 Ministry of Health Hospitals, 2 Private Hospitals, 1 University Hospital) after the necessary permission was obtained from the nursing services directorates and the Health Ministry.

Hospitals included in the context of the study have an important place due to the size of the massess they were giving service in both the Anatolian and European sides of Istanbul the effective nursing programs they were implementing. Nursing services were given in an effective way in all of the hospitals included in our study and nurses working in this field were an important member of the health care team.

Universe and sample of the study

The number of nurses working in the gynecologic oncology services in the hospitals included in the study was 98. The sample of the study was formed by the nurses working in the gynecologic oncology services of the hospitals from which data was collected in the time frame of this study.

The criteria for nurses to be included in the study sample were; 1. To be giving service to the gynecologic oncology patients. 2. To be working in the gynecologic oncology services for at least 6 months. 3. To be voluntary participants.

Study was conducted on the entire sample without going on the choice of sample and 87 nurses were included in the study. Figure 15 shows the distribution of the nurses included in the sample according to the hospitals. 4 nurses, due to having a report/being on leave between the dates of data collection, 4 nurses, due to working for less than 6 months in the gynecologic oncology, and 3 nurses, due to not willing to participate, were excluded from the study.

Data collection tools of the study

The data obtained from the study was evaluated by using questionnaires formed by the researchers by using literature review and the clinical practice and experiences of the clinical staff.

Nurse-Midwife Information Questionnaire

Nurse-Midwife Information Questionnaire; is a questionnaire prepared by the researcher to determine the socio-demographic features and the opinions of the nurses towards the standart nursing care applications. Questionnaire consists of 23 questions in total; 11 questions related to the socio-demographic structure and 12 questions related to the standart care applications in nursing.

Nurse-Midwife Information Questionnaire was applied in the first interview which is also the first introduction. Permission was taken from the nurses in gathering data.

Determination of the Effectiveness of the Flow Charts Questionnaires

Determination of the Effectiveness of the Flow Charts Questionnaires were formed by the researchers in order to determine the benefits obtained by nurses from using flow charts during applications and the effectiveness of these flow charts in nursing care by examining the related literature and considering the nursing process and PDCA cycle; it is a questionnaire with 4-sub groups (planning pahse, application phase, evaluation phase, general review phase), consisting of 17-items with 4-evaluations. There are 4 questions in the "planning phase", 6 questions in the "application phase", 5 questions in the "evaluation phase" and 2 questions in the "general review phase" which form the sub-groups of the questionnaire. The effectiveness of the flow charts was evaluated by using scores from "1" to "4" (4:Too much, 3: Partial, 2: A little, 1: Never). Higher score meant higher effectiveness of the flow charts.

First, evaluations of the nurses about the flow charts were measured in the pre-application period. This measurement was made for four seperate phases of the flow charts: planning, application, evaluation and review phases. Moreover, a general evaluation score was calculated based on these entire dimensions. In the post-application period, the change in the perceptions of the nurses related to the flow charts was examined by applying a second questionnaire.

Data collection method

Before the start of the data collection, nursing services directorates were interviewed and necessary permissions were taken. The data collection of the study was started after the consent from the Marmara University Medical Faculty Research Ethics Board. Before the questionnaire was applied, written consent was taken from the nurses stating that they have agreed to participate in the study.

Study design

1.phase: Formation of the flow charts, a)Resources related to the study topic were reviewed. b) Risks-problems related to the gynecologic oncology problems were determined and classified. c) Literature review was made in order to determine whether the standard nursing applications towards the determined risk-problems and flow charts exist. d) Charts found as a result of the review were examined and flow chart formation studies were started for the development and organization of the charts. e) As a result of the evaluations made, three flow charts

related to the risk in the field of gynecologic oncology; eight flow charts related to the symptoms caused by the chemotherapy; and four flow charts related to patient discharge; meaning 15 flow charts in total were decided to be formed. f) Flow charts were reviewed with the advisory faculty member and after the necessary additions and corrections were made, they were given their final shape to be presented to the views of the nurses working in the clinics.

2. phase: Application of the flow charts; A) First application (November 2008- January 2009) 1. Pilot application was made on 5 nurses to determine the understandability and the application time of the survey questions. The data obtained from this group was not included in the context of the research. 2) Before the start of the data collection, nursing services directorates were interviewed and a meeting date was set for the explanation of the aim of the study and the application of the nursing information questionnaire and the determination of the effectiveness of the flow charts questionnaire. 3) A short presentation was given at the meeting for the nurses attending at the predetermined data and time. Nursing information questionnaire and the determination of the effectiveness of the flow charts questionnaire were given one by one to the nurses in order for them not to be affected from eachother's views. They were asked put a sing/nickname they can remember later on these questionnaires and then the questionnaires were collected. 4) Flow charts formed by the researchers were given to the nurses who have filled the survey and they were asked to evaluate each flow chart independantly without being affected from eachother's views and to write the corrections/suggestions which they think is necessary to be made. 5) Nurses were given a time period between 1 week and 1 month to examine the charts and write the corrections/suggestions which they think is necessary to be made. 6) Flow charts which were taken back from the nurses were examined one by one and the corrections/ suggestions which nurses thought are necessary to be made were evaluated and the final shape was given to the charts after they were reviewed in the light of these data and necessary revisions were made.

B. Second application (February-March 2009); 1. Finalized flow charts were given to the nurses who have previously joined the first application again and they were asked use each of these flow charts at least for once in their nursing care application in a time period of 2 weeks and 1 month. 2) Determination of the effectiveness of the flow charts questionnaire was reapplied to the nurses who have previously joined the study by going to the hospitals at the end of this 2 week-1 month time period and the flow charts were collected back from the nurses.

Table 1. Evaluation of the Participants According to the Phases of the Flow Chart Process (n:87)

	Mean	n	Std. Deviation	Std. Error	Statistical test (p)
Planning phase					
Pre-Application	3.4828	87	0.54824	0.05878	t = -6.448
Post-Application	3.8448	87	0.2648	0.02839	p= 0.000
Application phase					
Pre-Application	3.3621	87	0.57015	0.06113	t = -8.331
Post-Application	3.7931	87	0.27252	0.02922	p= 0.000
Evaluation phase					
Pre-Application	3.492	87	0.56223	0.06028	t = -6.364
Post-Application	3.8345	87	0.29287	0.0314	p= 0.000
Review phase					
Pre-Application	3.6379	87	0.56388	0.06045	t = -5.208
Post-Application	3.954	87	0.19636	0.02105	p= 0.000
General evaluation phase					
Pre-Application	3.4611	87	0.49613	0.05319	t = -8.055
Post-Application	3.8364	87	0.21387	0.02293	p= 0.000

*(Matched sample t-test) p<0.001

Analysis of the data

Research data was evaluated with the SPSS package software program. In the evaluation of the data; frequency and proportional analysis in the demographic data; and dependant t-test and variance analysis in the analysis of the survey were used.

Results

Data related to the mean flow chart process scores of the participants

Evaluations of the participants about the flow chart process in the pre- and post- application periods were compared by using t-test and the results of the analysis are presented in Table 1. The difference between the two measurements in the planning, evaluation, review and general evaluation phases of the flow chart process was found to be statistically significant (p= 0.000; p <0.01).

Pre and post-application process evaluations of the participants according to their staff positions

The relationship between the staff positions and the process evaluations of the participants in the pre- and post-application periods was examined by using variance analysis and the results are given in Table 2. A statistically significant difference was found betweeen the the staff positions and the flow chart process evaluations of the participants in the pre- and post-application periods in the planning and general evaluation phases of the process (p <0.05). No statistically significant difference was found between the evaluations related to the effectiveness of the flow charts and the staff positions of the participants inthe evaluation and general review phases of the process (p >0.05).

When the relationship betwen the staff positions and the pre- and post-application mean scores is examined, it was determined that the mean scores in the nursing staff participants were higher than the scores in the midwifery staff participants. In all of the evaluations made, the mean scores of both nursing and midwifery staff participants were determined to be significantly increased in the post-application period compared to the pre-application period.

Pre- and post-application process evaluations according to the hospital the participants were working in

The relationship between the hospital the participants were working in and the evaluations about the flow chart process was examined by using variance analysis and the results of the analysis are also given in Table 2. A

Table 2. Pre and Post-Application Process Evaluations of the Participants According to their Staff Positions (n:87)

Flow Chart		n	PRE-APPLICATION				POST-APPLICATION			
Process			Mean	n	Std. Deviation	Statistical test (p)	Mean	n	Std. Deviation	Statistical test (p)
Staff positions:										
Planning	Midwife	35	3.3714	0.6456	0.1091	F= 4.838	3.7356	0.4436	0.4755	F= 4.352
	Nurse	52	3.6731	0.5134	0.1255	p= 0.031	3.8891	0.3998	0.4286	p= 0.047
	Total	87	3.4828	0.54824	0.05878		3.8448	0.2648	0.02839	
Application	Midwife	35	3.3429	0.7648	0.1293	F= 1.334	3.8114	0.4902	0.8287	F= 0.041
	Nurse	52	3.5769	0.6054	0.1318	p= 0.251	3.7714	0.48	0.6656	p= 0.840
	Total	87	3.3621	0.57015	0.06113		3.7931	0.27252	0.02922	
Evaluation	Midwife	35	3.5714	0.6547	0.1107	F= 0.810	3.8286	0.3824	0.6463	F= 0.779
	Nurse	52	3.7308	0.4897	0.124	p= 0.970	3.8546	0.3226	0.4474	p= 0.380
	Total	87	3.492	0.56223	0.06028		3.8345	0.29287	0.0314	
Review	Midwife	35	3.4286	0.8148	0.1377	F= 4.438	3.9429	0.2355	0.3981	F= 0.397
	Nurse	52	3.7692	0.4693	0.1032	p= 0.083	3.9615	0.1942	0.2693	p= 0.530
	Total	87	3.6379	0.56388	0.06045		3.954	0.19636	0.02105	
General evaluation	Midwife	35	3.4286	0.6742	0.1237	F= 4.758	3.808	0.2906	0.3116	F= 0.888
	Nurse	52	3.5325	0.7594	0.1342	p= 0.032	3.854	0.2106	0.2258	p= 0.020
	Total	87	3.4611	0.49613	0.05319		3.8364	0.21387	0.02293	
Hastaneler:										
Planning; University hospital.		10	3.8	0.42164	0.13333	F= 3.034	3.9	0.31623	0.1	F= .876
State Hospital		49	3.5334	0.57354	0.13158	p= 0.015	3.8085	0.10645	0.02845	p= 0.010
Private Hospital		28	3.6518	0.58509	0.1689		3.875	0.36923	0.09868	
Total		87	3.4828	0.54824	0.05878		3.8448	0.2648	0.02839	
Application; University hospital.		10	3.5	0.54997	0.17392	F= 3.065	3.75	0.43212	0.13665	F= 1.603
State Hospital		49	3.4729	0.66861	0.15339	p= 0.014	3.7467	0.18324	0.04897	p= 0.016
Private Hospital		28	3.5297	0.64141	0.18516		3.863	0.15004	0.03537	
Total		87	3.3621	0.57015	0.06113		3.7931	0.27252	0.02922	
University hospital.		10	3.78	0.4158	0.13149	F= 1.770	3.82	0.50288	0.15902	
Evaluation										
State Hospital		49	3.5932	0.66772	0.15319	p= 0.128	3.7572	0.21684	0.04975	
Private Hospital		28	3.6443	0.44415	0.12822		3.8752	0.1029	0.02425	F= 1.165
Total		87	3.492	0.56223	0.06028		3.8345	0.29287	0.0314	p= 0.334
Review										
University hospital.		10	3.9	0.31623	0.1	F= 1.951	3.95	0.15811	0.05	p= 0.095
State Hospital		49	3.7967	0.63407	0.14547		3.9269	0.22942	0.05263	
Private Hospital		28	3.825	0.56909	0.16428		3.9822	0	0	F= 1.292
Total		87	3.6379	0.56388	0.06045		3.954	0.19636	0.02105	p= 0.276
General evaluation										
University hospital.		10	3.75	0.38368	0.12133		3.8294	0.34684	0.10968	
State Hospital		49	3.4636	0.59006	0.13537	F= 2.340	3.8202	0.17699	0.0406	
Private Hospital		28	3.6504	0.46	0.13279	p= 0.049	3.8487	0.11198	0.02639	F= .900
Total		87	3.4611	0.49613	0.05319		3.8364	0.21387	0.02293	p= 0.048
Necessity of the standard care:										
Planning										
Necessary		78	3.7385	.5511	.2402	F= 4.767	3.8791	.3998	.1667	F=2.902
Not necessary		9	3.3111	.6009	.2003	p= .032	3.7356	.4436	.1757	p= .029
Total		87	3.4828	.54824	.05878		3.8448	.26480	.02839	
Application										
Necessary		78	3.6513	.5954	.4170	F= 3.887	3.8161	.4454	.2422	F=6.175
Not necessary		9	3.5111	.9280	.3093	p= .025	3.6897	.5351	.2357	p= .015
Total		87	3.6621	.57015	.06113		3.7931	.27252	.02922	
Evaluation										
Necessary		78	3.6043	.5680	.6090	F= 10.392	3.9310	.2970	.2422	F= 7.945
Not necessary		9	3.4957	.6447	.3683	p= .002	3.7701	.4750	.2357	p= .006
Total		87	3.4920	.56223	.06028		3.8345	.29287	.03140	
Review; Necessary		78	3.6667	.5736	.6495	F= 5.242	3.9744	.1561	.1470	F= 7.563
Not necessary		9	3.0000	.7071	.2357	p= .025	3.6667	.5000	.1667	p= .007
Total		87	3.6379	.5638	.06045		3.9540	.19636	.02105	
General evaluation										
Necessary		78	3.3974	.7268	.8230	F= 12.143	3.8540	.2106	.2258	F= 15.846
Not necessary		9	2.7778	.7875	.3643	p= .001	3.8080	.2906	.3116	p= 000
Total		87	3.4611	.49613	.05319		3.8364	.21387	.02293	
Willingness for the flow chart:										
Willing to use		77	3.5057	0.6447	0.6912	F= 5.451	3.888	0.296	0.3116	F=.260
Planning										
Willing to not use		10	3.4333	0.7875	0.8443	p= .022	3.8066	0.4323	0.4634	p= .011
Total		87	3.4828	0.54824	0.05878		3.8448	0.2648	0.02839	
Application Willing to use		77	3.3908	0.7679	0.8233	F= 3.697	3.8161	0.4454	0.1528	F=.166
Willing to not use		10	3.1609	0.8051	0.8632	p= .058	3.6897	0.5351	0.2687	p= .685
Total		87	3.3621	0.57015	0.06113		3.7931	0.27252	0.02922	
Willing to use		77	3.4598	0.6613	0.709	F= 4.667	3.8851	0.3208	0.1333	F=2.259
Willing to not use		10	3.1	0.7379	0.2333	p= .034	3.7701	0.475	0.1528	p= .037
Evaluation	Total	87	3.492	0.56223	0.06028		3.8345	0.29287	0.0314	
Review										
Willing to use		77	3.6437	0.5701	0.6112	F= 7.348	3.961	0.1948	0.222	F=.741
Willing to not use		10	3.6322	0.6491	0.6959	p= .008	3.92	0.3162	0.2258	p= .039
Total		87	3.6379	0.5638	0.06045		3.954	0.19636	0.02105	
General evaluation										
Willing to use		77	3.7013	0.5396	0.6149	F= 11.198	3.934	0.2106	0.2148	F=1.273
Willing to not use		10	3.2	0.6325	0.2	p= .001	3.738	0.3998	0.4286	p= .026
Total		87	3.4611	0.49613	0.05319		3.8364	0.21387	0.02293	

statistically significant difference was determined between the flow chart process and the hospitals in the planning, application and general evaluation phases of the process ($p < 0.05$). In the statistical evaluation made, the mean pre- and post-application scores of the state hospitals were found to be lower than the other hospitals; however, mean scores of the entire groups of hospitals were found to be increasing in the post-application period.

No statistically significant relationship was found between the evaluations related to the evaluation and review phases of the flow chart process and the hospital the participants were working in ($p > 0.05$). In both phases, the mean scores of the university hospital and the private hospitals were found to be higher. Despite no statistical significance, scores of the entire groups increased in the post-application period.

Pre- and post-application process evaluations according to the opinions of the participants about the necessity of the standart care

The relationship between the pre- and post-application process evaluations and the opinions of the participants about the necessity of the standart care was examined by using variance analysis and the results of the analysis are given in Table 4. A statistically significant difference was found between the the pre- and post-application process evaluations and the opinions of the participants in the planning, application, evaluation, review and the general evaluation phases of the process ($p < 0.05$).

No statistically significant relationship was found between the evaluations related to the evaluation and review phases of the flow chart process and the hospitals the participants were working in ($p > 0.05$). In both phases, the mean scores of the university hospital and the private hospitals were found to be higher. Despite no statistical significance, scores of the entire groups increased in the post-application period.

When the relationship betweenm the opinions of the participants about the necessity of the standard care and the pre- and pos-application mean scores, the mean scores of the participants who thought that the standard care is necessary was found to be higher. In all of the evaluations made, a significant increase in the mean scores both groups who think standard care is necessary or not necessary was seen in the post-application period.

Pre- and post-application process evaluations according to the participants willingness for the flow chart in the work field

The relationship between the pre- and post-application process evaluations and the participants willingness for the flow chart in the work field was examined by using variance analysis and the results of the analysis are given in Table 5. A statistically significant difference was found between the evaluations related to the flow chart process and the willingness for the flow chart in the work field in the planning, evaluation, review and general evaluation phases ($p < 0.05$). In the statistical evaluation made, the mean scores of the participants who were willing to use the flow chart in the work field was found to be higher than the ones who were not.

No statistically significant difference was found between the evaluations related to the application pahse and the willingness for the work chart in the work field ($p > 0.05$). In the evaluation made, despite no statistical significance, scores increased in the post-application period compared to the pre-application period.

Discussion

When the pre- and post-application evaluations of the participants about the flow chart process was examined; the difference between the two measurements in the planning, evaluation, review and general evaluation phases of the flow chart process was found to be statistically significant ($p = 0.000$; $p < 0.01$).

From the values in the middle column of the Tables, it is understood that the scores taken from the post-application test got higher. This finding shows that the belief of the participants in the sense that this flow chart process and phases are beneficial has increased in the post-application period. During the application, some feedbacks were taken from the participants such as the application steps made it easier to appy a wholesome approach, it helped to notice the applications which were missed during the monitoring and the chart is a leading guide in making the necessary additions and corrections.

In literature, the usage of standards with proven validity in patient care provides patients to get a suitable, sufficient and quality nursing care. In the study made by Oskay and Oktay about the development of the patient admission standards (2001), the total service quality score of the patient group was found to be higher in the post-standard development period compared to the pre-standard development period and the service quality was determined to have increased (Oskay and Oktay, 2001). In the study made by Ayral et al. (2003), a significant increase in the quality of service was determined after the nursing care was started to be applied with a systematic approach in the rehabilitation centre (Ayral et al., 2003). In the study made by Yildiz (2001), it was stated that, when the nursing care was standardized, the quality of care and patient satisfaction have increased (Yildiz, 2001). In the study made by Ghosh et al. (2001), it was stated that the approach of care given to the gynecologic oncology patients caused the quality of life and the satisfaction of the patients to increase and the care costs to decrease (Ghosh et al., 2001). In the study made by Muller et al. (2009), it was stated that the usage of clinical pathway in surgery caused the complications and readmissions to decrease (Muller, 2009). In the study made by Dy et al. (2005), it was determined that the critic pathways were effective on shortening the hospital stay time. In the study made by Vries et al. (2007), it was stated that the clinical care pathways used in the care of the old cancer patients provide ease in the determination of the problems and the educational needs of the patient (Vries et al., 2007).

A statistically significant difference was found betweeen the the staff positions and the flow chart process evaluations of the participants in the pre- and post-application periods in the planning and general evaluation phases of the process ($p < 0.05$). This finding shows that

there is a significant difference between the evaluations of the participants in different staff positions about the planning and general evaluation phases of the charts. Participants who were in the midwifery staff positions scored lower than the participants in the nursing staff positions. From this finding, it was concluded that nurses had different evaluations about the planning and general evaluation phases of the charts and they believed in the about the planning and general evaluation phases more. Gynecologic oncology is a specialized field and these are the units in which specialized nurses with certification in the oncology field should work in. Due to several reasons such as the lack of specialization in and the job descriptions our country and the midwives working in different fields rather than delivery rooms and woman labor services, differences occur in the applications and the evaluations.

A statistically significant difference was determined between the flow chart process and the hospitals in the planning, application and general evaluation phases of the process ($p < 0.05$). No statistically significant relationship was found between the evaluations related to the evaluation and review phases of the flow chart process and the hospitals the participants were working in ($p > 0.05$). This finding shows that there is a significant difference between the evaluations of the participants working in different hospitals about the planning, application and general evaluation phases of the flow charts. It was concluded that the participants working in the university hospital and the private hospital had more belief in the sense that the flow charts are beneficial. This result was interpreted to have occurred due to the low number of state hospitals and the high nurse per patient ratio. State hospitals are higher in numbers compared to the other hospitals, they lack of staff in providing sufficient patient care and they have inferior physical conditions compared to other hospitals. It is thought that the staff working in these hospitals do not have much time for care applications other than patient treatment and the overburden of paper work and the lack of job descriptions may have been effective on this result. It is astonishing that there are newly started efforts in the state hospitals, in the aspect of quality improvement and the formation of protocols to provide standardization in patient care in recent years. However, due to the fact that these efforts were started without internalization and the formation of the necessary infrastructure and staff taking part in the efforts not believing the necessity of the this standard formation applications makes us think that there are barriers in the way of these efforts. There are studies in literature which support the research finding. In the study made by Gokdogan (1992), it was determined that the hospital nurses were working in had no effect on the views of the nurses towards the standardized care in nursing (Gokdogan, 1992). In the study made by Darer et al. (2002), it was stated that the clinical pathway application may show difference between the hospitals; and its least wide application is in the educational hospitals and its most wide application is in the state hospitals (Darer et al., 2002). These results support the study finding.

A statistically significant difference was found between the the pre- and post-application process evaluations and the opinions of the participants in the planning, application, evaluation, review and the general evaluation phases of the process ($p < 0.05$). This finding shows a significant difference between the participants with different opinions in the evaluation of the flow chart process. It was concluded that the evaluations of the participants about the flow charts changed in accordance with their opinions on the necessity of standard care, and the participants who thought that the standard care was necessary were found to have more belief in the importance of the flow chart process. Participants who want to have standard care in the work field believe that the flow charts are beneficial. In the impressions during the application, it was observed that the flow charts would be a common language in the standard care and the participants who believed that the flow charts should be used in the applications and that this would improve the patient and staff satisfaction were found to be more supportive and willing towards the evaluations of the charts. This finding also supports the study finding.

In literature, there are many studies towards the benefits of the standard care application. In these studies, it was determined that the standard care applications have a positive effect on the patient care applications, they reduce patient costs and increase staff satisfaction (Gencalp and Eryilmaz, 1998; San , 1998; Senuzun, 1998; Unlu, 1999; Eroglu et al., 2001; Yildiz, 2001; Tosun, 2002; Boyaci, 2003; Ertem, 2003; Ring, 2005; Sen, 2005).

In our country, the number of studies that show the effects of the standard care protocols on the quality of patient care, patient and staff satisfaction is not sufficient. In literature, studies which included advanced flow charts towards certain symptoms in chronic diseases were found; however, a very limited number of studies could be found about the nursing care standards in the gynecologic oncology. In our country, there is a need for these kinds of studies, which evaluate the effectiveness of the flow charts for the development of standards in nursing applications to use a common language in patient treatment and care, to be made.

A statistically significant difference was found between the evaluations related to the flow chart process and the willingness for the flow chart in the work field in the planning, evaluation, review and general evaluation phases ($p < 0.05$). This finding shows that there is a difference between the evaluations of the participants with different willingness towards the flow chart in the work field about the flow chart process. It was concluded that the participants with high willingness had more beliedf in the importance of the flow chart process. Participants who want to have flow chart in the application field stated that these flow charts will a leading guide for the new staff working in rotations in having compliance with the clinic, and the education of the new inexperienced nurses and the nursing students in the hospitals for the clinical application. Furthermore, it was stated that a summary of the flow charts in one page instead of a lot of seperate pages which is prepared in a visually-understandable way may help to control the insufficient things without interfering with the flow in the clinic. These statements were interpreted as the employees were believing in the

efficiency of the flow chart which was indicated by their willingness level.

In conclusion, this study is the first study made in Turkey in the sense that this is a study which was made to develop and adapt the flow charts related to the nursing applications given to the gynecologic oncology patients. In our country, raising the level of education is a requirement to help the nursing application to reach its objectives such as being kept at an international level and to provide autonomy; it should determine the standards included in its scope, inspect and evaluate them. Because, an occupation has to search for the control mechanisms of its service in order to give importance to its service quality and to keep its quality under guarantee. Standards which gives the guarantee that high quality service will be provided must be behind these mechanisms.

In the evaluation of the quality of care, the determination of care standards and the measurement of the application according to these standards is important. Reaching the quality related to the occupation will be possible when meaningful standards are formed, applied and updated. In this aspect, giving education to the nurses about the aim, benefits, and methods of the standard care application and encouraging nurses for the usage of flow charts to provide the standard care in work fields is important. Using the flow charts for new nurses in clinical rotation and interns taking part in the clinical application to adapt to their working environment, using flow charts in clinics for longer periods of time and evaluating them in longer periods of time, and making similiar studies in bigger groups which include experiment-control groups in order to determine the effect of the flow charts on care are all advised.

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References

Ayral N, Tonbul S, Akman MN (2003). Systematic approach in nursing care rehabilitation center of a university hospital. *Hacettepe Universitesi Hemşirelik Yüksekokulu Dergisi*, **10**, 53-9.

Bektaş G (1997). What should be done for raising the quality of patient care and safety provision? *Türk Hemşireler Dergisi*, **17**, 31-2.

Biffl WL, Smith WR, Moore EE, Gonzalez RC, Morgan SC (2001). Evolution of a multidisciplinary clinical pathway for the management of unstable patients with pelvic fractures. *Ann Surg*, **233**, 843-50.

Darer J, Pronovost P, Bass EB (2002). Use and evaluation of critical pathways in hospitals. *Eff Clin Pract*, **5**, 114-9.

Daş Z (1999). Case management and maintenance protocol. *Cumhuriyet Universitesi Hemşirelik Yüksekokulu Dergisi*, **3**, 11-7.

Dy SM, Garg P, Nyberg D, et al (2005). Critical pathway effectiveness: Assessing the impact of patient, hospital care and pathway characteristics using qualitative comparative analysis. *Health Serv Res*, **40**, 499-516.

Eroğlu F, Özmen S, Noyaner A, Aydın C (2001). Can we improve the quality of health care in ICU patients? *Süleyman Demirel Üniversitesi Tıp Fakültesi Dergisi*, **8**, 9-11.

Ertem G (2003). The examination of the effect of the Standards-based nursing care on quality of care and patient satisfaction, Ege Üniversitesi Sağlık Bilimleri Enstitüsü Kadın Sağlığı ve Hastalıkları Hemşireliği Anabilim Dalı Doktora Tezi, İzmir (Danışman: Ü.Sevil).

Gençalp NS, Eryılmaz HY (1998). The evaluation of the nursing care given by 3. Grade nursing students to the hysterectomy patients by using the nursing care protocol. Uluslararası Katlımlı VI. Ulusal Hemşirelik Kongresi Kongre Kitabı, Ankara, s:195-198.

Ghosh K, Downs LS, Padilla LA, et al (2001). The implementation of critical pathways in gynecologic oncology in a managed care setting: A cost analysis. *Gynecol Oncol*, **83**, 378-82.

Gökdoğan F (1992). A study in the standardization of nursing care. 3. Ulusal Hemşirelik Kongresi Kitabı, Cumhuriyet Üniversitesi Hemşirelik Yüksekokulu, Esnaf Ofset Matbaacılık, Sivas, s:35-42.

Gömbül, Ö (1993). Nursing quality assurance and standards. *Türk Hemşireler Dergisi*, **43**, 22-8.

Müller MK, Dedes KJ, Dindo D, et al (2009). Impact of clinical pathways in surgery. *Langenbecks Arch Surg*, **394**, 31-9.

Nural, N (1992). Standard of quality care. III ulusal hemşirelik kongre kitabı.s:23-24, 28-34.

Oskay Şahin A, Oktay S (2001). Patient Acceptance of Development Standards. 1.Uluslararası& 8. Ulusal Hemşirelik Kongresi Kongre Kitabı, 462-6.

Ring E (2005). Defining, Analyzing and using patient perceptions to develop standards for improving care. Northcentral University Faculty of the Depertment of Business and Management Doctor of Philisophy, Colordo.

San Turgay A (1998). Evaluation of the effect of the standard of nursing care in the prevention of pressure sores. Ege Üniversitesi Sağlık Bilimleri Enstitüsü Hemşirelik Programı Yüksek Lisans Tezi, İzmir (Danışman: E. Çakırcalı).

Şen N (2005). The effect of standard nursing care model on the care quality of the total parenteral fed children. *Ege Üniversitesi Hemşirelik Yüksekokulu Dergisi*, **21**, 59-75.

Şenuzun Ergün F (1998). Examination of the effect of the standard model of nursing care developed for patients undergoing percutaneous transluminal coronary angioplasty, on quality of life of the patient and care capability. Ege Üniversitesi Sağlık Bilimleri Enstitüsü İç Hastalıkları Hemşireliği Anabilim Dalı Yüksek Lisans Tezi, İzmir, (Danışman: Ç. Fadıloğlu).

Sharghi N, Bosch RJ, Mayer K, Essex M, Seage GR (2005). The development and utility of a clinical algorithm to predict early HIV-1 infection. *J Acquir Immune Defic Syndr*, **4**, 472-8.

Tosun N (2002). Implementation of case management model of care of patients with acute myocardial infarction. Gülhane Askeri Tıp Akademisi Sağlık Bilimleri Enstitüsü Hemşirelik Programı Doktora Tezi, Ankara, s: 11-19. (Danışman: N. Akbayrak)

Ünlü H (1999). Development of standards for taking culture for urine sample. *Hemşirelik Araştırma Dergisi*, **1**, 57-70.

Veyisoğlu D, Aydın Ö, Ersoy K (2000). Implementation of patient care quality improvement tools and methods in the patient admission services. 3. Ulusal Sağlık ve Hastane Yönetimi Sempozyumu (Uluslar arası Katılımlı) Bildiriler Kitabı. s:511.

Vries M, Weert JCM, Jansen J, Lemmens VE, Maas HUA (2007). Step by step development of clinical care pathways for older cancer patients: Necessary or desirable? *Eur J Cancer*, **43**, 2170-8.

Wong C, Visram F, Cook D, et al (2000). Development, dissemination, implementation and evaluation of a clinical pathway for oxygen therapy. *Canadian Med Association J*, **162**, 29-33.

Yıldız Eryılmaz H (2001). Determination of the effects of the care management (Pathway) applied postpartum. 1.Uluslararası & 8. Ulusal Hemşirelik Kongresi Kongre Kitabı, 260-266.

Yılmaz M (2001). A measure of health care quality: Patient satisfaction. *Cumhuriyet Üniversiesi Hemşirelik Yüksekokulu Dergisi*, **5**, 69-73.