

## Original Article

# Workload of Nurses and Care Left Undone: Do we Really Care Enough?

**Manar Aslan, RN, PhD**

Trakya University, Health Science Faculty, Edirne, Turkey

**Ayfer Karaaslan, RN**

Necmettin Erbakan University, Health Science Faculty, Konya, Turkey

**Ayşe Yıldız, RN**

Beyhekim State Hospital, Konya, Turkey

**Fikret Doğan, LVN**

Ereğli Oral and Dental Health Center, Konya, Turkey

**Hasan Evirgen LVN**

Secretary General of Union Public Hospital, Konya, Turkey

**Correspondence:** Manar Aslan, Trakya University, Health Science Faculty, 22030, Edirne, Turkey E-mail: manaraslan@hotmail.com

## Abstract

**Background:** International researches have consistently demonstrated a clear relationship between inadequate nurse staffing and poor patient outcomes. Because of it can occur as care left undone in many countries, but in Turkey we can encounter as not to care. Therefore, a problem is becoming more important for some countries, which is important for many countries.

**Aims:** The aim of this study is to analyze through work analysis the work of nurses working at services, determine need of patient care synchronously and put forward work load of nurses and determine how far the number of nurses would meet the need for this care.

**Methodology:** This study was planned in descriptive type by choosing the most crowded and biggest state hospital in the city. The aim of this study is to analyze through work analysis the work of nurses working at services, determine need of patient care synchronously and put forward work load of nurses and determine how far the number of nurses would meet the need for this care. Five services of hospital (general surgery, internal medicine, orthopedics, gynecology, pediatric) were chosen as pilot and the study was carried out with 7 volunteer workers who were trained in work analysis and patient classification.

**Results:** In work analysis carried out with observation; it was determined that even if nurses have work load, they do not make patient care, instead they spend time rather with treatment and registration, they use most of their shift time with resting and special works.

**Conclusions:** When literature is analyzed, it is seen that nurse have dense work load and therefore care quality decreases. In our study, it is seen that although nurses have work load, nurses do not spend time as to meet this work load and rather spend time with their personal works.

**Keywords:** Nurses, Workforce Planning, Care Needs, Nurse Manager.

## Introduction

Health care systems have put forward the concept of health employment. The American Federation of Teachers (AFT) defines the term of healthy employment as “continuous existence of adequate number of personnel at different knowledge and skill level that would enable meeting patient care requirements and safe

working conditions” (International Council of Nursing [ICN], 2006).

Safe employment is primarily related with enabling safe care (ICN 2006; Oulton, 2006). Nurses that enable safe care are one of the major groups at hospitals in the sense of the number of personnel and compose an important part of hospital costs. Therefore, it is very important that

nurses spend their time effectively and efficiently (Hurst, 2010). If hospitals want to provide modern health services, they need to observe qualified health care practices during the care duration of nurses and enable patient security (Aiken et al., 2013). While forming ideal care and personnel employment, it should be recognized that this balance will affect patient results (such as adverse cases and sensible attitudes towards nursing care). However, nurses state that they lack personnel to give adequate nursing care and suffer exhaustion due to excessive workloads (Aiken et al., 2002; Hegney et al., 2003; Tourangeau et al., 2007; Needleman et al., 2011; Ball et al., 2014).

### Background

Many countries use employment types that consider the ratio between the number of nurses and patient care needs. For example, personnel planning are done with nurse-patient ratio in California (Donaldson & Shapiro, 2010), with nursing hours in each patient day at hospitals in Australia (Twigg et al., 2011), and with RAFAELA patient classification system in Finland (Rauhala & Fagerström, 2004). In Canada patient-nurse ratio, in Sweden patient classification systems (Perroca & Ek, 2007), and in Germany both patient-nurse ratio and patient classification systems are used (Hall et al., 2006). In Turkey patient-nurse ratio is used and patient classification is done according to Ministry of Health Provincial Organization Bed and Staff Standards Regulation for Inpatient Treatment Institutions (Republic of Turkey Ministry of Health [RTMH], 1983).

For nurse planning, work analysis should be done and workloads of nurses should be determined whether nurse-patient ratio or patient classification systems are used because it has been stated that workload is related with patient death (Aiken et al., 2002). Work analysis is the process of a detailed description of the working environment, expectations from work, skills and responsibilities about work. Work analysis is done basically for redesigning and evaluating work in order to enable efficiency, determining educational needs, evaluating performance, having occupational guidance and forming a job description (Morganson et al., 2009). In work analysis, information about work can be obtained through methods such as interviews, observation, and surveys (Chang & Kleiner, 2002). Although

research about work analysis is insufficient in nursing, making use and analysis of this research and evaluating workload is important in emphasizing unknown aspects of nursing functions (Waterworth, 2003). Since workload is one of the most important factors that influence employment of nursing personnel, it is quite important to establish nursing workload in order to keep nurses at work, and understand the relation between patient security and workload (Shivam et al., 2014). The patient classification system used in determining workload of nurses about care is classifying patients that have a wide range of nursing care requirements from those who require the least care to those who require the most and measuring how much nursing care they need within 24 hours (how many hours) and how many nurses should be employed in order to meet the optimal care needs of these patients (Yıldırım, 2002). A patient classification system is required in order to enable sufficiency of nurse numbers to meet the care needs of patients within a 24 hour period. Also, it is designed in order to establish the relation between nursing opportunities (nursing care hours) and patient needs. Patient classification process includes estimation of nursing care requirements of a patient within a specific time (Seago, 2002).

This descriptive type of study was planned to answer these research questions:

1. What do the nurses do in clinics?
2. How many hours of care do the patients need at inpatient services?
3. What is the number of average nurse that is required according to patient classification and works carried out at clinic?

The aim of this study is to analyze the work of nurses in services through work analysis, to determine patient care needs simultaneously and to put forward the workload of nurses and determine whether the number of nurses would meet this care need.

### Methodology

#### Design

It is a descriptive study that aims to conduct work analysis and patient classification and put forward care needs of patients and workload of nurses. This study was planned by choosing the most crowded and biggest state hospital in the city. Five hospital services (general surgery,

internal medicine, orthopedics, gynecology, pediatric) were chosen as pilot services.

The universe of the study is composed of nurses and patients in inpatient clinics of a hospital in Konya. The sample of the study is five nurses chosen randomly among day shifts of general surgery, internal medicine, orthopedics, gynecology, and pediatric services, which are the most crowded services with the most patients hospitalized during observation days in these services.

### **Ethical Considerations**

Before starting the study, it was received ethical approval from university ethical committee and written and verbal consent was obtained from institution where the study will be carried out. Moreover, verbal consent was obtained from the people who would participate in the research.

### **Data Collection**

Data of the study were collected between 29.09.2014 and 31.10.2014. Five hospital services (general surgery, internal medicine, orthopedics, gynecology, pediatric) were chosen for the pilot and the study was carried out with seven volunteer workers who were trained in work analysis and patient classification. Before data collection, nurses at service were informed that they would be monitored by the person who collected data during one workday but they were not informed of the person on the observation day. Since the potential of each daily hospitalized patient is different, observation was done on different days of the week within one month. Work analysis was done by observing nurses on Monday in the first week, on Tuesday in the second, on Wednesday in the third, and on Thursday in the fourth week in the five services determined. The natural working environment was not changed during observation. Each day one nurse was observed in each service and the work of a nurse in the day shift of eight hours (08:00-16:00) and the time she started and finished work, and the total duration she spent on this work were recorded by five volunteers on the work analysis observation form. Nursing functions in the form were classified as patient process (not related with care), personal process, treatment, external work (not the duty of nurse) and other work (participating in training, breast-feeding permission, permissions given by the management, in-service training etc.). Work such

as checking vitals, patient delivery and visits were recorded in the processes about patients. Duration spent for processes in this classification was summed up and percentages were determined. On the same days the work analysis was done, two volunteer workers made “Rush Medicus” patient classification two hours following the start of the shift and dependency levels of 549 patients were determined. In the study, apart from patient criteria determined with the Rush Medicus patient classification form, data were also collected about how many nurses conducted nursing services within working hours in the analyzed services. Classification of each patient was done on average in two to five minutes. The lowest score was two points and the highest was 24 points in this scale. There are 29 items in the Rush Medicus patient classification scale and when analysis is done according to these items the expected results are;

Independent patient=0-24 points

Low level dependent patient=25-48 points

Medium level dependent patient=49-120 points

High level dependent patient= 121 points



### **Data Analysis**

In the study, observational work analysis was done and how many hours nurses spent for each of their duties was calculated. In addition, since the number of nurses and patients may vary daily, the numbers of nurses and patients were considered. Moreover, patient dependency levels were determined with the Rush Medicus patient classification scale on the day when analyses were done. For this purpose, patient dependency scores were calculated and average nursing care hours that the patient should receive in one day at each of the services were determined. Since the length of shift of a nurse is eight hours, total nursing care hours of the patient were determined and the number of nurses required for completing total nursing care was calculated. For example, if patients need 114 hours of average nursing care in one day during the five days when analysis was done in general surgery service with Rush Medicus, there is a need for 38 hours of care in one shift. Since each nurse works for eight hours, five nurses are required to give this care.

### **Results**

Within eight hours of the work day (08:00-16:00), the average numbers of working nurses

and hospitalized patients are given in Table 1. When Table 1 is analyzed, there are five nurses in general surgery service and 19 patients on average during the five days of observation, five nurses in gynecology service and 23 patients on average in the five days of observation, five nurses in pediatric service and 16 patients on

average in the five days of observation, five nurses in orthopedics service and 24 patients on average in the five days of observation, and four nurses in internal medicine service and 27 patients on average in the five days of observation.

**Table 1. Average number of nurses, hospitalized patients and care time in 8-16 shifts according to services**

	Nurse(n)	Patient(n) <sup>†</sup>	Ave. care time (h)
General Surgery	5	19	114
Gynecology	5	23	124.6
Pediatrics	5	16	126.8
Orthopedics	5	24	190.2
Internal Medicine	4	27	113.4

<sup>†</sup> Average number of patients on 5 days of observation

**Table 2. Average percentage distribution of work analysis results in all services**

Works of nurses	General Surgery	Gynecology	Pediatrics	Orthopedics	Internal Medicine
Personal Works	39.1	44.5	61.5	32.6	30.2
Works about patient	7.2	11.4	8.2	10.3	17.9
Treatment	16.3	11.2	11.5	8.6	31.6
External Works	17.6	5	6.8	10.6	7.4
Training Works	1.6	5.8	1.6	1.3	1
Registration Works	15.1	14.9	9.2	24.7	11.9
Other	3.1	7.2	1.2	11.9	-

### Results for General Surgery Service Patient Care Needs and Work Analysis

When patient care hours required for general surgery service are analyzed to the Rush Medicus patient classification scale data, average nursing care hours of patient in one day is 114 hours and there are most commonly patients who require medium level care. In Table 2, there is classification of five days of work analysis results done through observation of the general surgery service. It was determined that in the general surgery service, mostly personal proceedings are done (39.1%), followed by external proceedings (work apart from nurses' duties) (17.6%).

When patient care need and work analysis results are analyzed, it was determined that a nurse spends on average four hours of her eight hour shift on patients, three hours for herself and one hour for work that is not her duty and for other work (participating in training, using breast feeding permission, permissions given by the management etc.). Since nursing care hours required for patients for eight hours is 38 hours on average ( $114 \times 8 / 24 = 38$ ), 4.75 nurses are required on average in the service. Since there are five nurses on the day shift, it can be said that general surgery service has a normal level of nurses. Five nurses in service spend 20 hours ( $5 \times 4$ ) for patient care but patients receive 18 hours lack of care on average.

### **Results for Orthopedics Service Patients Care Needs and Work Analysis**

When patient care hours required for orthopedics service are analyzed to the Rush Medicus patient classification scale data, average nursing care hours of patients in one day is 190.2 hours and there are most commonly patients who require medium level care. In Table 2, there is classification of five days of work analysis results made by observation of the orthopedics service. It was determined that in the orthopedics service, mostly personal proceedings are done (32.6%) followed by recording proceedings (24.7%).

When patient care needs and work analysis results are analyzed, it was determined that a nurse spends on average 3.6 hours of her eight hour shift on the patient, 2.6 hours for herself and 1.8 hours for work that is not her duty and for other work. Since nursing care hours required for patients for eight hours is 63 hours on average ( $190 \times 8 / 24 = 63$ ), 7.8 nurses are required on average in the service. Since there are five nurses in service on the day shift, it can be said that the number of nurses in the orthopedics service is insufficient. Five nurses in service spend 18 hours ( $5 \times 4$ ) for patient care but patients receive 45 hours lacking care on average.

### **Results for Gynecology Service Patient Care Needs and Work Analysis**

When patient care hours required for gynecology service are analyzed to the Rush Medicus patient classification scale data, average nursing care hours of patients in one day is 124.6 hours and there are most commonly patients who require medium level care (Table 1). In Table 2, there is classification of five days of work analysis results done by observation of the gynecology service. It was determined that in the gynecology service, mostly personal proceedings are done (44.5%) followed by recording proceedings (14.9%).

When patient care needs and work analysis results are analyzed, it was determined that a nurse spends on average 3.5 hours of her eight hour shift on the patient, 3.5 hours for herself and one hour for work that is not her duty and for other work. Since nursing care hours required for patients for eight hours is 41 hours on average ( $124 \times 8 / 24 = 41$ ), 5.1 nurses are required on average in this service. Since there are five nurses in the service on the day shift, it can be said that the gynecology service has a normal level of

nurses. Five nurses in service spend 17.5 hours ( $5 \times 5.5$ ) for patient care but patients receive 23.5 hours lacking care on average

### **Results for Pediatric Service Patient Care Needs and Work Analysis**

When patient care hours required for the pediatric service are analyzed to the Rush Medicus patient classification scale data, average nursing care hours of patients in one day is 126.8 hours and there are most commonly patients who require medium level care. In Table 2, there is classification of five days of work analysis results made by observation of the pediatric service. It was determined that in the pediatric service, mostly personal proceedings are done (61.4%) followed by treatment proceedings (11.5%).

When patient care needs and work analysis results are analyzed, it was determined that a nurse spends on average 2.4 hours of her eight hour shift for the patient, five hours for herself and 0.6 hours for work that is not her duty and for other work. Since nursing care hours required for patients for eight hours is 42 hours on average ( $126 \times 8 / 24 = 42$ ), 5.25 nurses are required on average in the service. Since there are five nurses in service on the day shift, it can be said that the pediatric service has a normal level of nurses. Five nurses in service spend 12 hours ( $5 \times 2.4$ ) for patient care but patients receive 30 hours lacking care on average.

### **Results for Internal Medicine Service Patient Care Needs and Work Analysis**

When patient care hours required for internal medicine service are analyzed to the Rush Medicus patient classification scale data, average nursing care hours of patients in one day is 113.4 hours and there are most commonly patients who require low level care. In Table 2, there is classification of five days of work analysis results done by observation of the internal medicine service. It was determined that in the internal medicine service, mostly treatment proceedings are done (31.6%) followed by treatment proceedings (30.2%).

When patient care needs and work analysis results are analyzed, it was determined that a nurse spends on average five hours of her eight hour shift for the patient, 2.4 hours for herself and 0.6 hours for work that is not her duty and for other works Since nursing care hours required for patients for eight hours is 38 hours on average



$(113 \times 8 / 24 = 38)$ , 4.75 nurses are required on average in the service. Since there are four nurses in the service on the day shift, it can be said that internal medicine service has a normal level of nurses. Five nurses in the service spend 20 hours (4x5) for patient care but patients receive 18 hours lacking care on average.

### Discussion

In this study, which was carried out in order to analyze the work of nurses, put forward workloads of nurses and determine whether the number of nurses met this care need or not, it was determined that although patients need care nurses are not able to give that care. The first question that comes to mind is that ‘Nurses cannot spare time for care since they do the tasks which are not actually assigned to them?’ However, work analysis results show that nurses spare one hour at most of their eight hour shift for the tasks that are not actually assigned to them. Moreover, in the observations it was determined that nurses do not relieve patients psychologically by talking to them, do not meet the demands of patients’ families, or prepare care plans. Nursing service is focused totally on treatment in hospitals. In this sense, it is thought that other reasons (organizational factors, weak team work, poor hospital security climate etc.) are effective in not being able to give nursing care (Kalisch et al., 2011; Schubert et al., 2012).

In our study it was determined that hospital proceedings only cover 10.9% of the time period and this is quite a short duration (one hour out of eight hours of shift). In a study carried out in America, it was determined that nurses spend 26% of their time on patient assessment (Battisto & Pak, 2009). In another study it was found that nurses spend 22% of their time on activities concerning treatment and patients (Potter et al., 2005). When they analyze research about intensive care units, in a study carried out in a general surgery intensive care unit, 38% of time is spent for diagnosis of the patient and patient assessment (Harrison & Nixon, 2002). Time spent on practices indirectly related with patients (visit before operation, talking with the relatives on the telephone or in person etc.) was found to be 6%. In a study carried out at an intensive care unit in our country, it was found that nurses spent 11% of time on their day shift at relations with patients (Göçmen et al., 2013).

It was determined that time spent by the nurses for themselves is 41.2% and it is composed of 3.5 hours within an eight hour shift. Contrary to our study, in a study carried out at intensive care units, it was found that nurses spend 6% of time in the day shift on personal activities (Göçmen et al., 2013). In a study carried out at a general surgery intensive care unit, it was determined that time spent on personal activities is 10% (Harrison & Nixon, 2002). These results may reveal that there is not an effective performance assessment system in the hospital where the research was carried out and supervisors overlook the situation.

### Limitations

Observation of nurses during work analysis was done by other workers. This may cause workers to behave differently than their original behavior. Since the research was carried out at five services of the hospital, it should be determined how the planning is done at all the services and research and service should be monitored even if there is less and less patient potential. More accurate results should be obtained by repeating the same thing in one month.

### Conclusion

Nurses deal with various activities within their shift in the unit such as patient treatment, registration, training and management. While many studies in the world literature mention problems caused by insufficient nurse care due to excessive workloads of nurses and lack of nurses (Schubert et al., 2012; Ausserhofer et al., 2013), in our study it was determined that patients who need care are not given adequate nursing care. Since neglect in nursing care could result from decrease of job satisfaction, increase of turnover level and intention of leaving the job (Kalisch et al., 2011; Papastavrou et al., 2014), nursing care given in Turkey should be examined in this sense. Nurses should work in humane conditions and have suitable resting periods. However, excessive duration periods make us think that performance assessment systems of nurses working at state hospitals are not effective.

### References

- Aiken LH, Clarke SP, Sloane DM, Sochalski J, Silber JH. (2002). Hospital nurse staffing and patient mortality, nurse burnout, and job dissatisfaction. *JAMA*, 288(16):1987–1993.

- Aiken LH, Sloane DM, Bruyneel L, Van den Heede K, Sermeus W. (2013). Nurses' reports of working conditions and hospital quality of care in 12 countries in Europe. *Int. J. Nurs. Stud.*, 50(2):143–153.
- Ausserhofer D, Schubert M, Desmedt M, Blegen MA, De Geest S, Schwendimann R. (2013). The association of patient safety climate and nurse-related organizational factors with selected patient outcomes: a cross-sectional survey. *Int J Nurs Stud.*, 50(2): 240–52.
- Ball JE, Murrells T, Rafferty AM, Morrow E, Griffiths P. (2014). Care left undone' during nursing shifts: associations with workload and perceived quality of care. *BMJ Qual Saf*, 23(2): 116-25.
- Battisto D, Pak R. (2009). Using a task analysis to describe nursing work in acute care patient environment. *JONA*, 39(12):537-547.
- Chang IW, Kleiner BH. (2002) How to conduct job analysis effectively. *Management Resource News*, 25(3):73-81.
- Donaldson N, Shapiro S. (2010). Impact of California mandated acute care hospital nurse staffing ratios: a literature synthesis. *Policy Polit Nurs Pract*, 11(3):184-201.
- Göçmen AG, Türker S, Çiftçi M, Sürücü Ş. (2013). Determination of workload of intensive care unit nurses, *Journal of Medical and Surgical Intensive Care Medicine*, 4 (2):21-24. (in Turkish).
- Harrison L, Nixon G. (2002). Nursing activity in general intensive care. *J Clin Nurs*, 11(2):158-167.
- Hegney D, Plank A, Parker V. (2003). Nursing workloads: the results of a study of Queensland Nurses. *J Nurs Manag*, 11 (5): 307-314.
- Hurst K. (2010). Evaluating the strengths and weaknesses of NHS workforce planning methods. *Nurs. Times* 106 (40): 10–14.
- International Council of Nurses (ICN) (2006). International Nurses Day 2006. Safe Staffing Saves Lives. Information and Action Tool Kit. Place Jean-Marteau, CH-1201 Geneva. Available from:<http://www.icn.ch/indkit2006.pdf>
- Kalisch BJ, Tschannen D, Lee KH. (2011). Do staffing levels predict missed nursing care? *Int J Qual Health Care*, 23(3):302–308.
- Hall LM, Pink L, Lalonde M, Murphy GT, O'Brien-Pallas L, Laschinger HK, Tourangeau A, Besner J, White D, Tregunno D, Thomson D, Peterson J, Seto L, Akeroyd J. (2006). Decision making for nurse staffing: Canadian perspectives. *Policy Polit Nurs Pract*, 7(4):261-269.
- Morganson VJ, Major DA, Bauer KN. (2009). Work-life job analysis: Applying a classic tool to address a contemporary issue. *The Psychologist- Manager Journal*, 12 (4): 252-274.
- Needleman J, Buerhaus P, Pankratz VS, Leibson CL, Stevens SR, Harris M. (2011). Nurse staffing and inpatient hospital mortality. *N Engl J Med.*, 364 (11):1037-45.
- Oulton JA. (2006). Safe staffing - a shared responsibility. *Int Nur Rev*, 53(1):11.
- Papastavrou E, Andreou P, Efstathiou G. (2014). Rationing of nursing care and nurse- patient outcomes: a systematic review of quantitative studies. *Int J Health Plann Manage*, 29 (1): 3-25.
- Perroca MG, Ek AC. (2007). Utilization of patient classification systems in Swedish hospitals and the degree of satisfaction among nursing staff. *J Nurs Manag*, 15 (5):472-80.
- Potter P, Wolf L, Boxerman S, Grayson D, Sledge J, Dunagan C, Evanoff B. (2005) An analysis of nurses' cognitive work: A new perspective for understanding medical errors, in *Advances in patient safety: From research to implementation*. Vol. I: Research findings (AHRQ Publication No. 05-0021-1). Rockville, MD: Agency for Healthcare Research and Quality. Available from: [www.ahrq.gov/qual/advances/](http://www.ahrq.gov/qual/advances/).
- Rauhala A, Fagerström L. (2004). Determining optimal nursing intensity: the RAFAELA method. *J Adv Nurs*, 45(4):351–359.
- Schubert M, Clarke SP, Aiken LH, de Geest S. (2012). Associations between rationing of nursing care and inpatient mortality in Swiss hospitals. *Int J Qual Health Care*, 24(3):230-8.
- Seago JA. (2002). A comparison of two patient classification instruments in an acute care hospital. *J Nurs Adm*, 32(5):243-249.
- Shivam S, Roy RN, Dasgupta S, Das Bhattacharyya K, Misra RN, Roy S, Indranil S. (2014). Nursing personnel planning for rural hospitals in Burdwan District, West Bengal, India using workload indicators of staffing needs. *J Health Popul Nutr*, 32(4):658-664.
- Tourangeau AE, Doran DM, McGillis Hall L, O'Brien Pallas L, Pringle D, Tu JV, Cranley LA. (2007). Impact of hospital nursing care on 30-day mortality for acute medical patients. *J Adv Nurs*, 57(1):32–44.
- Twigg D, Duffield C, Bremner A, Rapley P, Finn J. (2011). The impact of the nursing hours per patient day (NHPPD) staffing method on patient outcomes: a retrospective analysis of patient and staffing data. *Int J Nurs Stud.*, 48(5): 540-8.
- Waterworth S. (2003). Time management strategies in nursing practice. *J Adv Nurs*, 43(5):432-40.
- Ministry of Health (TR). Inpatient Treatment Facilities' Management Guidelines (1983) Available from: [http:// www.saglik.gov.tr/-176k](http://www.saglik.gov.tr/-176k). (in Turkish).
- Yıldırım D. (2002). Nurse Workforce Planning, *İ.Ü.F.N.H.Y.O. Nursing Journal*, 12(48): 57-70. Available from: <http://www.journals.istanbul.edu.tr/iufnhy/article/viewFile/5000139191/5000127655> (in Turkish).