

**Deanship of Graduate Studies  
Al- Quds University**



**Assessment of Patient Safety Culture in the Palestinian  
Hospital Pharmacies**

**Wafa' J. Zaghari**

**M.Sc. Thesis**

**Jerusalem- Palestine**

**1434/2013**

**Assessment of Patient Safety Culture in the Palestinian  
Hospital Pharmacies**

**Prepared By:**

**Wafa' J. Zaghari**

**B.Sc. Pharmacy, Al Quds University-Palestine**

**Supervisor**

**Motasem Hamdan, Ph.D.**

A Thesis Submitted In Partial Fulfillment of Requirements for  
Degree of Masters in Policies and Health Management, School  
of Public Health – Al Quds University

**1434/2013**

**Al- Quds University**  
**Deanship of Graduate Studies**  
**School of Public Health**



**Thesis Approval**

**Assessment of Patient Safety Culture in the Palestinian  
Hospital Pharmacies**

**Prepared by: Wafa' J. Zaghari**  
**Registration No.: 20912599**  
**Supervisor: Motasem Hamdan, Ph.D.**

Master thesis submitted and accepted in .....

The names and signatures of the examining committee members are as follows:

Head of committee: Dr. Motasem Hamdan	Signature: .....
Internal examiner: Dr. Hussein Hallak	Signature: .....
External examiner: Dr. Ali Shaar	Signature: .....

**Jerusalem – Palestine**  
**1434/2013**

## **Declaration**

I certify that this thesis submitted for the degree of master, is the result of my own research, except where otherwise acknowledged and that this thesis -or any part of the same material- has not been submitted for a higher degree to any other university or institution.

Signature: .....

Wafa' J. Zaghari

Date: May 25, 2013

## **Dedication**

To the "soul out of my soul" who kept my spirits up along this journey  
To those who lifted me up when this thesis seemed to be interminable  
To those who surrounds me by their endless love, support and encouragement

To you my *Great Parents* I dedicate my thesis

*Wafa' J. Zaghari*

## Acknowledgements:

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

{ وَكَانَ فَخْرًا لِلَّهِ تَعَالَى }

Thanks to ALLAH for the wisdom and perseverance HE has been bestowed upon me during this research project, and indeed, throughout my life.

This work would not have been a reality without the great support from my supervisor Dr. Motasem Hamdan, under whose guidance I have accomplished this study. His expertise, understanding, and patience, added considerably to my experience, to him I would like to express my greatest gratitude.

Very special thanks go to Dr. Hussein Hallak, for his kind help in checking my thesis tool translation, and for his continuous motivation and encouragement along this journey.

My sincere thanks go to my parents for their unconditional support, both financially and emotionally throughout my degree. In particular, the patience and understanding shown by my mother “*Ibtisam*”, my father “*Jamal*”, my sister “*Huda*”, my brother “*Anas*” and his wife “*Ala*”, my brother “*Mohammad*”, my grandfather and my grandmother during the previous years is greatly appreciated.

I am grateful to all my friends, most importantly Aya, Ethar, Assel, Abeer, Siham, Ola, Neda, Shahd, Rasha, Dr. Anan, Therease who helped me in adapting and distributing the survey. And many people and colleagues, who have been a part of my postgraduate education in Al Quds University, I am highly grateful to all of them.

I doubt that I will ever be able to convey my appreciation fully, but I owe you all my eternal gratitude for making this thesis possible.

## **Abstract**

**Background:** Patient safety culture assessment in pharmacies is increasing largely worldwide, many tools that were used to assess patient safety culture at the hospital settings as a whole are now adapted to be used for pharmacies. One of the most commonly used and rigorously validated tools to measure patient safety culture is the Safety Attitudes Questionnaire (SAQ). The tool consists of 30 items that cover six safety culture domains.

The intention of this research is to map the patient safety culture in the Palestinian hospital pharmacies, this will be achieved through measuring and analyzing the patient safety culture domains there, understanding factors influencing safety culture and examine variations between different hospital pharmacies. This assessment helps in determining safety culture domains that are considered as areas of strength, and safety culture domains that are considered as areas of weakness for each hospital pharmacy.

Mapping patient safety culture in hospital pharmacies will end up by directing each hospital pharmacy to improve areas of weakness effectively and efficiently.

**Purpose:** To assess patient safety culture in the Palestinian hospital pharmacies, and to assess the association of hospitals and respondents characteristics with patient safety culture.

**Methods:** A cross-sectional design was used. The English version of the SAQ was translated and adapted to the Palestinian context. The survey was carried out in (28) Palestinian hospitals in the West Bank and East Jerusalem. All pharmacist assistants, pharmacist, and clinical pharmacists in these hospitals were targeted, estimated to 115 personnel.

Items mean and scale scores were calculated. Then a composite score equivalent to the arithmetic mean of the scale scores were also calculated. In order to identify areas of strength and areas for potential improvement, the percentages of positive responses for the survey domains and items were calculated. Univariate analysis was used to test associations between composite patient safety scores and different respondent and hospital characteristics.

**Findings:** 73 persons participated in the study, response rate was 68.8%. Females were 66.7%, 51% were pharmacist or clinical pharmacist, and 84.7% were with experience  $\geq 5$  years in profession. Two SAQ domains, job satisfaction and working conditions, were identified as areas of strength and received  $\geq 75\%$  of positive responses.

Patient safety level was graded as “accepted” by (50%) of the respondents and none gave their pharmacy a “Poor” or “Failing” grade. Event reporting was very low, (66%) of the respondents didn’t report any event in the past year.

In regard to the associations between safety culture domains scores with participants and hospital characteristics, the association was statistically significant ( $P < 0.05$ ) in regard to hospital ownership with the teamwork climate ( $P = 0.02$ ), perception of management ( $P = 0.03$ ), job satisfaction ( $P = 0.001$ ), and working conditions ( $P = 0.02$ ) and all in favor of the private and NGO hospitals. Participants working in hospitals sized  $< 50$  beds were more positive towards perception of management climate than their counterparts in larger sized hospitals ( $P = 0.031$ ). The overall safety score was significantly associated only with the hospital ownership ( $P = 0.002$ ) in favor of the private and NGO hospitals.

No statistically significant associations were found between safety culture domains and the participant’s age, gender, years of experience in profession and hospital, level of education, working hours, and job title.

The safety culture domain scores varied largely among different hospital pharmacies. None of the six domains were positive for four hospitals, twelve hospitals have negative total safety score and the best result was having five positive safety domains and a positive total safety score and this result was achieved only by two hospitals.

**Conclusions:** Safety culture assessment results revealed areas for potential improvement in Palestinian hospital pharmacies. Hospitals need to formulate specific patient safety culture interventions to address these weaknesses.

## تقييم ثقافة سلامة المريض في صيدليات المستشفيات الفلسطينية

إعداد: وفاء جمال الزغاري

إشراف: د. معتصم حمدان

### ملخص الدراسة

**مقدمة:** تحظى عملية تقييم ثقافة سلامة المريض في الصيدليات باهتمام متزايد على المستوى العالمي، و هذا أدى إلى العمل على تطوير الكثير من الأدوات التي كانت تستعمل لتقييم ثقافة المريض في المستشفيات عموماً لتصبح ملائمة للاستخدام في الصيدليات. و من أشهر الأدوات المعتمدة لتقييم ثقافة سلامة المريض (استبيان توجهات العاملين حول السلامة) و الذي يتكون من 30 سؤال تغطي 6 عناصر لثقافة سلامة المريض.

تعنى هذه الدراسة بتوضيح ماهية ثقافة سلامة المريض في صيدليات المستشفيات و معرفة العوامل التي تؤثر عليها، و كذلك توضح الدراسة الفروق بين هذه العناصر في صيدليات المستشفيات المختلفة، كما تساعد في تحديد عناصر الثقافة التي تعتبر عناصر قوة أو عناصر ضعف و هذا يؤدي في نهاية المطاف إلى توجيه المستشفيات إلى تحسين العناصر الضعيفة لديها.

**الهدف:** تقييم ثقافة سلامة المريض في صيدليات المستشفيات الفلسطينية و تحديد العلاقة بين صفات العاملين في المستشفيات و خصائص المستشفى من جهة و ثقافة سلامة المريض من جهة أخرى.

**آلية البحث:** استخدم الأسلوب المقطعي لإجراء الدراسة. تمت ترجمة النسخة الانجليزية من الاستبيان إلى اللغة العربية و تمت ملائمته ليناسب واقع صيدليات المستشفيات في فلسطين. أجريت هذه الدراسة في 28 مستشفى في الضفة الغربية و القدس الشرقية و استهدف البحث جميع مساعدي الصيدلة، الصيدلة و الصيدلة السريريين في المستشفيات و قدر عددهم بنحو 115 شخص.

تم حساب المعدل و نسبة الايجابية لكل سؤال و كذلك لعنصر السلامة الإجمالي و ذلك لتحديد عناصر القوة و عناصر الضعف في ثقافة سلامة المريض حيث عرف عنصر القوة بأنه العنصر الذي حصل على نسبة ايجابية أعلى أو تساوي 75%. تم تحليل المتغير الأحادي لفحص الارتباط بين عنصر ثقافة سلامة المريض الإجمالي من جهة و صفات العاملين و خصائص الصيدلية من جهة أخرى.

**النتائج:** اشترك في البحث 73 شخص حيث بلغت نسبة الاستجابة 68.8%، كانت نسبة المشاركين من الإناث 66.7%، و نسبة الصيدالة أو الصيدالة السريريين بلغت 51%، أما المشاركين الذين لديهم خبرة خمس سنوات أو أكثر في مهنة الصيدلية كانت نسبتهم 84.7%.

أظهرت النتائج أن عنصرين فقط من عناصر ثقافة سلامة المريض كانوا ايجابيين هما الرضا الوظيفي و ظروف العمل. قيم 50% من المشاركين درجة سلامة المريض بأنها مقبولة و لم تقيم بأنها ضعيفة أو سيئة من قبل أي من المشاركين و كشفت الدراسة أن 66% من المشاركين لم يبلغوا عن أي خطأ طبي خلال السنة الماضية.

أبرزت الدراسة أن ملكية المستشفى لها تأثير ذو دلالة إحصائية على بعض عناصر ثقافة سلامة المريض و هي العمل بروح الفريق، إدراك الإدارة لثقافة سلامة المريض، الرضا الوظيفي، و ظروف العمل و جميعها لصالح المستشفيات الخاصة و غير الحكومية. كما أوضحت النتائج أن إدراك الإدارة لثقافة سلامة المريض كانت ايجابية لدى العاملين في المستشفيات التي يقل عدد أسرته عن 50 سرير. لم تظهر الدراسة وجود علاقات ذات دلالة إحصائية بين عناصر ثقافة سلامة المريض و عمر المشارك، جنسه، عدد سنوات الخبرة لديه في المهنة و في المستشفى، تحصيله العلمي، ساعات عمله أو مسماه الوظيفي.

كشفت الدراسة أن عناصر ثقافة سلامة المريض تتباين بين صيدليات المستشفيات المختلفة حيث لم يكن أي من هذه العناصر ايجابيا في 4 مستشفيات، و ظهر أن 12 مستشفى كان عنصر ثقافة سلامة المريض الإجمالي لديها سلبيا أما أفضل النتائج كانت لصالح مستشفيين حصلوا على 5 عناصر ايجابية و عنصر إجمالي ايجابي.

**الخلاصة:** خلصت الدراسة إلى أن ثقافة سلامة المريض بحاجة إلى تحسين في صيدليات المستشفيات و نوع الإجراء التحسيني يختلف من مستشفى لآخر، كما أكدت على ضرورة تعزيز التبليغ عن الأخطاء الطبية في المستشفيات.

# Table of Contents

<b>Chapter One</b>	1
Introduction	1
1.1 Introduction	1
1.2 Problem Statement	2
1.3 Justification of the study	2
1.4 Context of the study	3
1.5 Aim of the study	3
1.6 Study objectives	4
1.7 Study assumptions	4
<b>Chapter Two</b>	5
Literature Review	5
2.1 Introduction	5
2.2 Literature Review	7
<b>Chapter Three</b>	10
Conceptual Framework	10
3.1 Introduction	10
3.2 Measurement of patient safety	11
3.3 Safety culture domains measured in the survey	12
<b>Chapter Four</b>	19
Methodology	19
4.1 Introduction	19
4.2 Study Design	19
4.3 Study Survey	19
4.4 Administration of the Survey	21
4.5 Reliability of the Survey	21
4.7 Study Limitations	22
<b>Chapter Five</b>	23
Results	23

5.1 Introduction	23
5.2 Response rate	23
5.3 Respondent characteristics	23
5.3.1 Sex and age	23
5.3.2 Educational level	24
5.3.3 Time worked and experience	24
5.3.4 Staff position	24
5.3.5 Interaction with patients	24
5.4 Survey Analysis	26
5.4.1 Reliability	27
5.4.2 Safety Attitude Questionnaire items and scales mean scores	27
5.4.3 Patient safety culture outcomes results	31
A. Overall patient safety grade	31
B. Number of events reported	32
5.4.4 Means for dimension scores across hospital and respondent characteristics	33
5.4.5 Patient safety culture aggregate scores	36
5.4.6 Correlation between safety culture dimensions	37
5.4.7 Mean SAQ scale scores by hospital pharmacies	38
<b>Chapter Six</b>	<b>41</b>
Discussion	41
Conclusions	45
Recommendations	46
References	48
Annexes	53

## List of Tables

Table (3.1)	Patient safety culture domains and definitions	14
Table (3.2)	Patient safety culture domains and their corresponding items	16
Table (5.1)	Demographic characteristics of the hospital pharmacists	25
Table (5.2)	SAQ's <i>Cronbach's alpha</i> , the percentage of positivity, the mean of scores	27
Table (5.3)	Safety Attitude Questionnaire items and scales mean scores	29
Table (5.4)	Patient safety culture mean domains scores by participant's and institution characteristics	34
Table (5.5)	Participants' characteristics and associations with the safety culture composite scores	36
Table (5.6)	Correlation coefficient values for the relationship between safety culture dimensions	38

## List of Graphs

Figure (3.1)	Conceptual frame work of pateint safety culture	14
Figure (5.1)	Percentage of positivity of patient safety culture domains	31
Figure (5.2)	Patient safety level	32
Figure (5.3)	Number of event reported in the previous 12 months	33
Figure (5.4)	Composite score by hospital pharmacies	39
Figure (5.5)	Safety culture scores by hospital pharmacies	40

## List of abbreviations

BA	Bachelor's Degree
FMAQ	Flight Management Attitude Questionnaire
ICU	Intensive Care Unit
IOM	Institute Of Medicine
MOH	Ministry Of Health
NGO	Nongovernmental Organization
NICU	Neonate Intensive Care Unit
OR	Operating Room
SAQ	Safety Attitude Questionnaire
SPSS	Statistical Package For The Social Sciences
UK	United Kingdom
USA	United States Of America
UN	United Nations
WHO	World Health Organization

## **List of Annexes**

Annex 1	Safety Attitude Questionnaire (SAQ)	54
Annex 2	Formal letter for hospital director permission	58
Annex 3	Mean SAQ scale scores by hospital pharmacy	59

# **Chapter One**

## **Introduction**

### **1.1 Introduction**

Whenever people enter a health care facility, they hope if not expect, to receive an appropriate care in a safe environment. People everyday entrust their health to the care provided in health care organizations, in return, these facilities have an obligation to provide the safest care, treatment, and service possible (Joint Commission, 2005). Research has shown that tens of millions of patients worldwide suffer disabling injuries or death due to unsafe medical care every year (WHO, 2008).

Nearly one in ten patients is harmed while receiving health care in well-funded and technologically advanced hospital settings (WHO, 2008). Much less evidence about the burden of unsafe care in developing countries is available, where there may be greater risk of patient harm due to infrastructure, technology and resources limitations (WHO, 2009).

Quality and patient safety are essential attributes of good health services, many view quality health care as the overarching umbrella under which patient safety resides. The Institute of Medicine (IOM) identifies the components of quality care for the 21<sup>st</sup> century as: quality care is safe, effective, patient-centered, timely, efficient, and equitable (WHO, 2013).

The IOM defines healthcare quality as the extent to which health services provided to individuals and patient populations improve desired health outcomes. The care should be based on the strongest clinical evidence and provided in a technically and culturally competent manner with good communication and shared decision making. (Pelletier & Beaudin, 2008).

## **1.2 Problem Statement**

The intention of this research is to map the patient safety culture in the Palestinian hospital pharmacies, through measuring and analyzing the patient safety culture domains in these hospital pharmacies, understanding factors influencing safety culture and examine variations between different hospital pharmacies.

Mapping the patient safety culture at the Palestinian hospital pharmacies will enable us to determine safety domains that are considered as areas of strength, and safety domains that are considered as areas of weakness for each hospital, this will end up by directing hospital pharmacies to improve areas that need improvement effectively and efficiently.

## **1.3 Justification of the study**

The first step in fixing any default system in any healthcare organization is to identify the current status of that broken system (Pronovost et al., 2003). Being proactive in dealing with errors is highly superior to respond to them reactively.

In healthcare organizations where human life is the issue, efforts that proactively identify and eliminate hazards should be applied. Patient safety culture assessment is a proactive method which has the potential to significantly improve safety through identifying potential areas for improvement and design interventions to address them.

Studies to assess patient safety culture in Palestine are rare, and these studies have predominantly focused on the hospital setting as a whole. Studies that focus on individual hospital units and departments are highly needed as safety culture differs significantly not only between hospitals, but also by different departments (Shih, 2004). Because culture varies by unit, and care is organized and delivered at the unit level, it is important to assess safety culture and intervene to improve it at this level (Joanne et. al., 2010).

Patient safety culture assessment in pharmacies is spreading largely worldwide, and many tools that were used to assess the hospital settings are now adapted to be used for pharmacies (Norden-Hagg et al., 2010).

Pharmaceutical care in Palestine is generally provided by a mix of public, voluntary non-governmental as well as private for-profit hospitals in addition to the community pharmacies. Most of the hospitals still lack systematic patient safety improvement programs, few of them are in the process of designing and implementing safety initiatives (Hamdan and Saleem, 2013). Despite interest in safety culture assessment, there is a lack of information about the gaps in safety climate and the factors affecting safety culture in Palestinian hospital pharmacies.

In Palestine no such study was made to assess patient safety culture in the Palestinian hospital pharmacies, so data on this issue are not available.

#### **1.4 Context of the study**

The study was conducted in all the pharmacies of the Palestinian hospitals in the West Bank and East Jerusalem. All the governmental, NGO hospitals and private general hospitals were included in the study to ensure similarity among participants. The hospitals have 2,488 beds in total, their size ranged from 14 to 216 beds (Annual health report, 2010).

#### **1.5 Aim of the study**

The aim of the study is to assess the perceptions of the pharmacists towards patient safety culture in the Palestinian hospital pharmacies.

## **1.6 Study objectives**

1. To assess the participant's perceptions towards the six patient safety culture domains (teamwork climate, job satisfaction, safety climate, perception of management, stress recognition, and working condition) and identify areas of strength and areas with potential for improvement in Palestinian hospital pharmacies.
2. To assess the association between hospital and respondent characteristics (including hospital ownership and size, respondent sex, age, experience, work hours, educational level and other factors) and patient safety culture in Palestinian hospital pharmacies.
3. To assess variations in patient safety culture among Palestinian hospital pharmacies.

## **1.7 Study assumptions**

The followings are the assumptions of the study:

1. Sufficient number of professionals will participate, respond and cooperate in filling the study instrument.
2. All the items and concepts, in the study instrument will be understood and clear for participants.
3. All the participants will fill in the questionnaire honestly and sincerely that will reflect the real situation in the organization.
4. Valid and reliable data are provided by participants.

## Chapter Two

### Literature Review

#### 2.1 Introduction

The potential injuries that arise from the well intentioned actions of healers were recognized by Hippocrates thousands of years ago. Greek healers in the 4th Century B.C. drafted the Hippocratic Oath and pledged to “*prescribe regimens for the good of my patients according to my ability and my judgment and never do harm to anyone*” (<http://en.wikipedia.org>).

Millennia later in 1999 the landmark report *To Err Is Human*, was produced by the (IOM) and it shocked the healthcare industry with estimates that up to 98,000 people die because of medical errors each year in the United States. This report was amplified by a 2003 RAND study that suggested that hospitalized patients in the United States on average receive only half the recommended therapies. The impact of these reports damaged consumer confidence in the healthcare industry and galvanized broad industry support to improve patient safety (Pronovost et al., 2009).

In the last twenty years the most important transformation in health care was not managed care, minimally invasive surgery, or diagnostic-related groups. It was the transformational knowledge about safety science, the fact that the system not individuals acting alone create safety, how medical accidents occur, and how we can prevent harm from reaching patients through accidents (kohn et al., 2000).

The IOM noted that many of the errors in health care result from a culture and system that are fragmented. Research indicated that mistakes were not due to persons not trying hard enough; they resulted from inherent shortcomings in the health care system (kohn et al., 2000).

Patient safety is a new healthcare discipline that emphasizes the reporting, analysis, and prevention of medical errors that often leads to adverse healthcare events. It is defined by the (IOM) as “the freedom from accidental injury due to medical care or medical errors”. Recognizing that healthcare errors impact 1 in every 10 patients around the world, the WHO calls patient safety an endemic concern (<http://en.wikipedia.org>).

Patient safety is a critical component of the health care quality, so developing a positive patient safety culture is a crucial element in the improvement of patient safety in health care organization (Wakefield et al., 2001).

Culture is the invisible force behind the tangibles and observables in any organization, a social energy that moves people to act. Culture is to an organization what personality is to the individual, a hidden yet unifying theme that provides meaning, direction, and mobilization (Kilman, 1986).

Cultures help members deal with uncertainty, on both an individual and collective basis, by defining what is important in a given situation, providing guidance on how individuals should perceive situations and interact with each other, and providing members with accepted ways of expressing and affirming beliefs, values, and norms (O'Reilly and Chatman, 1986). That is, organizational culture provides its members with direction, purpose, and perspective. Safety culture is a specific form of organizational culture, which addresses the context related to achieving safe outcomes for patients. (Ruchlin et al., 2004).

Accordingly safety culture has been defined as "the product of individual and group values, attitudes, perceptions, competencies, and patterns of behavior that determine the commitment to, and the style and proficiency of an organization's health and safety management" (Sexton et al., 2006).

Achieving a culture of patient safety requires an understanding of the values, beliefs, and norms about what is important in an organization and what attitudes and behaviors related to patient safety are supported, rewarded, and expected (Sorra et al., 2011).

## 2.2 Literature Review

After the Institute of Medicine report “*To Err Is Human*” was published, a broad national effort was made in the United States to establish patient safety centers, expand reporting of adverse events, and develop safety programs in health care organizations (Stelfox et al., 2006).

Safety is a system characteristic; in order for this property to arise, health care organizations must develop a system orientation to patient safety, rather than an orientation that find and attach blame to individuals. The development of such a culture of safety is hard because it would be difficult to overestimate the underlying critical importance of such development to any efforts that are made to reduce error. The most important barrier to improving patient safety is lack of awareness of the extent to which errors occur daily in all health care settings and organizations. This lack of awareness exists because the vast majority of errors are not reported, and they are not reported because personnel fear they will be punished, thus health care organizations should establish non-punitive environments and systems for reporting errors and accidents within their organization (Cook et al., 2007).

The IOM Quality of Health Care in America Committee believes that a major force for improving patient safety is the intrinsic motivation of health care providers, shaped by professional ethics, norms and expectations, and the interaction between factors in the external environment and factors inside health care organizations can also prompt the changes needed to improve patient safety.

Factors in the external environment include availability of knowledge and tools to improve safety, strong and visible professional leadership, legislative and regulatory initiatives, and actions of purchasers and consumers to demand safety improvements. Factors inside health care organizations include strong leadership for safety, an organizational culture that encourages recognition and learning from errors, and an effective patient safety program (Stelfox et al., 2006)

Several initiatives have been implemented to improve safety mainly through establishing standards and initiating accreditation schemes (Alahmadi, 2010). WHO launched the World Alliance for Patient Safety in October 2004, the goal was “to develop standards for patient safety and assist UN member states to improve the safety of health care”. The Alliance raises awareness and potential commitment to improve the safety of care and facilitates the development of patient safety policy and practice in all WHO Member States (Fifty-Ninth World Health Assembly-WHO, 2006).

Researchers have identified four factors from the literature that characterize a safety culture:

1. Recognition of the risk of error in the organization’s activities.
2. Blame-free environment for reporting.
3. Collaboration across the organization.
4. Organizational resources for safety.

An overall safety climate that encompasses the development of effective safety practices and encourages adherence to these practices as well as continuous learning from errors provides that basis for safer performance (Alahmadi, 2010).

(IOM) recommended that healthcare organizations should work to enhance their patient safety culture. Since then, surveys measuring patient safety climate in healthcare organizations have begun to emerge (Colla et al., 2005).

The validated SAQ is one of the most commonly used tools to measure safety culture across health care settings (Colla et al., 2005). It has been used to explore the relationship between safety culture in health care and patient outcomes and has been shown to correlate with fewer medication errors, shorter lengths of stay, and fewer adverse outcomes (Nordén-Hagg, 2010).

The services quality and the people safety served by the pharmacies are usually regulated by a framework of laws, which establish the minimum requirements. In addition, proprietors and managers of pharmacies often use internal procedures and guidelines. To ensure that these requirements regarding quality and patient safety are maintained, a systematic examination

and assessment of the safety-related norms and behaviors across pharmacies is needed (Nordén-Hagg, 2010).

## Chapter Three

### Conceptual Framework

#### 3.1 Introduction

Systems of care that lack safety and reliability is the problem that faces health care providers in crossing the chasm from the care we currently provide to the care we could provide (Kohn L. et al., 2000). To solve this problem the culture of health care system must be changed from one in which errors are viewed as the result of individual failure to one in which errors are viewed as opportunities to improve the system (IOM, 2001).

The first step in fixing default system in any healthcare organization is to identify the current status of that broken system (Pronovost et al., 2003). Many tools have been used in assessing safety culture across health care settings such as Patient Safety Culture in Healthcare Organizations, Hospital Survey on Patient Safety Culture, Safety Climate Survey, Manchester Patient Safety Assessment Framework and Safety Attitudes Questionnaire. SAQ is considered one of the most rigorously tested and most commonly used tools (The Health Foundation, 2011).

Safety culture assessments of hospital pharmacies have been included in overall hospital based safety culture assessments. As a result there are no results that describe the safety culture only in pharmacies as they have been reported on an aggregated level (Norden-Hagg et al., 2010).

The medication dispensing process in hospital pharmacy is a source of medication errors and potential adverse drug events. Some studies performed in the United States have estimated the rates of pharmacy dispensing errors to range from 0.0041% to 3.6%. Although the given rates seem to be small, the volume of medications dispensed translates these rates into a large number of errors with potential to harm patients (Jennifer L. Cina et al., 2006).

Pharmacists play a key role in reducing medication errors and hence the adverse drug events associated with them which will lead to improving patient safety in healthcare. Pharmacists are one of the most accessible healthcare providers, and are among the best trained to help patients use their medication.

Clinical pharmacists play important roles in a variety of health care settings, and their activities appear to benefit individual patients as well as health care organizations in a multitude of ways despite the rejection they are faced from physician as they consider the role of clinical pharmacist an interference of their own role.

A lot of studies have been performed to evaluate the role of clinical pharmacist of offering safer care, for example a clinical pharmacist participating in an intensive care unit team led to “a statistically significant 66% decrease in preventable ADEs due to medication ordering.” Another study suggested that ward-based clinical pharmacists may benefit inpatient medication use safety and quality (<http://www.ahrq.gov>).

### **3.2 Measurement of patient safety**

The assessment of patient safety culture has many benefits for health care organizations. According to Neiva & Sorra (2003) the assessment serves a number of objectives:

1. Profiling (diagnosis): It may aid in determining the specific safety culture or climate profile of the unit; including the identification of “strong” and “weak” points.
2. Awareness enhancement: It may serve to raise staff awareness, typically when conducted in parallel with other staff oriented patient safety initiatives.
3. Measuring change: It may be applied and repeated over time to detect changes in perception and attitude, possibly as part of a “before and after intervention” design.
4. Benchmarking: It may be used to evaluate the standing of the unit in relation to a reference sample (comparable organizations and groups).

The SAQ was derived from the Flight Management Attitude Questionnaire (FMAQ), a human factors survey used to measure cockpit culture in commercial aviation (Modak et al., 2007). Healthcare has taken note of aviation's safety record due to similarities between the two as being high hazard and complex industries. Both industries are comprised of highly trained professionals working in teams that use technology to manage hazardous processes where risk varies dramatically from moment to moment.

The image of pilots and physicians is similar: confident and hard-working experts able to act in the heat of the moment to save lives. However, the health care system is more complex than aviation as more professionals are involved in health care than aviation (pharmacists, physicians, different types of nurses, physical therapists, respiratory therapists, and more). These professionals also interact with a greater variety of devices than in aviation, and the object of their work, the human body, is more complex than an airplane (Thomas, 2006).

SAQ focuses on safety climate and asks healthcare teams to describe their attitudes to six domains, using a Likert scale to score (The Health Foundation, 2011). It is one of the most commonly used and rigorously validated tools for measuring safety climate in healthcare (Norden-Hagg et al., 2010). A distinguishing feature is that higher scores on this survey have been associated with positive patient and staff outcome data. This contrasts with other tools where there is less likely to be a direct association with patient outcomes (Pronovost & Sexton, 2005). The SAQ has been proved to have good psychometric properties to assess safety climate in health care (Sexton et al., 2006).

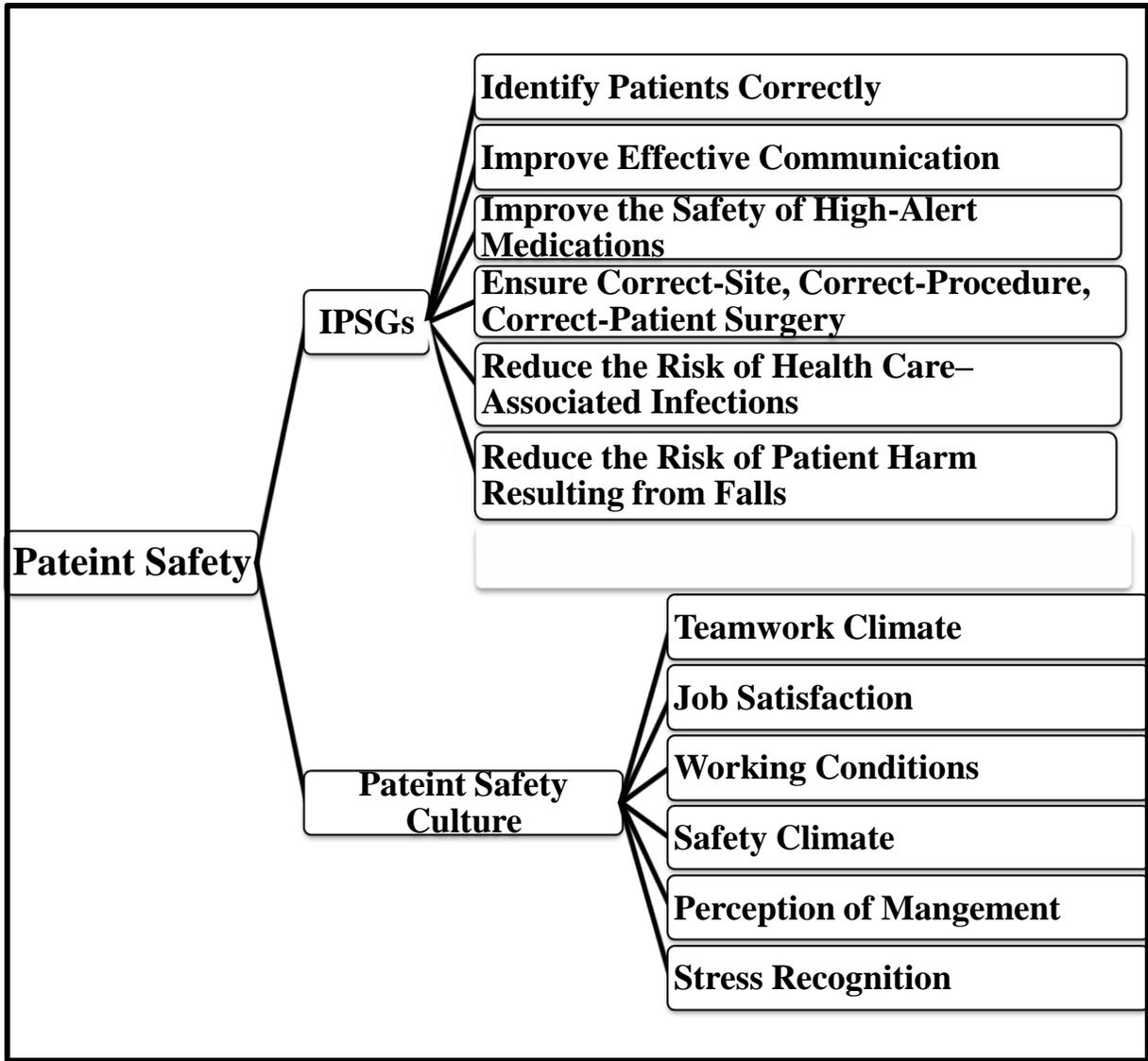
### **3.3 Safety culture domains measured in the survey**

The SAQ is a refinement of the Intensive Care Unit Management Attitudes Questionnaire (Sexton et al., 2000) which was derived from a questionnaire widely used in commercial aviation, the Flight Management Attitudes Questionnaire (FMAQ) (Helmreich et al., 1993). The FMAQ was created after researchers found that most airline accidents were due to breakdowns in interpersonal aspects of crew performance such as teamwork, speaking up, leadership, communication, and collaborative decision making (Sexton et al., 2006).

25% of the FMAQ items demonstrated utility in medical settings in terms of the subject covered and factor loadings, so they were retained on the SAQ. The new SAQ items were generated by discussions with healthcare providers and subject matter experts. In addition, two conceptual models were used to decide which items to include: Vincent's framework for analyzing risk and safety (Vincent et al., 1998) and Donabedian's conceptual model for assessing quality (Donabedian, 1988).

The SAQ has been adapted for use in intensive care units (ICU), operating rooms (OR), general inpatient settings and ambulatory clinics. For each version of the SAQ, item content is the same, with minor modifications to reflect the clinical area. For example, "In this ICU, it is difficult to discuss mistakes," vs. "In the ORs; it is difficult to discuss mistakes." The SAQ elicits caregiver attitudes through the 6 factor analytically derived climate scales: teamwork climate; safety climate; job satisfaction; perceptions of management; working conditions; and stress recognition (Sexton et al., 2006).

The conceptual framework we adopted for patient safety (Figure 3.1) consists of the six safety culture domains suggested by Sexton (Sexton et al., 2006).



**Graph 3.1: Conceptual frame work of pateint safety culture**

Table (3.1) shows the patient safety culture domains and their definitions.

**Table (3.1): Patient safety culture domains and definitions**

Domain	Definition
1. Job satisfaction	Positivity about the work experience

2. Teamwork climate	perceived quality of collaboration between personnel
3. Safety climate	Perceptions of a strong and proactive organizational commitment to safety
4. Perceptions of management	Approval of managerial action
5. Stress recognition	Acknowledgement of how performance is influenced by Stressors
6. Working conditions	Perceived quality of the work environment and logistical support (staffing, training, etc.)

Each of the six domains has its effect on safety culture. Andy Brazier (2008) in his book stated that “promoting good job satisfaction is necessary to improve safety culture” (Health and Safety for Beginners, 2009). Teamwork climate also has a significant role in creating a culture of patient safety; this is due to the importance of the transfer of knowledge and communication between healthcare professionals, in addition to work load distribution, advice, support, and discussions that take place in the work setting (Rudman et al., 2006).

Safety climate is the psychological aspect of safety culture that refers to ‘how people feel’ about safety and safety management systems, this encompasses the beliefs, attitudes, values and perceptions of individuals and groups at all levels of the organization (Human Engineering for the Health and Safety Executive, 2005).

Cumulative evidence demonstrates that working conditions have an important influence on patient safety culture and deserve careful attention from healthcare professionals (Hickam, et al., 2003).

Measuring management perception of safety is crucial in assessing the culture of safety in healthcare setting. Management commitment to safety is important in creating a good safety

culture. Many studies have shown that organizations that lack strong managerial commitment are associated with high accident rates, this is normal as because where employees perceive managerial attitudes and actions towards safety to be less than adequate, problems will arise to affect the effective function of the whole organization causing unsafe practices to threaten the safety of patients (Cooper, 1995).

A well known relation exists between job induced stress and accident rates, too much stress will decrease job performance and increase the likelihood of being involved in an accident that put other at risk, so assessing safety culture will be meaningless without assessing stress recognition (Cooper, 1995).

The items of the SAQ are grouped according to the safety culture domain they are intended to measure. The items for each domain are shown in table (3.2) and negatively worded items are indicated.

**Table (3.2) Patient safety culture domains and their corresponding items**

SAQ Items
<p><b>Teamwork Climate</b></p> <p>(Strongly Disagree, Slightly Agree, Neutral, Slightly Agree, Strongly Agree)</p>
1. Inform pharmacy personnel about patient care, is well received here.
2. In this pharmacy/work setting it is difficult to speak up if I perceive a problem with patient care ( <i>Negatively worded</i> )
3. Disagreements in this pharmacy/work setting are appropriately resolved (i.e., not who is right, but what is best for the patient)
4. I have the support I need from other personnel to care for patients
5. It is easy for personnel in this pharmacy/ work setting to ask questions when there is something that they do not understand
6. The physicians, nurses, and pharmacy personnel here work together as a well-coordinated team

<p><b>Safety Climate</b></p> <p>(Strongly Disagree, Slightly Agree, Neutral, Slightly Agree, Strongly Agree)</p>
1. I would feel safe being treated here as a patient
2. Medication errors are handled appropriately at this pharmacy/work setting
3. I receive appropriate feedback about my performance
4. In this pharmacy/work setting it is difficult to discuss errors ( <i>Negatively worded</i> )
5. I am encouraged by my colleagues to report any patient safety concerns I have
6. The culture in this pharmacy/work setting makes it easy to learn from the errors of others
7. I know the proper channels to direct questions regarding patient safety in this pharmacy/work setting
<p><b>Perception of Management</b></p> <p>(Strongly Disagree, Slightly Agree, Neutral, Slightly Agree, Strongly Agree)</p>
1. The management of this department is doing a good job
2. The management of this department supports my daily efforts
3. The levels of staffing in this pharmacy/work setting are sufficient to handle the number of patients
4. I am provided with adequate, timely information about events in this department that might affect my work
<p><b>Job Satisfaction</b></p> <p>(Strongly Disagree, Slightly Agree, Neutral, Slightly Agree, Strongly Agree)</p>
1. I like my job
2. Working in this pharmacy/work setting is like being part of a large family
3. This pharmacy/work setting is a good place to work

4. I am proud to work at this pharmacy/work setting
5. Morale in this pharmacy/work setting is high
<b>Working Conditions</b>  (Strongly Disagree, Slightly Agree, Neutral, Slightly Agree, Strongly Agree)
1. The pharmacy department does a good job of training new personnel
2. All the necessary information for therapeutic decisions is routinely available to me
3. This pharmacy/work constructively deals with problem of physicians and employees
4. Trainees in pharmacy are adequately supervised
<b>Stress Recognition</b>  (Strongly Disagree, Slightly Agree, Neutral, Slightly Agree, Strongly Agree)
1. Fatigue impairs my performance during emergency situations
2. When my workload becomes excessive, my performance is impaired
3. I am less effective at work when fatigued
4. I am more likely to make errors in hostile or tense situations

## **Chapter Four**

### **Methodology**

#### **4.1 Introduction**

This chapter describes the study design, the target population, variables, survey instrument, data collection and analysis, using Safety Attitude Questionnaire (Pharmacy version).

#### **4.2 Study Design**

The study employed a cross-sectional design. Data were collected between February and April 2012. The population of the study consisted of all the assistant pharmacists, pharmacists and clinical pharmacists working in the Palestinian hospital pharmacies. The population was estimated to 115 persons based on data obtained from the hospitals. Since the size of the population was rather low all the pharmacy employees in these hospitals were targeted in the study. The inclusion criterion was staff (trainees were excluded) who worked in the hospital pharmacy for at least three months prior to the survey administration, regardless of whether they have had direct or indirect contact with patients.

#### **4.3 Study Survey**

The SAQ-pharmacy version was used to assess care providers attitudes by using six scales: teamwork climate, safety climate, job satisfaction, perceptions of management, working conditions, and stress recognition. The SAQ has been proved to have good psychometric properties to assess safety climate in health care (Sexton et al., 2006).

SAQ is a further development of the Intensive Care Unit Management Attitudes Questionnaire, originally derived from the FMAQ, a traditional human factors survey with a 20-year history in aviation (Sexton et al., 2006).

The SAQ was developed over 15 years, to assess the quality of safety and teamwork related norms and behaviors of individual workers, in a particular setting (Norden-Hagg et al., 2010). It has been adapted for use in several different settings, including intensive care units, operating theatres, labor and delivery units, emergency departments, ambulatory clinics and pharmacies. The questionnaire items are generically framed, changing only references to the setting (e.g. "in this clinic" vs. "in this pharmacy") and role (e.g. "physicians" vs. "pharmacists") (Norden-Hagg et al., 2010).

The short version of the SAQ is consisted of 30 items that cover the six domains. Two questions about the perceived patient safety level and the number of events reported in the past 12 months were added. Participants rated their agreement with the survey items using a 5-point Likert scale ranging from 1 "strongly disagree" to 5 "strongly agree".

Additional items were included to identify respondents' demographic information (gender, age, years of experience in the profession and in the hospital, job position at the hospital, hours of work per week and the level of education). At the end of the questionnaire an open-ended question was added to enable the respondents to add three recommendations that will improve patient safety at their work area. In average it took 10-15 minutes to complete the survey.

SAQ was translated into Arabic to remove language barriers. This was done by a team of bilingual professionals who have significant experience in health research and designing surveys. Then, face validity was done using experienced pharmacists who conducted a review of the translation. The group reviewed the translation and provided suggestions to improve the quality of the translation and to contextualize it to the local hospital setting. The final version of the tool was prepared accordingly and then pretested on 15 pharmacists. Scale reliabilities were assessed using Cronbach's alpha.

#### **4.4 Administration of the Survey**

The survey was distributed to all pharmacy employees satisfying the inclusion criteria in all the targeted hospital pharmacies. In order to ensure anonymity and minimize the social desirability bias, the surveys were administered to the participants by the research team and were returned once completed in sealed envelopes to a collection point.

Al-Quds University review board approved the study. Permission to conduct the study was also obtained from the Ministry of Health (MoH) and other hospital administrations. Participants were provided with information about the aim of the study and that research results would remain confidential.

#### **4.5 Reliability of the Survey**

Analysis showed that the Arabic translation of English SAQ is a valid and reliable instrument for assessing safety culture in Arabic speaking hospital settings. Internal consistency of the instrument was measured using Cronbach's coefficient Alpha ( $\alpha$ ). The highest value (0.81) was for working conditions climate, and the lowest value (0.62) was for perception of management domain. Cronbach's Alpha ( $\alpha$ ) for the rest of domains was as follow, stress recognition (0.79); safety climate (0.69); teamwork (0.67); and job satisfaction (0.66).

The SAQ differs from other medical safety climate or "culture" surveys in four respects: first, the SAQ has been more widely used for a longer period of time, so there is benchmarking data available and many of the challenges of longitudinal assessment have been encountered and addressed; second, a larger amount of psychometric data is available for the SAQ; and third, the SAQ maintains continuity with its predecessor (the FMAQ) – a traditional human factors survey with a 20 year history in aviation. The availability of benchmarking data in the public domain enables organizations to evaluate their own climate data. Also, preserving item continuity with other high-reliability industries allows for comparisons (Sexton et al., 2006).

## **4.6 Statistical Analysis**

Response scores were converted from 5-Likert to a 100-point scale using the SAQ computation instructions (<https://med.uth.edu>). Mean item and scale scores were calculated. Then a composite score equivalent to the arithmetic mean of the scale scores were also calculated. In order to identify areas of strength or areas for potential improvement, the percentages of positive responses for the survey scales and items were calculated. Positive responses in positively worded survey items were ‘agree/strongly agree’ and in negatively worded items were ‘disagree/strongly disagree’. The percent positive scale scores were computed by averaging the percent positive response on the items within each scale.

Univariate analysis was used to test associations between composite patient safety scores and different respondent characteristics. A two-tailed *P* value <0.05 was considered statistically significant. Data was entered and analyzed using IBM-SPSS version 19.

## **4.7 Study Limitations**

1. Possible social desirability bias, might lead participants to rate safety culture higher than actual situation.
2. Some hospitals show a low response rate due to high workload.

## **Chapter Five**

### **Results**

#### **5.1 Introduction**

This chapter presents the survey results, including the characteristics of the respondents and the average percentage of positive responses for each of the survey's items and dimensions; in addition the many other statistical results are also shown. Data were entered and analyzed using SPSS 19.

#### **5.2 Response rate**

Of the 106 surveys distributed, 75 were returned. Out of these, 2 surveys were disqualified as fewer than half of the items throughout the entire survey were completed. The overall response rate was (68.8%).

#### **5.3 Respondent characteristics**

The data presented in this section are based on respondent's answers to the survey questions about their demographics. In table (5.1) the characteristics of the respondents including their sex, age, education level, job title, working hours, and their years of experience are presented, in addition the contact with the patients was also shown.

##### **5.3.1 Sex and age**

Female gender was predominated (66.7%). The mean age of the participants was  $35.29 \pm 6.55$  years and most of them (76.4%) were older than 30 years.

### **5.3.2 Educational level**

More than half of the participants 51.4% hold BA degree in pharmacy or clinical pharmacy, 34.7% of them hold diploma in pharmacy and 13.9% of all the participants have made higher studies.

### **5.3.3 Time worked and experience**

Approximately forty two (41.7%) of the respondents worked the regular working hours per week (40-59 hours per week), (58.3%) of them worked less than 40 hours per week (part time), and none of them worked over load (more than 60 hours per week).

The mean of the total working experience as a pharmacist was  $12.52 \pm 6.55$  years with most of the participants (85%) has an experience of more than five years. The mean of the total working experience at the hospital was  $7.99 \pm 5.42$  years with more than half (58%) of the participants had spent more than 5 years in their present work place.

### **5.3.4 Staff position**

Of the total staff of the hospital pharmacies that were surveyed, (34.7%) were pharmacist assistants, (41.7%) were responsible pharmacists, and (9.7%) were clinical pharmacist.

### **5.3.5 Interaction with patients**

The participants were asked whether they typically have direct contact with the patients, the results showed that most of them (68.1%) do have direct contact with patients and (31.9%) of them don't.

**Table (5.1): Demographic characteristics of the hospital pharmacists**

<b>Variable</b>	<b>N</b>	<b>%</b>
<b>Sex</b>		
Male	24	33.3
Female	48	66.7
<b>Age</b>		
Age≤30 years	17	23.6
Age>30 years	55	76.4
<b>Education level</b>		
Diploma (two years)	25	34.7
BA, Clinical BA	37	51.4
Graduate Studies (MSc, PhD)	10	13.9
<b>Job title</b>		
Pharmacist Assistant	25	34.7
Responsible Pharmacist	30	41.7
Clinical Pharmacist	7	9.7
Pharmacy Manager	10	13.9
<b>Working Hours</b>		
Part time	42	58.3
Normal	30	41.7
<b>Years in profession</b>		
0-5 years	11	15.3
More than 5 years	61	84.7
<b>Years in hospital</b>		
0-5 years	30	41.7

More than 5 years	42	58.3
<b>Direct contact with patients</b>		
Yes	49	68.1
No	23	31.9

## 5.4 Survey Analysis

The pharmacy version of the SAQ is composed of 30 items that measure six patient safety culture domains. It included both positively and negatively worded items. Items were scored on a five-point frequency scale (1, strongly disagree; 2, slightly disagree; 3, neutral; 4, slightly agree; 5, strongly agree).

The percentage of positive responses for each item and domain were calculated. Negatively worded items were reversed when computing percent positive response rates. Positive responses in positively worded survey items were ‘slightly agree/strongly agree’. Positive responses in negatively worded items were ‘slightly disagree/strongly disagree’. Hence, areas of strength defined as those items received 75% of respondents’ positive answers or when about 75% of respondents disagreed with reverse worded item. Whereas areas identified for as potential for improvement are the items that about 50% or more of respondents answered negatively using “Disagree/ strongly disagree” or when 50% of respondents disagreed with reverse worded items.

In addition to the previous 30 items, the survey included two single-item responses outcome measures about the overall patient safety grade (“excellent” to “failing”) and the number of events reported in the last year. An open ended question was added to enable the participants to add recommendations that help in improving the patient safety culture in their pharmacy workplace.

### 5.4.1 Reliability

Internal consistency of the pharmacy version of the SAQ proved good. *Cronbach's alpha* values for the domains ranged from (0.62) to (0.81). For the working conditions domain, it was (0.81); for the stress recognition, it was (0.79); for safety climate, it was (0.69); for teamwork, it was (0.67); for the job satisfaction, it was (0.66); and for the perception of management, it was (0.62).

**Table (5.2): SAQ's *Cronbach's alpha*, the percentage of positivity, the mean of scores**

Scale	Mean $\pm$ SD	% positive responses	Reliability: internal consistency
Teamwork climate	66.31 $\pm$ 13.57	62.95%	0.67
Safety climate	68.55 $\pm$ 14.92	66.25%	0.69
Perception of Management	66.46 $\pm$ 19.22	66.77%	0.62
Job Satisfaction	75.46 $\pm$ 16.75	76.78%	0.66
Working conditions	75.89 $\pm$ 20.75	76.52%	0.81
Stress recognition	61.77 $\pm$ 25.42	62.85%	0.79

### 5.4.2 Safety Attitude Questionnaire items and scales mean scores

The perceptions of pharmacists for safety culture domains are shown in table (5.3). The overall domains of safety culture mean score ranged from (61.75 to 76.89) with a mean of (69.1).

Job satisfaction domain received the highest positive score (76.78%). Most of the participants (92.9%) positively scored the item "I like my job", (84.5%) were "proud to work at this pharmacy, (77.8%) of the participants agreed that morale in their pharmacy is high, and (68.1%) see that "This pharmacy is a good place to work". Yet only (60.6%) believe that "Working in this pharmacy is like being part of a large family".

Working conditions domain was close to job satisfaction domain in the percentage of positive scores (76.52%). Most of the participants (88.7%) indicated that their pharmacies do a good job of training new personnel, that was confirmed by (80.3%) of the participants who believed that trainees are adequately supervised, (69.5%) of the positive responses were for participants who feel that their hospitals deal constructively with problem personnel, and (67.6%) were believing that necessary information for diagnostic and therapeutic decisions is routinely available.

The perception of management domain scored (66.77%) of the positive responses, the majority (88.9%) agreed that the management of the pharmacy is doing a good job, and (74.3%) believe that the management supports their daily efforts. (63.6%) agree that they are provided with adequate, timely information about events in the department that might affect their work, the level of staffing was low as only (40.3%) of the participants agreed that the levels of staffing in their pharmacy are sufficient to handle the number of patients.

Safety climate is closely related to the safety of care provided at the pharmacy, receiving (66.25%) of positive responses. Most of the participants (85.3%) said that they know the proper channels to direct questions regarding patient safety in their pharmacy, (84.2%) of the participants believe that medical errors are handled appropriately, and (76.4%) indicated that the culture in the pharmacy makes it easy to learn from the errors of others. (69.5%) receive appropriate feedback about their performance and (64.8%) indicated that they are encouraged to report patient safety concerns. More than half of the participants (63.9%) would feel safe being treated at their healthcare organization. However, (19.7%) find it difficult to discuss errors in the pharmacy.

Teamwork climate received (62.95%) of the participants' positive responses. It was enhanced by the issue that the majority (91.7%) feel that it is easy for personnel to ask questions when there is something that they do not understand and (75%) agreed that personnel input about patient care is well received in their pharmacies, (72.2%) said that disagreements in their pharmacy are appropriately resolved, also (66.6%) of the positive responses were scored by the item "I have the support I need from other personnel to care for patients". A problem in

teamwork was noted as the item “physicians and nurses and pharmacy personnel work together as a well-coordinated team” was scored negatively (59.7%). Yet, (12.5%) believed that it is difficult to speak up if they perceive a problem with patient care in their pharmacies.

The results showed that stress recognition was the weakest (62.85%) safety climate domain, (72.3%) of the participants agreed that their performance is impaired when their workload becomes excessive and about two-third of the participants (66.2%) acknowledged that they are less effective at work when fatigued. In addition, (59.4%) indicated that they are more likely to make errors in hostile or tense situations, and (53.5%) said fatigue impairs their performance during emergency situations.

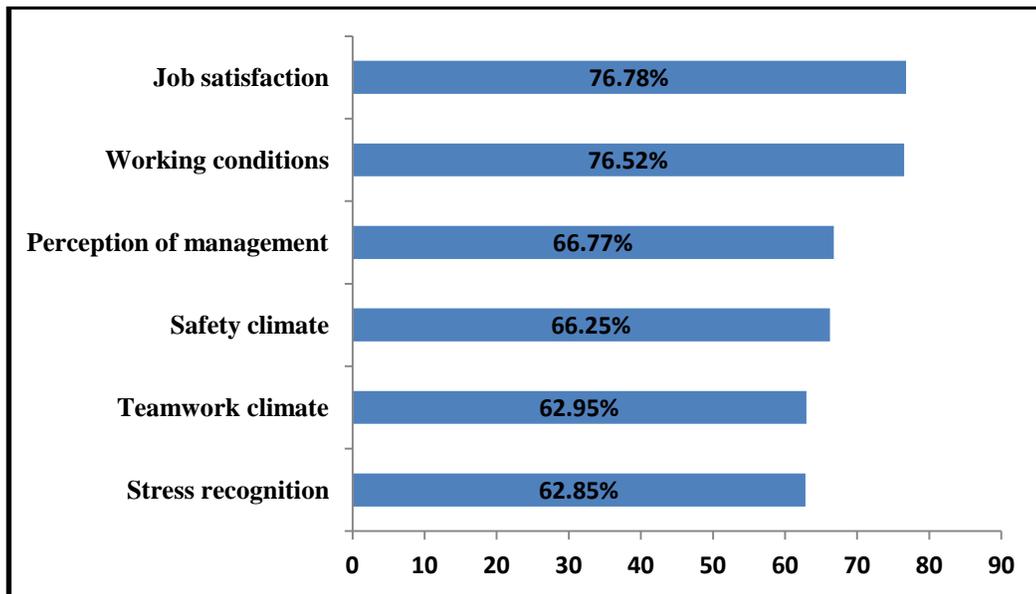
**Table (5.3) Safety Attitude Questionnaire items and scales mean scores**

<b>SAQ Items</b>	<b>Mean (100 points)</b>	<b>% Positive responses</b>
<b>Teamwork Climate</b>	<b>66.31</b>	<b>62.95%</b>
Inform pharmacy personnel about patient care, is well received here.	76.75	75%
In this pharmacy/work setting it is difficult to speak up if I perceive a problem with patient care (R)	29.5	12.5%
Disagreements in this pharmacy/work setting are appropriately resolved (i.e., not who is right, but what is best for the patient)	74.75	72.2%
I have the support I need from other personnel to care for patients	68.5	66.6%
It is easy for personnel in this pharmacy/ work setting to ask questions when there is something that they do not understand	83	91.7%
The physicians, nurses, and pharmacy personnel here work together as a well-coordinated team	65.5	59.7%
<b>Safety Climate</b>	<b>68.55</b>	<b>66.25%</b>
I would feel safe being treated here as a patient	66	63.9%
Medication errors are handled appropriately at this pharmacy/work setting	78.5	84.2%
I receive appropriate feedback about my performance	68.75	69.5%

In this pharmacy/work setting it is difficult to discuss errors (R)	31.75	19.7%
I am encouraged by my colleagues to report any patient safety concerns I have	69.75	64.8%
The culture in this pharmacy/work setting makes it easy to learn from the errors of others	73	76.4%
I know the proper channels to direct questions regarding patient safety in this pharmacy/work setting	78	85.3%
<b>Perception of Management</b>	<b>66.38</b>	<b>66.77%</b>
The management of this department is doing a good job	83.25	88.9%
The management of this department supports my daily efforts	72.5	74.3%
The levels of staffing in this pharmacy/work setting are sufficient to handle the number of patients	44	40.3%
I am provided with adequate, timely information about events in this department that might affect my work	65.75	63.6%
<b>Job Satisfaction</b>	<b>75.65</b>	<b>76.78%</b>
I like my job	90.5	92.9%
Working in this pharmacy/work setting is like being part of a large family	63.75	60.6%
This pharmacy/work setting is a good place to work	70.75	68.1%
I am proud to work at this pharmacy/work setting	81.75	84.5%
Morale in this pharmacy/work setting is high	71.5	77.8%
<b>Working Conditions</b>	<b>75.69</b>	<b>76.52%</b>
The pharmacy department does a good job of training new personnel	83	88.7%
All the necessary information for therapeutic decisions is routinely available to me	69.75	67.6%
This pharmacy/work constructively deals with problem of physicians and employees	71.5	69.5%
Trainees in pharmacy are adequately supervised	78.5	80.3%
<b>Stress Recognition</b>	<b>61.75</b>	<b>62.85%</b>
Fatigue impairs my performance during emergency situations	56.25	53.5%
When my workload becomes excessive, my performance is impaired	66.25	72.3%

I am less effective at work when fatigued	63	66.2%
I am more likely to make errors in hostile or tense situations	61.5	59.4%

In short, Two SAQ domains had a positive percentage ( $\geq 75$ ), job satisfaction (76.78%) and working conditions (76.52%), the rest of the domains were scored lower which means that they are subjects for potential improvements.

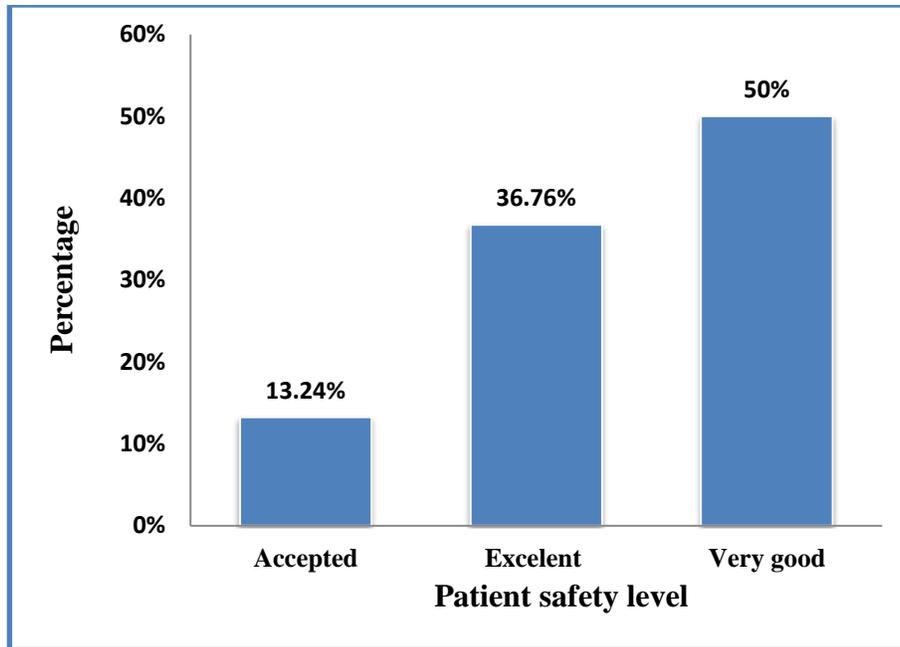


**Figure (5.1): Percentage of positivity of patient safety culture domains**

### 5.4.3 Patient safety culture outcomes results

#### A. Overall patient safety grade

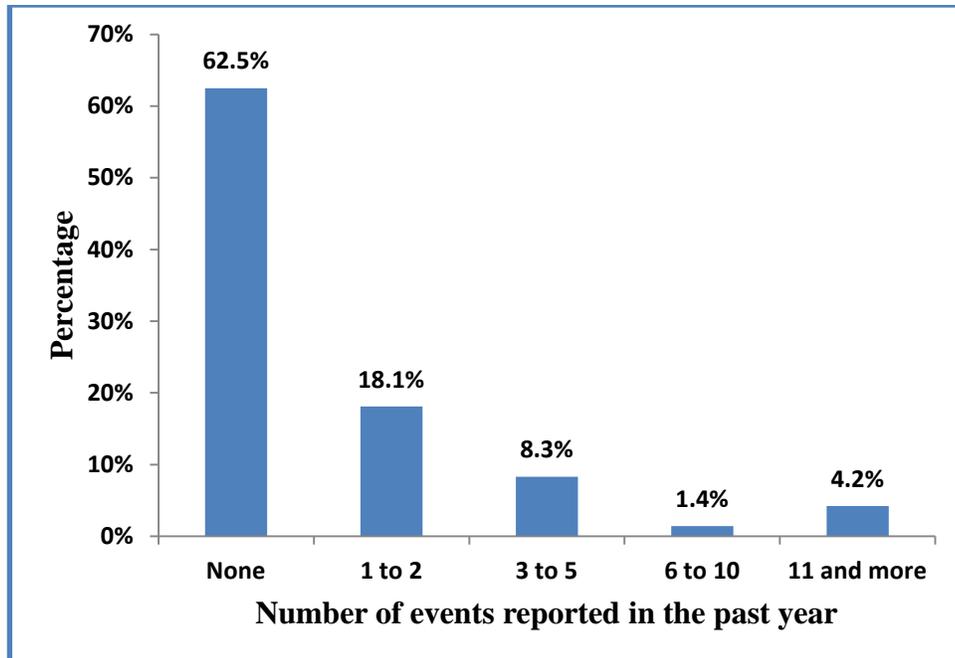
Results from the item that asked respondents to give their hospital pharmacy an overall grade on patient safety are shown in graph (5.2). The graph shows the average percentage of respondents within the hospital providing grades from “Excellent” to “Failing”. On average, most respondents were positive, with (34%) giving their work area a patient safety grade of “Excellent” or “Very good” (47%) and “Acceptable” (13%). None gave their pharmacy a “Poor” or “Failing” grade.



**Figure (5.2): Patient safety level**

## **B. Number of events reported**

Results from the item that asked respondents to indicate the number of events they had reported over the past 12 months is shown in graph (5.3). The graph shows the average percentage of respondents who indicated that they reported “No event reported” up to (66%). The percentage of respondents who reported one or two events are (19%), those who reported more than 11 events were (4%) of respondents, underreporting of events is very likely. Event reporting was probably identified as an area for improvement for the hospital because potential patient safety problems may not be recognized or indentified and therefore may not be addressed.



**Figure (5.3): Number of event reported in the previous 12 months**

#### **5.4.4 Means for dimension scores across hospital and respondent characteristics**

Hospital ownership influence on patient safety was found significant in four patient safety domains: teamwork climate ( $p=0.02$ ), perception of management ( $p=0.03$ ), job satisfaction ( $p=0.001$ ), and working conditions ( $p=0.02$ ) in favor of private and NGOs hospitals.

On the other hand hospitals size influence on patient safety was found significant only in perception of management domain ( $p=0.03$ ), in favor of the hospitals that has lower than 50 beds.

**Table (5.4): Patient safety culture mean domains scores by participant's and institution characteristics**

		Teamwork Climate	Safety climate	Perception of Management	Job Satisfaction	Working conditions	Stress Recognition						
<b>Ownership</b>													
	Public	64.1	13.1	67.1	15.2	63.5	17.9	71.4	15.2	72.3	20.5	59.6	24.6
	Private, NGO	72	13.3	72.1	13.8	74	20.7	86	16.1	85	18.8	67.1	27.1
		F=0.00	P=0.02	F=0.2	P=0.2	F=2.1	P=0.03	F=0.045	P=0.001	F=0.45	P=0.002	F=0.04	P=0.26
<b>Gender</b>													
	Male	65.6	14.1	66.2	15.7	65.8	16.7	75	13.4	77.4	19.5	59.5	24.3
	Female	66.6	13.4	69.7	14.5	66.7	20.5	75.6	18.3	75.1	21.4	62.8	26.1
	F, P value	F=0.006	P=0.76	F=0.44	P=0.35	F=1.06	P=0.85	F=3.02	P=0.88	F=0.35	P=0.66	F=0.005	P=0.6
<b>Age</b>													
	≤30 yrs.	66.6	12.9	70.1	12.3	67.2	28	78.5	22	75.7	24.6	60.2	24.9
	>30 yrs.	66.2	13.8	68	15.7	66.2	15.8	74.5	14.8	75.9	19.6	62.2	25.7
	F, P value	F=0.194	P=0.9	F=0.35	P=0.6	F=17.6	P=0.88	F=1.6	P=0.39	F=0.56	P=0.97	F=0.39	P=0.78
<b>Experience profession</b>													
	≤5years	65.5	12.7	70.7	12.6	71.5	31.7	77.2	25.5	77.2	29.3	54.5	28.3
	>5years	66.4	13.8	68.1	15.3	65.5	16.2	75.1	14.9	75.6	19.1	63.1	24.8
		F=0.149	P=0.83	F=0.12	P=0.59	F=11.7	P=0.55	F=2.9	P=0.7	F=2.4	P=0.81	F=0.09	P=0.31
<b>Experience hospital</b>													
	≤5years	62.6	14.9	67.3	14.3	66.1	22.2	72.7	18.6	72.9	23.3	60.55	24.8
	>5years	68.9	12	69.3	15.4	66.6	16.9	77.3	15.1	78.02	18.9	62.64	26.1
		F=1.2	P=.05	F=.00	P=.57	F=1.9	P=0.9	F=0.17	P=0.25	F=2.3	P=0.3	F=0.1	P=0.73

		3	1	5		3	1					9	
<b>Number of beds</b>													
	<50 beds	71.2	10.3	74.2	7.3	72.6	19.3	88.8	10.8	87.5	10.8	70.1	19.9
	50-99	68.4	16.8	71.9	17.7	69.4	24.9	75.6	21.5	73.8	24.1	57.1	27.6
	100-150	62.6	12.9	65.5	16.1	60.5	18.1	73.1	13.4	68.7	22.6	63.8	24.6
	>150	66	11.2	65.7	11.5	67.3	11.1	71.7	14.3	81.3	14.2	60.4	26.7
		F=1.13	P=0.34	F=1.34	P=0.26	F=1.22	P=0.031	F=2.54	P=0.06	F=2.5	P=0.06	F=0.61	P=0.61
<b>Level of education</b>													
	Diploma	66.6	12.5	70.4	17	65	16.3	73.3	14.8	75.2	21.3	55.2	23.7
	BA,BA clinical	67.5	13.8	68.8	12.8	68.3	21.2	76.2	17.9	76.2	20.3	65.4	26.5
	Graduate studies	60.8	15.1	62.8	16.5	63.1	18.9	78	17.6	76.2	22.9	64.3	24.6
		F=0.98	P=0.38	F=0.93	P=0.39	F=0.39	P=0.67	F=0.34	P=0.71	F=0.02	P=0.98	F=1.27	P=0.28
<b>Working hours</b>													
	Part time	65.1	13.4	66.8	13.9	67.1	17.8	74.6	17.1	75	20.1	59.7	26.6
	Normal	67.9	13.7	70.9	16	65.5	21.2	76.5	16.4	77	21.9	64.5	23.8
		F=0.71	P=0.4	F=1.33	P=0.25	F=0.11	P=0.737	F=0.22	P=0.063	F=0.016	P=0.68	F=0.62	P=0.43
<b>Job title</b>													
	Ph. assistant	66.6	12.5	70.4	17	65	16.3	73.3	14.8	75.2	21.3	55.2	23.7
	Res. Ph.	65.6	13.5	67.7	12.8	67.7	21.9	73.8	18.7	74.4	21.7	63.2	26.7
	Clinical	57.7	17.9	59.6	18.6	52.6	13.4	72.1	16	69.6	24.3	68.7	24.7
	Manager	73.3	10.7	72.5	11.3	75.8	16.5	88	10.5	86.2	10.1	68.7	25.8
		F=1.92	P=0.13	F=1.22	P=0.31	F=2.19	P=0.09	F=2.31	P=0.08	F=1.1	P=0.35	F=1.01	P=0.39

### 5.4.5 Patient safety culture aggregate scores

Table (5.5) presents the mean composite safety culture scores by the respondents and hospitals characteristics. Unadjusted univariate analysis showed that there were significant relationship between the composite scores and the hospital ownership ( $P < 0.05$ ). No significant relationships were observed in relation to other participants and hospital characteristics.

Private and NGO hospital participants were more positive towards safety culture in their hospitals than their colleagues from public hospitals ( $P = 0.002$ ).

**Table (5.5): Participants' characteristics and associations with the safety culture composite scores**

	Unadjusted				Adjusted*			
	Mean	SE	F	P value	Mean (B)	SE	F	P value
<b>Sex</b>								
Male	68.29	1.91	0.15	0.70				
Female	69.17	1.94						
<b>Age</b>								
Age $\leq 30$	69.77	3.74	0.07	0.79				
Age $> 30$	68.86	1.51						
<b>Job title</b>								
Pharmacist assistant	67.65	2.31	2.31	0.09	70.51	3.13	1.6	0.2
Pharmacist	68.79	2.41			69.75	2.14		
Clinical pharmacist	63.44	4.64			63.44	4.33		
Pharmacy manager	77.44	2.18			78.19	3.7		
<b>Education</b>								
Diploma (2 years)	67.6	2.31	0.47	0.63				
BA, BA clinical	70.4	2.11						
Graduate studies	67.5	3.74						
<b>Years in profession</b>								
$\leq 5$ years	69.44	5.25	0.01	0.90				
$> 5$ years	69	1.43						
<b>Years in hospital</b>								
$\leq$ years	67.1	2.51	1.39	0.24				

> 5 years	70.5	1.68						
<b>Working hours</b>								
Part time	68.1	1.71	0.64	0.42				
Normal	70.44	2.49						
<b>Hospital ownership</b>								
Public	66.3	1.6	10.31	0.002	67.28	1.9	5.82	0.01
Private, NGO	76.1	2.51			77.1	2.9		
<b>Number of hospital beds</b>								
Less than 50 beds	77.45	3.04	2.08	0.11				
50-99 beds	69.41	3.3						
100-150 beds	65.76	2.5						
More than 150 beds	68.76	1.92						

Multivariate regression model included all respondent characteristics with  $P \leq 0.06$ . The independent variable is the average of the mean composite safety culture scores.

#### 5.4.6 Correlation between safety culture dimensions

Table (5.5) shows the correlation between the safety attitude domains and the overall safety culture scores. The results show that the participants' perception of the overall safety culture is significantly correlated with all the safety culture domains. The correlation is strong ( $r \geq 0.75$ ,  $P < 0.001$ ) with all safety culture dimensions, but very weak with stress recognition ( $r = 0.278$ ,  $P = 0.018$ ). In addition, except for stress recognition, there are significant positive correlations between all the other safety culture dimensions. Correlation coefficient values ranged between  $r = 0.486$  to  $r = 0.701$  and all were very significant ( $P < 0.001$ ) and the highest correlation was between working conditions and teamwork climate domains.

**Table (5.6) Correlation coefficient values for the relationship between safety culture dimensions**

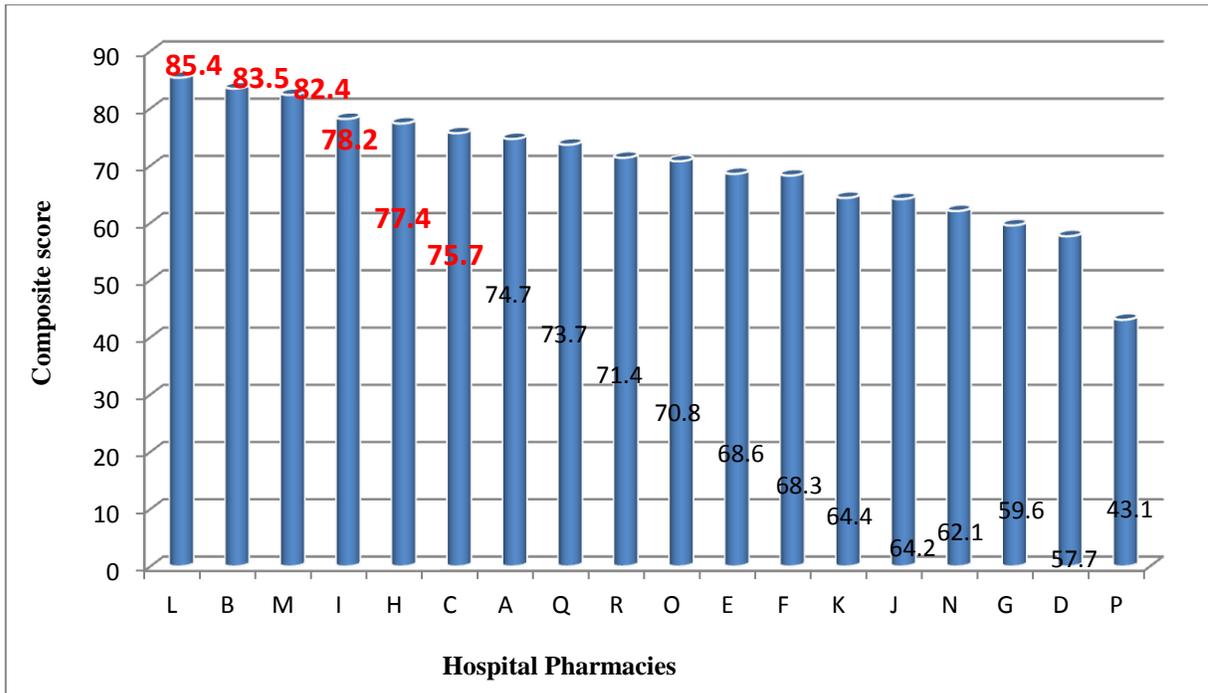
		Teamwork climate	Safety climate	Stress Recognition	Job Satisfaction	Perception of management	Working conditions
Teamwork climate	r						
	P						
Safety climate	r	0.587**					
	P	<0.001					
Stress recognition	r	0.031	-0.279*				
	P	0.795	0.018				
Job satisfaction	r	0.601**	0.486**	0.055			
	P	<0.001	<0.001	0.646			
Perception of Management	r	0.518**	0.557**	-0.071	0.566**		
	P	<0.001	<0.001	0.556	<0.001		
Working conditions	r	0.701**	0.664**	-0.044	0.638**	0.654**	
	P	<0.001	<0.001	0.716	<0.001	<0.001	
Composite safety culture score	r	0.788**	0.662**	0.278*	0.788**	0.763**	0.852**
	P	<0.001	<0.001	0.018	<0.001	<0.001	<0.001

#### 5.4.7 Mean SAQ scale scores by hospital pharmacies

The mean SAQ scale scores by hospital pharmacies are shown in (Annex 1), the data show that teamwork climate, safety climate, and perception of management domain scored positive scores (>75) by 22% of the studied hospitals. The stress recognition domain positive scores were achieved by 33% of the studied hospital pharmacies.

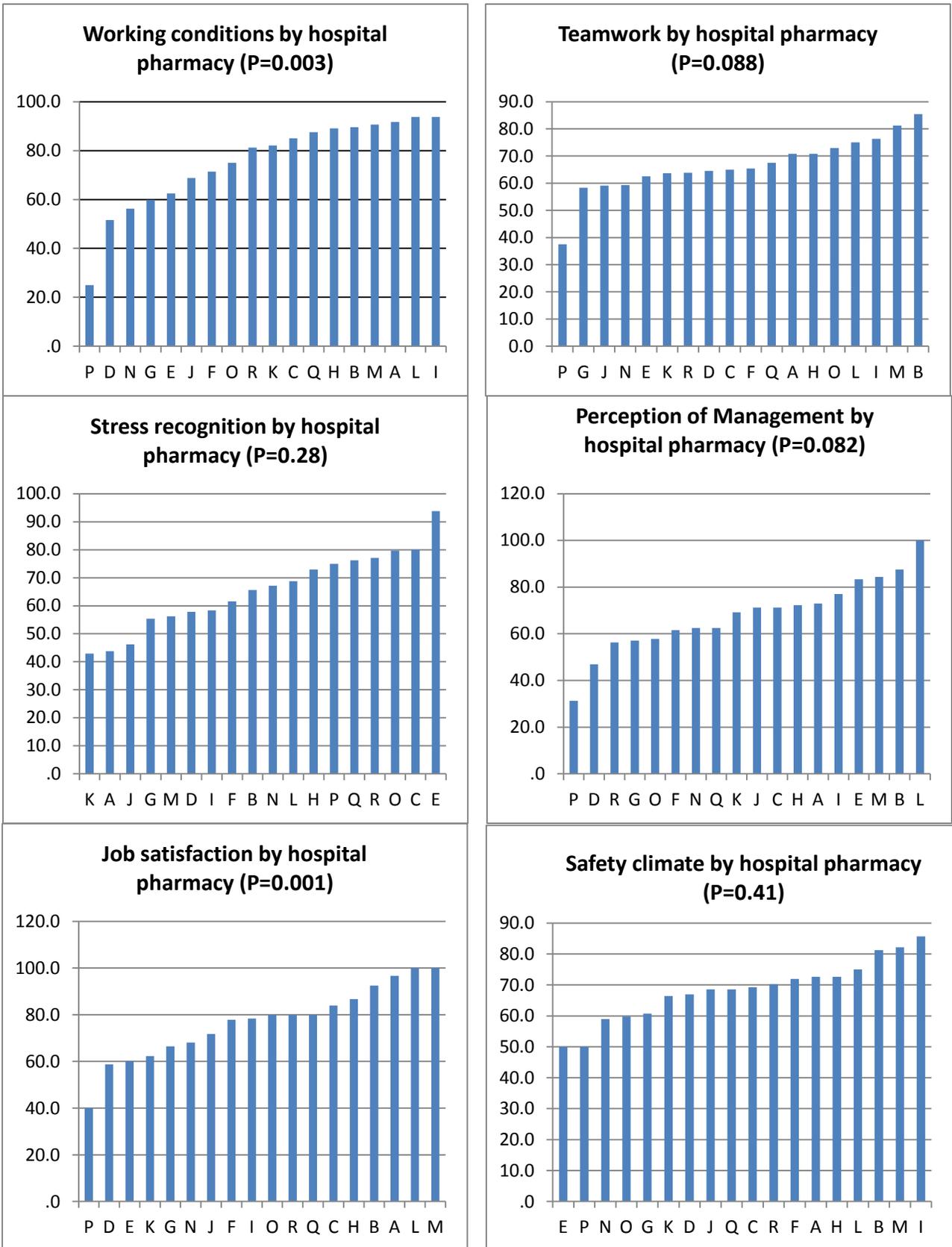
Half (50%) of the studied hospitals achieved positive scores at the job satisfaction and working conditions domains. And only 33% of the hospitals achieved positive responses at the composite safety culture score.

None of the six domains were positive for four hospitals, twelve hospitals have negative total safety score and the best results was having five positive safety domains in addition to a positive total safety score and these results were achieved by only two hospitals.



**Figure (5.4): Composite score by hospital pharmacies (P=0.004)**

Many recommendations were suggested by the participants that may help in improving the patient safety culture in their pharmacy workplace, most of them were focusing on improving the communication and interaction between the pharmacist and other health professionals, and others were requesting the activation of the clinical pharmacist role at the hospitals. Some recommendations aimed to improve patient safety plans in different hospital units and others focused on computerizing the manual system at their hospitals.



**Figure (5.5): Safety culture domains scores by hospital pharmacies**

## Chapter Six

### Discussion

This study was the first to assess patient safety culture at the pharmacies of the Palestinian hospitals using Safety Attitude Questionnaire. The response rate was (68.8%); higher than the response rates of previous SAQ administrations in USA, UK, and New Zealand (67%) (Sexton et al., 2006). This response rate highly exceeds that of SAQ administration in community pharmacies in Sweden (60%) (Norden-Hagg et al., 2010). But in relation to national SAQ administration; it is approximately similar to SAQ administration in Palestinian neonate intensive care units (69.2%) (Hamdan, 2013).

The 30-item Safety Attitude Questionnaire demonstrated good psychometric properties on data from the USA, the UK and New Zealand (Sexton et al., 2006); in addition, the existence of comparable data from other settings within the health-care system makes SAQ a valuable tool for use within and between pharmacies (Norden-Hagg et al., 2010).

The internal reliability of the tool was measured using *Cronbach's  $\alpha$* . If different items are supposed to measure the same concept, the internal reliability should be greater than or equal to 0.6 (Field A., 2000). Internal consistency of the pharmacy version of the SAQ proved good, *Cronbach's  $\alpha$*  values for the domains ranged from (0.62) to (0.81), approximately similar values were obtained in other validation studies of the SAQ (Kaya et al, 2010).

Moderate to strong correlation between domains was observed for the adapted version of the SAQ. The item total correlation ranged between (0.66-0.85), except in the domain of stress recognition which showed low correlation coefficient (0.27). Same results have also been identified by the authors of the questionnaire (Sexton et al., 2006) this negative correlation is expected because the higher the perceived stress, the lower the total score of the questionnaire should be (Carvalho & Cassiani, 2012).

The survey assessed the perceptions of pharmacist assistants, pharmacists and clinical pharmacists about patient safety attitudes in Palestinian hospital pharmacies. In general, the percentage of positive responses of all patient safety domains ranged from 62.85% to 76.78%.

These results were slightly higher than the Palestinian NICU's results that ranged from 60.04% to 71.22% (Hamdan, 2013), but still four domains out of six were scored negatively and the other two were scored on the edge of positivity (76%). This indicates that they are all have potential for improvement in order to enhance the safety climate in the Palestinian hospital pharmacies.

Literature lacks studies that assess patient safety culture at pharmacies only; all of the published studies have assessed patient safety culture at hospitals as a whole or have focused on some hospital departments such as ICUs. In Sweden, a study was held in 870 community pharmacies, which aimed to validate the (SAQ) to be used at the community pharmacies there (Norden-Hagg et al., 2010).

The results of the study indicate that job satisfaction is the highest safety attitude area (76.78%) of positive responses; this is consistent with evidence from Palestinian NICUs (Hamdan, 2013). Closely linked to that and supports it, is working conditions domain which received (76.52%) of positive responses. Both results were much higher than the benchmarking data (Sexton et al., 2006), and that could be explained by the fact that the benchmarking data were assessing the whole hospital while our study focuses on pharmacies only. There is more variability between clinical areas than within clinical areas (Sexton et al., 2006). Beside the fact that satisfaction is always based on expectations, working conditions and environment in Palestine is satisfactory for the employees as they don't expect more than what they have.

Leadership commitment and support is essential for creating a patient safety climate in hospitals (Mohr et al., 2002). The perception of management scored 66.77% of positive responses, which was much better than that scored at the Swedish community pharmacies (53.58%), and consistent with results from the Palestinian NICUs (64.45) (Hamdan, 2013).

This is much higher than those reported in earlier safety culture assessment in Palestinian public hospitals (Hamdan & Saleem, 2013).

It is clear from the results that although the hospital managements are giving attention to the pharmacies, there is still a need to increase support for daily activities of the staff and to provide additional staff to cope with the work load, adding to that hospital managements should work on providing the pharmacy staff with adequate information about the events in their department, i.e. create an efficient reporting system and reward reporting.

Safety climate is one of the critical dimensions of patient safety that mainly focuses on reporting and learning from events that occur. This area received (66.25%) of positive responses in comparison with (58%) in the benchmarking data and (72.33%) in the Swedish community pharmacies (Norden-Hagg et al., 2010). 32% of the participants indicated that it is difficult to discuss errors in their pharmacies and that was lower than the results (41%) achieved in the Palestinian NICUs (Hamdan, 2013), that also indicates a low level of incident reporting. Similar to elsewhere, unwillingness to report events in Palestinian hospitals is probably attributed to prevalence of punitive culture and a fear of liability and other consequences (Hamdan, 2013).

It has been estimated that process failures such as miscommunication and treatment delivery lapses account for 85% of total medical errors (Holden et al., 2010). The percentage of positive responses of teamwork climate domain displayed relatively same values (62.95%) of the benchmarking data (Sexton et al., 2006), but it was lower than that displayed at the Swedish community pharmacies (Norden-Hagg et al., 2010) and the Palestinian NICUs (Hamdan, 2013). This may be explained by the fact that better patterns of communication, coordination, and collaboration do exist in critical care setting due to the critical situation of the patients there (Hamdan, 2013). High job satisfaction among the participants indicates good patterns of communication, coordination, and collaboration between department staff.

Stress, high workload, do decrease performance and raise medical error occurrence (Poley et al., 2011). The survey results displayed relatively lower recognition (62.85%) of the effects of

stress and fatigue on performance compared to that at the Swedish community pharmacies (66.28%) (Norden-Hagg et al., 2010). The participants are somehow aware of the fact that stressors influence their work performance and slightly realize that it is not true that people make good decisions no matter what stress they are under (Poley et al., 2011).

Social desirability bias which is a common feature of studies that assess perceptions has thrown its effects on results of the study, the tendency of respondents to answer questions in a manner that will be viewed favorably by others is part of the culture in Palestine, and this was a reason to have some results much higher than the results in Sweden and the benchmarking data.

In regard to the associations between safety culture domains scores with participants and hospital characteristics, the available evidence showed that the association was statistically significant ( $P > 0.05$ ) in regard to hospital ownership with the teamwork climate ( $P = 0.02$ ), perception of management ( $P = 0.03$ ), job satisfaction ( $P = 0.001$ ), and working conditions ( $P = 0.02$ ) and all in favor of the private and NGO hospitals. The overall safety score was significantly associated only with the hospital ownership ( $P = 0.002$ ) in favor of the private and NGO hospitals.

The overall safety score of the NGO and private hospitals was  $76.1 \pm 11.2$  while that of the public hospitals was  $66.3 \pm 11.5$ . This may be referred in part to the lack of professional staff together with high patient workloads in the Palestinian public hospitals (Hamdan & Saleem 2013), so staff has to do more work to compensate for shortages, as a result long work hours increase staff fatigue, and lead to medical errors, and adverse events and outcomes (Keller, 2009).

In addition, participants working in hospitals sized  $< 50$  beds were more positive towards perception of management climate than their counterparts in larger sized hospitals ( $P = 0.031$ ). This might be because in small hospitals everybody knows each other and that might help to overcome difficult working conditions and communication barriers (Hamdan, 2013).

Only 22% of the studied hospitals scored positive teamwork climate, safety climate, and perception of management domain, 33% of them have stress recognition domain, and 50% achieved positive scores at the job satisfaction and working conditions domains (Annex 5).

The results show that pharmacy staff perceptions towards safety is generally weak in all hospitals, although private and NGO hospitals have better perception than that of the public hospitals, a program for improving patient safety across all hospitals is highly needed.

The type of action needed depend on which domains are areas of weakness; in hospitals where perception of management is weak such as hospital D (Annex 5), management involvement in safety must increase through increasing the amount of time managers spend in visiting the workplace (not just after an accident), improving managers non-technical skills mainly communication skills, increase levels of workforce participation with management in solving safety related problems (Andy, 2007). Management should also provide attention to work related stressors and improve staffing levels.

Promoting good job satisfaction and moral in the pharmacy workplace is needed in both P and D hospitals. Teambuilding and improving communication between the staff is a must to improve teamwork climate. To improve working condition climate, hospital and pharmacy managers need to explore in details the sources of low score of this domain.

In hospitals P and E where safety climate is an area of weakness, pharmacy staff involvement in monitoring quality of care and making decisions related to safety environment must be enhanced, and this can be achieved through utilization of resources and participate in conferences and meetings about safety culture (Abdou, 2011).

## **Conclusions**

The SAQ is a useful tool to assess safety culture in Palestinian hospitals setting. The safety climate assessment results revealed areas for potential improvement in Palestinian hospital

pharmacies. Hospitals need to formulate patient safety interventions to address these weaknesses.

Patient safety improvement is highly needed in hospitals pharmacies. Priority should be given to enhance teamwork climate that was an area of weakness, through teambuilding and improving communications between pharmacists and physicians. Stress recognition domain should be another area of modification, attention to work related stressors and improving staffing levels should be considered.

## **Recommendations**

Patient safety should be a top strategic priority for policy makers, managers, leaders and frontline staff. Improvement in patient safety can be achieved only when leaders are visibly committed to change and when they enable staff to openly share safety information. If an organization does not have a positive safety culture, it means that staff members are often unwilling to report adverse events and unsafe conditions due to fear of reprisal and believe that reporting won't result in any change.

Depending on the results of the study we can provide the following recommendations to promote patient safety in the Palestinian hospital pharmacies:

- The existing culture of the pharmacy should be defined and assessed periodically.
- Strong leadership commitment, careful planning and monitoring should be considered in developing a safety culture in the pharmacy.
- Communication and interaction between pharmacy staff and other medical personnel especially physicians should be improved.
- Proper structure for reporting incidents should be established and incidents should be treated openly and fairly in a non-punitive atmosphere.
- Staffing numbers and workload should be re-considered, adequate health professional staffing is a key to improve quality of patient care.

- Continues learning and in process training related to safety practices should be introduced to ensure everyone throughout the health organization has the skills they need to work safely.
- The role of clinical pharmacists throughout hospitals should be activated.
- Finally, continuous monitoring of improvements in safety culture will be required. This study results will serve as baseline for future assessments.

## References

1. A., F. (2000). *Discovering Statistics using SPSS for Windows*. London: Sage Publications.
2. Abdou, H., & Saber, K. (2011). A Baseline Assessment of Patient Safety Culture among Nurses at Student University Hospital. *World Journal of Medical Sciences* , 17-26.
3. Alahmadi, H. A. (2010). Assessment of patient safety culture in Saudi Arabian hospitals. *Qual Saf Health Care* .
4. Carvalho, R., & Cassiani, S. (2012). Cross-cultural adaptation of the Safety Attitudes Questionnaire - Short Form 2006 for Brazil. *Revista Latino-Americana de Enfermagem* , 575-582.
5. Colla, J. B., Bracken, A. C., Kinney, L. M., & Weeks, W. B. (2005). Measuring patient safety climate: a review of surveys. *Qual Saf Health Care* , 364-366.
6. Commission, J. (2005). *Patient Safety: Essentials For Health Care* (3rd ed.). USA: Joint commission resources.
7. Cook, R. I., Woods, D. D., & Patterson, E. S. (2007). *Behind Human Error: Taming complexity to Improve Patient Safety*. *Handbook Of Human Factors And Ergonomics In Health Care And Patient Safety*. London: Lawrence Erlbaum Associates.
8. Cooper, D. (1995). *Measurement of Safety Climate: A Component Analysis*. USA.
9. Deilkås, E. T. (2008). Psychometric properties of the Norwegian version of the Safety Attitudes Questionnaire (SAQ), Generic version (Short Form 2006). *BMC Health Services Research* .
10. Donabedian, A. (1988). The quality of care. How can it be assessed? *JAMA* .
11. Fifth-ninth World Health Assembly (2006). WHO, Geneva, Resolutions and Decisions.

12. Hamdan, M. (2013). Measuring safety culture in Palestinian neonate intensive care units using the Safety Attitudes Questionnaire. *International Journal for Critical Care* (in review) .
13. Hamdan, M., & Saleem, A. A. (2013, February 3). Assessment of patient safety culture in Palestinian public hospitals. *International Journal for Quality in Health Care* , pp. 167-175.
14. Health and Safety for Beginners. (2009). Retrieved 2012, from Health and Safety for Beginners Web site: <http://www.healthandsafetytips.co.uk>
15. Helmreich, R., Merritt, A., Sherman, P., & Gregorich, S. (1993). The Flight Management Attitudes Questionnaire (FMAQ). Texas.
16. Hickam, D., Severance, S., Feldstein, A., Ray, L., Gorman, P., Schuldheis, S., et al. (2003). The Effect of Health Care Working Conditions on Patient Safety: Summary. AHRQ.
17. Holden, L. M. (2010). Communication and collaboration: it's about the pharmacists, as well as the physicians and nurses. *Qual Saf Health Care* , 169-172.
18. Human Engineering for the Health and Safety Executive . (2005). A review of safety culture and safety climate literature for the development of the safety culture inspection toolkit .
19. Institute of Medicine. (2001). *Crossing the quality chasm: A new health system for the 21st century.* . Washington, DC: National Academies Press.
20. Kaya, S., Barsbay, S., & Karabulut, E. (2010). The Turkish version of the safety attitudes questionnaire: psychometric properties and baseline data. *Qual Saf Health Care* , 572-577.
21. Kilman, R. (1986). *Gaining control of the corporate culture.* San Francisco: Jossey-Bass.

22. Kohn, L. T., Corrigan, J. M., & Donaldson, M. S. (2000). *To Err Is Human: Building A Safer Health System*, Committee On Quality Of Care In America. Institute Of Medicine (I.O.M). USA: National Academy Press.
23. Making Health Care Safer II: An Updated Critical Analysis of the Evidence for Patient Safety Practices. Retrieved from <http://www.ahrq.gov/research/findings/evidence-based-reports/ptsafetyuptp.html>
24. Modak, I., Sexton, J., Lux, T., Helmreich, R., & Thomas, E. (2007). *Measuring Safety Culture in the Ambulatory Setting: The Safety Attitudes Questionnaire—Ambulatory Version*. *Society of General Internal Medicine* , 1-5.
25. Mohr, J., Abelson, H., & Barach, P. (2002). *Creating effective leadership for improving patient safety*. *Qual Manag Health Care* , 69-78.
26. Nieva, V., & Sorra, J. (2003). *Safety Culture Assessment: A Tool for Improving Patient Safety in Healthcare Organizations*. *Quality and Safety in Health Care* .
27. Nordén-Hägg, A. (2010). *RAessesarechs asrtiicnleg Safety Culture in Pharmacies: The psychometric validation of the Safety Attitudes Questionnaire (SAQ) in a national sample of community pharmacies in Sweden*. *BMC Clinical Pharmacology* .
28. O'Reilly, C., & Chatman, J. (1986). *Organizational commitment and psychological attachment: the effects of compliance, identification and internalization on prosocial behavior*. *J Appl Psychol* .
29. Peer-Point Medical Education Institute. (2012). Retrieved from Peer-Point Medical Education Institute web site: <http://www.peerpt.com>
30. Pelletier, L. R. (2008). *Q Solutions: Essential Resources for the Healthcare Quality Professional*. National Association for Healthcare Quality.
31. Poley, M. J. (2011). *Patient safety culture in a Dutch pediatric surgical intensive care unit: An evaluation using the Safety Attitudes Questionnaire*. *Pediatr Crit Care Med* , 310-316.

32. Pronovost, P. J. (2009). Framework for Patient Safety Research and Improvement. *Circulation* , pp. 330-337.
33. Pronovost, P., & Sexton, B. (2005). Assessing safety culture: guidelines and recommendations. *Qual Saf Health Care* , 231-233.
34. Ruchlin, H., Dubbs, N., & Callahan, M. (2004). The role of leadership in instilling a culture of safety: lessons from the literature. *J Healthc Manag* , pp. 47-58.
35. Rudman, W., Bailey, J., Garrett, P., Peden, A., Thomas, E., & Brown, C. (2006). Teamwork and Safety Culture in Small Rural Hospitals in Mississippi. *Patient Safety & Quality Healthcare* .
36. Shih, C. (2004). An exploratory study of patient safety culture in hospitals: Patient safety climate and its association with hospital workers' safety practice. Taiwan: Published Master Thesis.
37. Sexton, J. B. (2006, April 3). The Safety Attitudes Questionnaire: psychometric properties, benchmarking data, and emerging research. *BMC Health Services Research*
38. Sexton, J., Thomas, E., & Helmreich, R. (2000). Error, stress, and teamwork in medicine and aviation: cross sectional surveys. *BMJ* , 745-749.
39. SM, K. (2009). Effects of extended work shifts and shift work on patient safety, productivity, and employee health. *AAOHN J.* , 497-502.
40. Sorra, J., Famolaro, T., Dyer, N., & al., e. (2011). Hospital Survey on Patient Safety Culture: 2011 User Comparative Database Report. AHRQ Publication No. 11-0030. .
41. Stelfox, H., Scurlock, P., & Orav, E. J. (2006). The "To Err Is Human" report and the patient safety literature. *Quality and Safety in healthcare* , 15 (3), 174-178.
42. The Health Foundation. (2011). Measuring safety culture. London
43. The University of Texas Medical School at Houston. (n.d.). Retrieved May 30, 2012, from <https://med.uth.edu/chqs/files/2012/05/Scale-Computation-Instructions.pdf>

44. Thomas J. Eric (2006). Aviation Safety Methods: Quickly Adopted but Questions Remain. Retrieved from <http://webmm.ahrq.gov/perspective.aspx?perspectiveID=16>
45. Timmel J., Kent P., Holzmueller C., Paine L., Schulick R., Pronovost P. (2010). Impact of the Comprehensive Unit-Based Safety Program (CUSP) on Safety Culture in a Surgical Inpatient Unit. *The Joint Commission Journal on Quality and Patient Safety*.
46. Vincent, C., Taylor-Adams, S., & Stanhope, N. (1998). Framework for analyzing risk and safety in clinical medicine. *British Medical Journal* , 1154-1157.
47. Wakefield BJ, B. M.-H. (2001). Organizational culture, continuous quality improvement, and medication administration error reporting. *Am J Med Qual* .
48. Wikipedia. (2012). Retrieved from Wikipedia Web site: <http://en.wikipedia.org>
49. WHO. (2008). World Alliance for Patient Safety. Switzerland: WHO Press.
50. WHO. (2009). World Alliance for Patient Safety. Switzerland: WHO Press.
51. World Health Organization. (2013, January). Retrieved from World Health Organization web site : <http://www.wpro.who.int>

## **Annexes**

## Annex 1: Safety Attitude Questionnaire (SAQ)

### استبيان مواقف (توجهات) العاملين حول السلامة - نسخة الصيدلانية

#### دراسة توجهات العاملين حول سلامة المريض - نسخة قسم الصيدلة في المستشفيات

عزيزي المشارك في هذه الدراسة

تحية طيبة و بعد،

هذا البحث يهدف إلى التعرف على آرائكم و وجهات نظركم حول قضايا سلامة المريض في أقسام الصيدلانية في المستشفيات الفلسطينية في الضفة الغربية. ان هذه الدراسة في الأهمية بمكان للتعرف على مستوى ثقافة سلامة المرضى في أقسام الصيدلانية وبالتالي التركيز على الإجراءات الخاصة لتحسين الوضع القائم.

تتكون الاستبانة من بعض المقولات و الآراء ذات علاقة بسلامة المرضى. لكل مقولة/ جملة خمسة أجوبة ممكنة، الرجاء اختيار الإجابة التي تتوافق مع رأيك الخاص بتضليل المربع المناسب. تستغرق إجابة هذه الاستبانة من ١٠ - ١٥ دقيقة. لتعبئة هذه الاستبانة نرجو إعطاء وجهة نظرك الخاصة حول قسم الصيدلانية والتي قمت بلمسها أو تجربتها خلال عملك في القسم.

و أخيراً، نود أن ننوه إلى أن المشاركة في الدراسة طوعية و أن السرية التامة حول هوية الشخص الذي قام بتعبئة الاستبانة مضمونة في هذا البحث. كذلك نود إعلامكم بأنه لن يكون بمقدور إدارة المستشفى أو الباحثون معرفة هوية المشاركين في البحث، حيث ستم معالجة المعلومات بشكل عام وليس بشكل خاص.

الرجاء إتمام الاستبانة وإعادتها بالطرف المغلق لجامع البيانات، ونود أن ننتهز الفرصة لنشكر لكم حسن تعاونكم ومساهمتم في تحسين مستوى وسلامة الخدمات في المستشفيات الفلسطينية.

الباحثون، جامعة القدس، كلية الصحة العامة.

#### تعريف

- ❖ الخطأ الطبي: ما لم يتم تنفيذه بشكل صحيح. أو الانحراف عن الوضع السليم. بغض النظر إذا تسببت بإيذاء المريض أم لا.
- ❖ سلامة المرضى: هو ما يعرف بحماية المريض من الأذى و منع وقوع أي أذى له بما في ذلك أي نتائج سلبية قد تحدث جراء تقديم الرعاية الصحية له.
- ❖ ثقافة سلامة المرضى: هي نمط متكامل من السلوك الفردي و المؤسسي المبني على نظام من المعتقدات والقيم المشتركة والتي تسعى باستمرار لتقليل الضرر اللاحق بالمريض و الذي قد ينتج من عملية تقديم الرعاية.

الرجاء ان تختار مدى موافقتك او رفضك للجمل التالية فيما يتعلق بالعمل في قسم الصيدلية في هذا المستشفى.

بشدة أوافق	قليلًا أوافق	محايد	معارض قليلًا	معارض بشدة	
5	4	3	2	1	1 أحب عملي.
5	4	3	2	1	2 يتم تقبل مداخلات العاملين في الصيدلة والمتعلقة برعاية المريض بشكل حسن.
5	4	3	2	1	3 سأشعر بالأمان إذا تمت معالجتى كمريض هنا.
5	4	3	2	1	4 يتم التعامل مع الأخطاء الطبية بشكل مناسب في هذه الصيدلية مكان العمل.
5	4	3	2	1	5 يقوم قسم الصيدلة بعمل جيد لتدريب الموظفين الجدد.
5	4	3	2	1	6 جميع المعلومات اللازمة لاتخاذ القرارات العلاجية متوفرة بشكل روتيني بالنسبة لي.
5	4	3	2	1	7 العمل في هذه الصيدلية مكان العمل يماثل أن يكون الموظف فرداً من عائلة كبيرة.
5	4	3	2	1	8 تقوم إدارة هذه الصيدلية بعمل جيد.
5	4	3	2	1	9 تدعم إدارة هذه الصيدلية الجهود اليومية التي أبذلها.
5	4	3	2	1	10 أتلقى ملاحظات مناسبة حول أدائي.
5	4	3	2	1	11 من الصعب مناقشة الأخطاء في هذه الصيدلية مكان العمل.
5	4	3	2	1	12 هذه الصيدلية مكان العمل مكان جيد للعمل.
5	4	3	2	1	13 يؤثر الإرهاق على أدائي خلال حالات الطوارئ.
5	4	3	2	1	14 مستويات التوظيف (عدد العاملين) في هذه الصيدلية مكان العمل كافية للتعامل مع عدد المرضى.
5	4	3	2	1	15 يشجعني زملائي للإبلاغ عن أي قلق لدي بخصوص سلامة المريض.
5	4	3	2	1	16 الثقافة السائدة في هذه الصيدلية مكان العمل تجعل من السهل أن نتعلم من أخطاء الآخرين.
5	4	3	2	1	17 تتعامل هذه الصيدلية مع مشاكل العاملين بطريقة بناءة.
5	4	3	2	1	18 في هذه الصيدلية مكان العمل من الصعب التدخل إذا أدركت وجود مشكلة في رعاية المريض.
5	4	3	2	1	19 عندما يصبح عبء عملي مفرطاً، فإن ذلك يضعف أدائي.
5	4	3	2	1	20 يتم تزويدي بالمعلومات الكافية في الوقت المناسب عن الأحداث الجارية في هذه الدائرة و التي قد تؤثر على عملي.
5	4	3	2	1	21 أعرف القنوات المناسبة التي يمكنني من خلالها توجيه أسئلة حول سلامة المريض في هذه الصيدلية مكان العمل.
5	4	3	2	1	22 أنا فخور للعمل في هذه الصيدلية مكان العمل.
5	4	3	2	1	23 يتم حل الخلافات بشكل مناسب في هذه الصيدلية مكان العمل (ليس المهم من هو على حق، ولكن ما هو أفضل بالنسبة للمريض).
5	4	3	2	1	24 أنا أقل فعالية في العمل عندما أكون منهكاً.

25	5	4	3	2	1	أنا أكثر عرضة للخطأ أثناء المواقف العدائية أو المتوترة.
26	5	4	3	2	1	لدي الدعم الذي أحتاج من الموظفين الآخرين لتقديم الرعاية للمرضى.
27	5	4	3	2	1	من السهل للعاملين في هذه الصيدلية\مكان العمل طرح الأسئلة في حال وجود شيء لا يفهمونه.
28	5	4	3	2	1	الأطباء، الممرضات والعاملين في الصيدلية يعملون هنا معا كفريق واحد منسق تنسيقاً جيداً.
29	5	4	3	2	1	المعنويات في هذه الصيدلية\مكان العمل مرتفعة.
30	5	4	3	2	1	يتم الإشراف على المتدربين في الصيدلة بشكل مناسب .

ستساعد هذه المعلومات في تحليل نتائج الاستبيان، الرجاء اختيار إجابة واحدة فقط لكل من الاسئلة التالية:

1. الجنس  ذكر  أنثى
2. العمر \_\_\_\_\_
3. كم المدة التي أمضيتها في هذه المهنة \_\_\_\_\_
4. كم المدة التي أمضيتها و أنت تعمل في الصيدلية في هذا المستشفى \_\_\_\_\_
5. ما هو مسماك الوظيفي (ما هو عملك) في هذا المستشفى؟ اختر إجابة واحدة فقط تمثل أفضل مسمى وظيفي لك.

مساعد صيدلي   
 صيدلي مسئول (بكالوريوس صيدلة)   
 دكتور صيدلي (صيدلي إكلينيكي)   
 مدير / رئيس قسم صيدلية

6. عادة، كم ساعة تعمل أسبوعياً في هذا المستشفى؟

أقل من 39 ساعة (عمل جزئي)  60-79 ساعة  
 40-59 ساعة  80 ساعة فأكثر

7. بحكم وظيفتك، هل تتعامل مباشرة مع المرضى؟

نعم، عادة يكون لي اتصال أو احتكاك مباشر مع المرضى.  
 لا، عادة لا يكون لي اتصال أو احتكاك مباشر مع المرضى.

8. يرجى تحديد مستوى التحصيل العلمي؟

مساعد صيدلي (دبلوم)   
 بكالوريوس صيدلة   
 بكالوريوس صيدلة سريرية   
 دراسات عليا (ماجستير، دكتوراه)

تقييم مستوى سلامة المريض في الصيدلية

9. يرجى إعطاء القسم الذي تعمل به (الصيدلية) درجة لسلامة المرضى؟

ممتازة  جيدة جداً  مقبولة  ضعيفة  متدنية

10. ما عدد الأحداث التي أبلغت عنها أو كتبت بها تقارير و قدمتها للمسئول خلال 12 شهر الماضية بغض النظر عما إذا كان هذا الحادث تسبب بضرر للمريض أو لا ؟ حدد إجابة واحدة

<input type="checkbox"/>	11 وأكثر حدث ابلغ عنها	<input type="checkbox"/>	3-5 أحداث ابلغ عنها	<input type="checkbox"/>	لم ابلغ عن أي حدث
<input type="checkbox"/>		<input type="checkbox"/>	6-10 حدث ابلغ عنها	<input type="checkbox"/>	1-2 بلاغ بحادثة

11. يرجى إضافة ثلاث توصيات من أجل تحسين سلامة و حماية المرضى في مكان العمل هذا.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

## Annex 2: Formal letter for hospital director permission

التاريخ:

حضرة الدكتور .....

مدير مستشفى .....

الموضوع: مساعدة الطالبة وفاء الزغاري

تحية طيبة و بعد،

تقوم الطالبة وفاء الزغاري/ برنامج ماجستير السياسات والإدارة الصحية في كلية الصحة العامة/ جامعة القدس بإجراء بحث كمتطلب رسالة الماجستير بعنوان :

### Assessment of Patient Safety Culture in the Palestinian Hospital Pharmacies

يهدف هذا البحث إلى التعرف على آراء و وجهات نظر العاملين في أقسام الصيدلة في جميع المستشفيات العامة في الضفة الغربية حول قضايا سلامة/حماية المرضى داخل أقسامهم. إن ثقافة سلامة أو حماية المرضى في المشفى يمكن تعريفها بما يتبادله أعضاء المؤسسة فيما بينهم من أفكار ومفاهيم، و ما يعتبرونه هاما و ذا قيمة هامة بشكل جماعي. حيث أن فهم الثقافة السائدة هو موضوع مهم جدا لتحديد مستوى سلامة المرضى في المشفى وبالتالي وضع الإجراءات اللازمة من اجل تحسين الوضع القائم ضمن إطار برنامج تحسين سلامة المرضى.

ستقوم الباحثة بجمع المعلومات بواسطة استبانة معدة لقياس ثقافة سلامة المرضى في المستشفيات. أرجو من حضرتكم التكرم بتسهيل مهمة الطالبة والسماح لها بجمع المعلومات في مشفاكم. علما بأن هذه المعلومات ستستعمل لهدف البحث العلمي فقط مع المحافظة التامة على سرية أسماء المستشفيات والمشاركين مع العلم أن مشاركة العاملين في الدراسة ستكون طوعية . حيث يتم البحث بإشراف الدكتور معتصم حمدان (0599736929) والرجاء الاتصال به في حال الحاجة للمزيد من المعلومات.

و تقبلوا بقبول فائق الاحترام،،

د. أسمى الإمام

عميدة كلية الصحة العامة

### Annex 3: Mean SAQ scale scores by hospital pharmacy

Hospital Name	% response rate	Teamwork Climate		Safety Climate		Perception of Management		Job Satisfaction		Working Conditions		Stress Recognition		Total Score	
<b>A</b>	75.0	70.8	±7.21	72.6	±10.3	72.9	±26	96.6	±5.7	91.6	±14.4	43.7	±27.2	74.7	±2.5
<b>B</b>	60.0	85.4	±11	81.2	±12.1	87.5	±8.8	92.5	±8.6	89.1	±9.3	65.6	±44.9	83.5	±7.3
<b>C</b>	63.0	65	±9.6	69.2	±1.9	71.2	±16.8	84	±15.5	85	±5.6	80	±13.5	75.7	±3.8
<b>D</b>	57.0	64.6	±12	66.9	±15.5	46.8	±29.9	58.7	±25.9	51.5	±22.4	57.8	±12.8	57.7	±17.6
<b>E</b>	50.0	62.5	-	50	-	83.3	-	60	-	62.5	-	93.7	-	68.6	-
<b>F</b>	88.0	65.4	±14.7	71.9	±23.6	61.6	±13.7	77.8	±13.8	71.4	±20	61.6	±27.8	68.3	±11.2
<b>G</b>	100.0	58.3	±15.7	60.7	±8.5	57.1	±26.6	66.4	±14.6	59.8	±23.8	55.3	±30.7	59.6	±13.8
<b>H</b>	100.0	70.8	±11	72.6	±10.9	72.2	±19.3	86.6	±7.6	89.5	±18	72.9	±28.2	77.4	±12.4
<b>I</b>	75.0	76.4	±8.6	85.7	±15.5	77.1	±9.5	78.3	±17.5	93.7		58.3	±15.7	78.2	±2.4
<b>J</b>	100.0	59.2	±21.1	68.5	±24.6	71.2	±26.3	71.7	±16.8	68.7	±21.2	46.2	±30.2	64.2	±15.4
<b>K</b>	77.0	63.8	±13.3	66.4	±12.2	69.1	±6.2	62.2	±9.2	82.1	±18.5	42.9	±16.5	64.4	±6.7
<b>L</b>	33.0	75	-	75	-	1	-	1	-	93.7	-	68.7	-	85.4	-
<b>M</b>	66.0	81.3	±2.9	82.1		84.3	±13.2	1		90.6	±4.4	56.2	±26.5	82.4	±7.8
<b>N</b>	80.0	59.4	±7.1	58.9	±6.8	62.5	±8.8	68.1	±8.9	56.2	±22.8	67.1	±14.7	62.1	±9.9
<b>O</b>	57.0	72.9	±4.1	59.8	±16.5	57.8	±9.3	80	±4.1	75	±8.8	79.6	±32.8	70.8	±10.8
<b>P</b>	100.0	37.5	-	50	-	31.2	-	40	-	25	-	75	-	43.1	-
<b>Q</b>	100.0	67.5	±9.5	68.5	±17	62.5	±19.2	80	±11.2	87.5	±14.6	76.2	±16.1	73.7	±8.3
<b>R</b>	100.0	63.8	±10.4	70.2	±2	56.2	±10.8	80	±10	81.2	±6.2	77.1	±13	71.4	±6.1
<b>F (P value)</b>		1.63	0.08	1.07	0.41	1.65	0.08	3.59	0.000	2.73	0.003	1.21	0.28	2.57	0.004