

Relationship among nurses' safety compliance, organizational safety climate, worker's variables and job satisfaction at Zagazig University hospitals

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Abstract: Background: Safety is the condition of a "steady state" of an organization or place doing what it is supposed to do. "What it is supposed to do" is defined in terms of public codes and standards, corporate vision and mission statements, and operational plans and personnel policies. For any organization, place, or function, large or small, safety is a normative concept. It complies with situation-specific definitions of what is expected and acceptable. Aim: to explore relationship among nurses' safety compliance, organizational safety climate, personality variables and job satisfaction at Zagazig University hospitals. Method: Exploratory descriptive design. The study subjects consisted of diploma nurses (326) and baccalaureate nurses (40). The study was conducted at Zagazig University hospitals. Six tools were used for collecting data (compliance scale for coworkers, compliance scale for self, overall job satisfaction, hospital safety climate, positive and negative affectivity scale and conscientiousness scale). Results: the majority (35.9%) of the study sample saw that their co-workers are not complied with safety measures while (29.6%) saw that their co-workers are complied with safety measures, the majority (34.5%) of the study sample saw that they are not complied with safety measures while (27.4%) saw that they are complied with safety measures. Conclusion: there are a statistically significant difference between Self-reported safety compliance and co-workers' ratings of safety compliance at level (0.000), While there are not statistically significant differences among Self-reported safety compliance or co-workers' ratings of safety compliance and: job satisfaction, organizational safety climate; mood at work and conscientiousness.

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Key words: Safety compliance, safety climate, mood, conscious, job satisfaction and Zagazig University hospitals.

1- Introduction

Safety is one of the most difficult issues (**Ibrahim et al., 2012**). Safety is the state of being "safe", the condition of being protected against physical, social, spiritual, financial, political, emotional, occupational, psychological, educational or other types or consequences of failure, damage, error, accidents, harm or any other event which could be considered non-desirable. Safety can also be defined to be the control of recognized hazards to achieve an acceptable level of risk. This can take the form of being protected from the event or from exposure to something that causes health or economical losses. It can include protection of people or of possessions (**Wikipedia, the free encyclopedia, 2013**).

Safe work practices are defined as procedures adopted for carrying out specific tasks that ensures workers' exposure to hazardous situations, substances, and physical agents is controlled in a safe manner (**Uslegal.com, 2013**). Safe work practices are generally written methods outlining how to perform a task with minimum risk to people, equipment, materials, environment, and processes (**Infrastructure health & safety association, 2013**).

Safety precautions include hand hygiene guidelines, use of gloves when exposure to body fluids, eye protection, mouth and nose protection (mask use), wearing a gown when required, avoid recapping the needle after it was used for a patient, and provision of care considering all patients as potentially infectious (**Efstathiou, 2011**).

Compliance has been defined in many ways (**Bissonnette, 2008**). **Hazavehei et al. (2007)** and **Daddario, (2007)** defined compliance as the extent to which certain behaviour (for example, following physician's orders or implementing healthier lifestyles) is in accordance with the physicians' instructions or health care advice.

In general, compliance means conforming to a rule, such as a specification, policy, standard or law. Regulatory compliance describes the goal that corporations or public agencies aspire to in their efforts to ensure that personnel are aware of and take steps to comply with relevant laws and regulations (**Wikipedia, the free encyclopedia, (2011)**). Due to the increasing number of regulations and need for operational transparency, organizations are increasingly adopting the use of consolidated and harmonized sets of compliance controls. This approach is used to ensure that all necessary

governance requirements can be met without the unnecessary duplication of effort and activity from resources (**Silveira et al., 2012**).

People behave unsafe because it saves their time and effort (taking short cuts or not using personal protective equipments). Environmental solutions don't work so effectively as people may remove guards and work in bad housekeeping. Punishment may lead to positive or negative effects. Attitude change does not help much, as it does not really convert into behavior. The root cause of accidents is unsafe behaviors which are at the core of any near misses, injury, accidents. Common unsafe behaviors regarding: personal protective equipment (PPE), housekeeping, using tools and equipment, body positioning / protecting, material handling, communication, following procedures and visual focusing (**Kaila, 2012**).

Many researchers focused on the factors that contribute to non-compliance with standard precautions. Reported factors were lack of time (**Sax et al., 2005**), lack of knowledge, forgetfulness, lack of means, negative influence of the equipment on nursing skills, uncomfortable equipment, skin irritation, lack of training, conflict between the need to provide care and self-protection and distance to necessary equipment or facility (**Oliveira et al., 2010**).

Moreover compliance can be influenced or controlled by a variety of factors like culture, economic and social factors, self-efficacy, and lack of knowledge or means. Guidelines that guide an individual's behaviour exist in a variety of settings (including health care settings), but people do not always comply with them. (**Hazavehei et al., 2007**) & **Daddario, 2007**)

Safety climate refers to the degree to which employees believe true priority is given to organizational safety performance (**Cooper & Phillips, 2004**).

The term "organizational climate" can be used in either a technical or a colloquial sense. As a technical term, it is defined as "a set of measurable properties of the work environment, based on the collective perception of the people who live and work in the environment and demonstrated to influence their motivation and behaviour." As an everyday term, it describes the way it feels to work in an organization. People use "climate" as a catchall phrase to describe the overall "tone" or "work atmosphere" of an organization. Simply stated, climate is people's perceptions of the environment in which they work (**OED Consulting LTD, 2006**).

Mohamed, (2002) identified 10 dimensions to describe the safety climate in construction site environment. These dimensions were: commitment,

communication, safety rules and procedures, supportive environment, supervisory environment, workers' involvement, personal appreciation of risk, appraisal of work hazards, work pressure, and competence. **Fang et al. (2006)** listed ten safety climate factor structure including: safety attitude and management commitment, safety consultation and safety training, supervisor's role and worker's role, risk taking behavior, safety resources, appraisal of safety procedure and work risk, improper safety procedure, worker's involvement, worker's influence, and competence. While **OED Consulting LTD, (2006)** mentioned the dimensions of climate as: clarity, responsibility, recognition and commitment

Organizational Climate-Characteristics includes individual initiative, risk tolerance, direction, integration, management support, reward system, conflict tolerance and communication patterns. Organizational climate-approaches incorporate cognitive schema approach and shared perception approach. (**Allyn & Bacon, 2007**).

Schneider et al (2012) described factors that have an influence over organizational climate such as managerial support, inter-agency conflict, agent dependence, general satisfaction, management philosophy, organizational structure and process. Moreover **Sivakumar, (2012)** has identified factors influencing climate, which include management philosophy, organizational structure and process, communication, motivation and leadership, physical environment and values.

Job satisfaction represents one of the most complex areas facing today's managers when it comes to managing their employees. (**Aziri, 2011**). Moreover job satisfaction is a complex and multifaceted concept which can mean different things to different people. Job satisfaction is more of an attitude, an internal state. It could, for example, be associated with a personal feeling of achievement, either quantitative or qualitative (**Mullins, 2005**).

The term job satisfaction refers to the attitude and feelings people have about their work. Positive and favorable attitudes towards the job indicate job satisfaction. Negative and unfavorable attitudes towards the job indicate job dissatisfaction (**Armstrong, 2006 & Shahid, 2010**). Satisfaction is the key ingredient that leads to recognition, income, promotion, and the achievement of other goals that lead to a feeling of fulfillment (**Kaliski, 2007**).

Factors that creating job satisfaction include salary, benefits, ability to influence decisions, job Security, workload, flexibility, physical work environment, advancement and new opportunities, new technologies, interesting projects, training and education, interpersonal relations, challenges and recognition (**Ovac.org, 2013**). Job satisfaction goes

beyond simply doing something you enjoy and getting a paycheck. Various factors contribute to your satisfaction in the workplace as healthy environment, clarity, security, advancement and proper wages, with the most significant often involving trust. The specifics of workplace, such as how the employee's office is laid out, also play a part. Both employers and employees benefit when employees feel satisfied, as happy employees are often more productive and less likely to look for a different job (**Assad, 2013**).

A mood is defined as the prevailing psychological state (habitual or relatively temporary). It is further defined as a feeling, state or prolonged emotion that influences the whole of one's psychic life. It can relate to passion or feeling; humour; as a melancholy mood or a suppliant mood. Mood can and does affect perceived health, personal confidence, one's perceptions of the world around us and our actions based on those perceptions. Moods can and do change often although mood swings of a sharp nature may be a symptom of underlying disease. Moods may signify happiness, anger, tension (**Clark, 2005**), A conscious state of mind or predominant emotion (**Merriam Webster, 2013**).

Negative moods have important implications for human mental and physical wellbeing. Negative moods have been connected with depression, anxiety, aggression, poor self-esteem, physiological stress. Negative moods, such as anxiety, often lead individuals to misinterpret physical symptoms (**Lykins et al, 2006**). While positive mood has been found to enhance creative problem solving and flexible yet careful thinking (**Dictionary.com, 2012**).

There are many symptoms that appeared the workers' mood such as: accepted, accomplished, aggravated, alone, angry, anxious, apathetic, ashamed, awake, blissful, bored, calm, cheerful, cold, confused, crazy, dark, depressed, determined, dirty, disappointed, discontent, drained, energetic, excited, exhausted, frustrated, full, good, grateful, guilty, happy, high, hopeful, hot, hungry, hyper, impressed, irritated, lazy, lethargic, lonely, loved, mad, moody, naughty, not Specified, okay, optimistic, peaceful, pessimistic, pleased, refreshed, rejected, relaxed, relieved, restless, sad, satisfied, shocked, sick, sleepy, smart, stressed, surprised, sympathetic and uncomfortable (**word press. com, 2013 & Quizlet.com, 2013**).

Conscience is a person's moral sense of right and wrong, viewed as acting as a guide to one's behaviour (**Amnesty International Ambassador of Conscience Award, 2013**).

Wesley, (2012) mentioned several sorts of conscience such as a good conscience, a tender conscience, a scrupulous conscience and a hardened conscience. Conscience has a role in moral decision

making. There are seven different types of conscience. Those types are a true or correct catholic conscience, erroneous conscience, bad conscience, weak conscience, scrupulous conscience, lax conscience, and informed conscience (**Ask.com, 2013**).

Theories of consciousness includes: a- Metaphysical theories of consciousness as dualist theories and physicalist theories, and b- specific theories of consciousness as higher-order theories, representational theories, cognitive theories, neural theories, quantum theories, nonphysical theories (**Gulick, 2004**).

In Egypt, few researches were undertaken in nursing safety compliance. Most of these researches are relevant to infection control for patients as establishing standards for prevention and control of nosocomial infection in intensive care units at the Alexandria main University hospital (**El-Shnawy, 2002**) and development of clinical nursing care standards for adult surgical patients (**Ahmad, 2003**) or relevant to organizational culture and climate (**Ahmad, (2010)**). However, these researches did not include the relationship among nurses' safety compliance, organizational safety climate, worker variables and job satisfaction at Zagazig University hospitals which is the mean to ensure nursing safety compliance, safety for patients and staff and improve organizational safety climate.

Significance of the Study

90% or more of the accidents and injuries are due unsafe behaviors; 50% of the unsafe behaviors are identified or noticeable at any plant at any given point of time; 25-30% of safety awareness is lacking among employees which gets reflected in their unsafe behaviors **Kaila, (2012)**.

Hoballah (2003) stated that in Egypt, some hospitals reported of hospital infection rates up to 60%. In addition **Gaber, (2009)** added that health care workers at zagazig university hospitals are exposed to all the risks originated from occupational risks in percentages ranging from 77.8% (for chemical risks) to 97.9 % (for environmental/ergonomic risks). Regarding iatrogenic risks the study sample is exposed to all the risks originated from iatrogenic risks in percentages ranging from 25% (for surgical operations risks) to 99.5 % (for risks associated with injuries, errors and incident's reports). Concerning total of the risks the study sample is exposed to iatrogenic risks and occupational risks in the following percentages respectively (99.5% and 98.6%). ability to harm patients 73%, cause nosocomial infection 92% and medical accidents 82%.

Non-compliance with safety regulations is a main cause of occupational injuries in health care and

nosocomial infection for patients. Safety compliance is a critical issue in health care. So it was a must to study the nursing staff perceptions towards nurses' safety compliance, organizational safety climate, personality variables and job satisfaction at Zagazig University hospitals to protect the patients, health care providers and organization's asset, it also improves cost effectiveness, Health care delivery demands both safety and efficiency, reduce losses, enhance providers and patients satisfaction, retain nurses and attracting new nurses into the profession, provide healthier and more effective workforce and consequently improves quality of patient care and hospitals services.

Theoretical Framework:

The DeJoy et al.'s (1998) work-system model of occupational safety and health which clarified that worker variables, environmental/ organizational variables and job/task variables lead to safety behavior provided the foundation for theoretical framework for this study.

2. Subjects and methods

Aim of the Study

The aim of this study was to explore relationship among nurses' safety compliance, organizational safety climate, personality variables and job satisfaction at Zagazig University hospitals. To fulfill this aim the following research objectives were formulated to: a) assess the compliance with safety practices among nurses at Zagazig University hospitals and b) Explore relationship among nurses' Safety compliance with: Organizational safety climate, personality variables, job satisfaction ;and socio-demographic and job characteristics of the study at Zagazig University hospitals.

Research Hypothesis:

Hypothesis 1: Self-reported safety compliance will be positively correlated with coworkers' ratings of safety compliance.

Hypothesis 2: Conscientiousness scores will be positively correlated with Self-reported safety compliance.

Hypothesis 3: Conscientiousness scores will be positively correlated with coworkers' ratings of safety compliance.

Hypothesis 4: Employees who are higher on positive mood at work will be positively correlated with Self-reported safety compliance

Hypothesis 5: Employees who are higher on positive mood at work will be positively correlated with coworkers' ratings of safety compliance

Hypothesis 6: job satisfaction scores will be positively correlated with coworkers' ratings of safety compliance.

Hypothesis 7: job satisfaction scores will be positively correlated with Self-reported safety compliance.

Hypothesis 8: Organizational safety climate scores will be positively correlated with coworkers' ratings of safety compliance

Hypothesis 9: Organizational safety climate scores will be positively correlated with Self-reported safety compliance

Hypothesis 10: coworkers' ratings of safety compliance will be positively correlated with socio-demographic and job characteristics of the study sample

Hypothesis 11: Self-reported safety compliance will be positively correlated with socio-demographic and job characteristics of the study sample

Research Design:

Exploratory descriptive design was used to achieve the objectives of the present study it aimed at exploring the relationship among nurses' Safety compliance with: Organizational safety climate, personality variables and job satisfaction at Zagazig University Hospitals

Setting:

This study was conducted at Zagazig University hospitals. That includes two sectors involving 8 hospitals. The emergency sector contains four hospitals provide free treatments which are: new surgery hospital (600 beds), emergency hospital (185 beds), general medicine hospital (322beds), delivery and premature hospital (57beds). The El-salam sector contains four hospitals three of them provide free treatment which are cardio thoracic hospital (212 beds), pediatric hospital (220 beds), El- salam hospital (254 beds) and one provide economic treatment which is economic treatment hospital (104 beds).

Subjects:

To collect data for the present study two types of samples were used:

1- a stratified proportionate random sample from different categories of nurses was taken as follows: Sample size: the sample size is estimated with Confidence level 95%, Population size 2446, and Margin of error 5%. Using the sample size calculator (Qualtrics. Inc, 2011). <http://www.qualtrics.com/sample-size-whats-the-deal>. Ideal sample size was 332. After adjust of a dropout rate of 10 % the sample size required was 366. Sampling method: the sample was taken through a stratified proportionate random sampling technique, based on the distribution of the different categories of nurses: diploma nurses (326) and baccalaureate nurses (40).

2- Jury committee (16). They were faculty staff members from faculty members from education (11) and nursing staff (5).

Exclusion criteria include:

- 1- Staff who are in leave or traveling abroad or in pension
- 4- Staff under one year of employment

Operational definitions:

For the purposes of this study, the following operational definitions were used:

1. Safety compliance for coworkers is defined as the number of agreement a nurses give to 40 questions representing safety practices. It refers to nurses' actual observable behavior on the job. Safety compliance was observed and reported by nurses' coworkers.
2. Safety compliance for nurses is defined as the number of agreement a nurses give to 40 questions representing safety practices. Nurses' subjective perceptions of whether or not they comply to safety practices
3. Job satisfaction is defined as the number of agreement a nurses give to 5 questions representing overall job satisfaction
4. Organizational safety climate is defined as the number of agreement a nurses give to 17 questions representing organizational safety practices. Safety climate provides a general frame of reference for developing organizational expectations.
5. Worker's variables which involves Mood at work and Conscientiousness:
 - 5.1. Mood at work is defined as the number of agreement a nurses give to 16 questions representing Positive and Negative mood.
 - 5.2. Conscientiousness is defined as the number of agreement a nurses give to 20 questions representing personality Conscientiousness

Tools:

Data for the present study was collected using the following six tools:

- 1- Compliance scale for coworkers was adopted from Gershon's *et al.* (1995) to collect data about Safety compliance. It includes two parts; the first part contains socio- demographic data of sample subjects. The second part contained 40 items representing safety behaviors. After needed modifications the participants were instructed to rate each behavior for their coworkers using a 5-point likert scale from 1 (strongly disagree) to 5 (strongly agree).
- 2- Compliance scale for self was adopted from Gershon's *et al.* (1995) to collect data about Safety compliance. It contained 40 items representing safety behaviors. The participants were instructed to rate each behavior for them

using a 5-point likert scale from 1 (strongly disagree) to 5 (strongly agree).

- 3- Overall job satisfaction was measured by Brayfield and Rothe's (1951) 5-item scale. The participants were instructed to rate each item using a 5-point likert scale from 1 (strongly disagree) to 5 (strongly agree).
- 4- Hospital safety scale by Gershon *et al.* (2000) and adopted by the researcher to collect data about Organizational safety climate. It involves 17-items. The participants were instructed to rate each item using a 5-point likert scale from 1 (strongly disagree) to 5 (strongly agree).
- 5- Positive and Negative Affectivity scale by Watson *et al.* (1988) was adopted to assess mood at work. It contained 16-items. The participants were instructed to rate each item using a 5-point likert scale from 1 (Not at all) to 5 (Extremely).
- 6- Conscientiousness scale by Goldberg (IPIP, 2001) was adopted to measure the personality variables or Conscientiousness. It involved 20 items. The participants were instructed to rate each item using a 5-point likert scale from 1 (strongly disagree) to 5 (strongly agree).

Procedure

The current study was carried out on three phases; preparation phase, implementation phase and designing or developmental phase.

1-Preparation phase.

This phase was concerned with managerial arrangements to carry out the implementation phase, as well as preparation of data collection tools.

Managerial arrangements, an official permission was obtained from the chairman of the board of trustees at Zagazig University hospitals to select the sample size, to conduct the study and to collect the data. The researcher explained the aim of the study to participants.

Regarding preparation of the tool the researcher adopt the questionnaire sheets

Validity and reliability of the Compliance scale for coworkers, Compliance scale for nurses, Overall job satisfaction, Hospital safety scale, Positive and Negative Affectivity scale and Conscientiousness scale assessment questionnaire tools.

Content validity:

The researcher designed an opinionnaire sheet to test the content validity of the Compliance scale for coworkers, Compliance scale for nurses, Overall job satisfaction, Hospital safety scale, Positive and Negative Affectivity scale and Conscientiousness scale assessment questionnaire sheets by a jury including 11 faculty members from education and 5 nursing staff. It involved two parts:

A- The opinions of the experts for each item were recorded on a two point scale: relevant, not relevant.

B- General or overall opinion about the form.

They were requested to express their opinions and comments on the tool and provide any suggestions for any additional or omissions of items. Then necessary modifications were done in which there was consensus among the jury committee that there is duplication in meaning in some items at compliance scale for coworkers and compliance scale for nurses and they recommend the researcher to delete it. So the researcher deleted it. These items were: helps to make those around her/him more productive, is willing to share his/her work knowledge with new employees, teaches new employees how to use work equipment, volunteers to help others when they have a heavy workload, goes out of his/her way to help coworkers. As well as at positive and negative affectivity scale there were 4 items deleted which are: inspired, scared, attentive, and Jittery. This phase was carried out in a period of one and half months.

A pilot study was carried out on 48 nurses selected randomly at Zagazig University hospitals that are to identify obstacles and problems that may be encountered during data collection, to test clarity, feasibility of the tool and whether it was understandable, and to determine the time needed to fill the forms. The tool was handed to participants to fill it and collected by the researchers. The time for the completion of the questionnaire sheet was ranged from 1-1:30 hours.

Reliability Testing:

The reliability estimate used for the current study was internal consistency reliability. It is the estimate used to assess the consistency of results across items within a test. In internal consistency reliability estimation; a single measurement instrument (Tool) administered to a group of people on one occasion is used to estimate reliability. In effect, the reliability of the instrument is judged by estimating how well the items that reflect the same construct yield similar results. In other words, the estimate looks at how consistent the results are for different items for the same construct within the measure. There are a wide variety of internal consistency measures that can be used. Two estimations were used for the tools used in the study:

1. Cronbach's Alpha
2. Split Half Reliability

1. Cronbach's Alpha

Cronbach's Alpha is mathematically equivalent to the average of all possible split-half estimates from the same sample. The computer analysis does the random subsets of items and

computes the resulting correlations. Regarding compliance scale for coworkers there were 5 items excluded that affect alpha level if removed and the Cronbach's alpha was.878, compliance scale for nurses there were 5 items excluded that affect alpha level if removed and the Cronbach's alpha was.950, overall job satisfaction the Cronbach's alpha was.753, hospital safety scale the Cronbach's alpha was.989, positive and negative affectivity scale there were 5 items excluded that affect alpha level if removed and the Cronbach's alpha was.910 and conscientiousness scale the Cronbach's alpha was.874.

1. Split-Half Reliability

In split-half reliability we randomly divide tools administered to the pilot sample into two sets. Scores of subcategories of the tools are correlated between the 2 halves. The Guttman Split-Half Coefficient for: compliance scale for coworkers' was.652, compliance scale for nurses' was.891, overall job satisfaction was.928, hospital safety scale was.978, positive and negative affectivity scale was.909 and conscientiousness scale was.941.

This phase was carried out in a period of two months.

2-Implementation phase

The researcher copied 400 sheets for any lost sheets and to ensure the collection of the required sample size. Data collection took the period from May 2012 to June 2012 at Zagazig University hospitals.

The researchers began to collect data from the nursing staff by explaining to each participant the aim of the study and take him or her acceptance and explaining the scale and how to file the sheets. Filling the questionnaire sheets was ranged from 1:30-2 hours; this time was depending on the work conditions and interference of many variables. Data collection for some participants carried out through distribution of the questionnaire sheet to the subjects and was handed back to the researchers upon completion.

Some participants (9) refuse to participate in the study; the researcher took another participants.

Statistical analysis:

Data entry was done using Microsoft Excel computer software package, while statistical analysis was done using SPSS 20.0 statistical software package. Quality control was done at the stages of coding and data entry. Data were presented using descriptive statistics in the form of frequencies and percentages as well as Bivariate correlation (Pearson test) to assess the relation among variables. Statistical significance was considered at p -value <0.05.

4-Results

The objectives of this study were to a) assess the compliance with safety practices among nurses at Zagazig University hospitals.

b) Explore relationship among nurses' Safety compliance with: Organizational safety climate, personality variables and job satisfaction at Zagazig University hospitals.

The results of the present study were presented using the following sequence:

I- Demographic characteristics of the study sample. (Table 1), II- compliance with safety practices results: (Figures 1-6, Table 2), III-relationship among nurses' Safety compliance with: Organizational safety climate, personality variables and job satisfaction at Zagazig University hospitals. (Tables: 3-5).

I- Demographic characteristics of the study sample.

Table (1) shows that, the majority (44.2%) of the study sample's ages were under 30 years. Regarding gender the majority (95.6%) of the study sample were females. Regarding years of experience the majority (80.2%) of the study sample have experience less than 20 years. Regarding qualification, the majority (87.9%) have nursing school diploma. As regard to job position, the majority (82.4 %) of the study sample works as a nurse. Regarding working shift, the majority (56.3%) of the study sample works in morning shift.

Table 1: Socio-demographic and job characteristics of the study sample (n=364)

Percent %	Frequency (n)	
44.2	161	Age (years): 👶 30 Years
36.3	132	30 – 39 Years
19.5	71	👴 40 Years
Mean±SD 32.2±7.90		
Gender		
4.4	16	Male
95.6	348	Female
Years of Experience		
80.2	292	👶 20 Years
16.5	60	20 – 30 Years
3.3	12	👴 30 Years
Mean±SD 12.9±7.75		
Qualification of the staff		
87.9	320	Diploma
12.1	44	Bachelor
Position		
82.4	300	Staff nurse
17.6	64	Head nurse
Working Shift		
56.3	205	Morning
22.3	81	Evening
21.4	78	Night

Figure 1 shows Clarifies that the majority (35.9%) of the study sample saw that their co-workers are not complied with safety measures while (29.6%) saw that their co-workers are complied with safety measures.

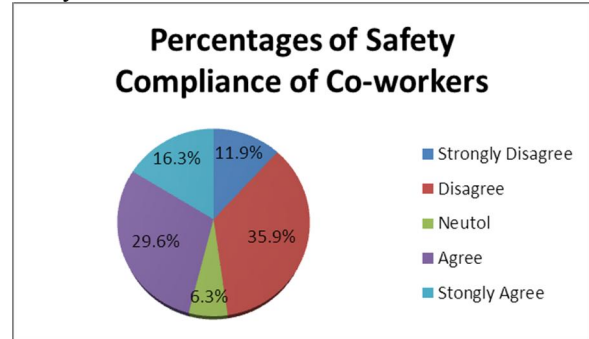


Figure 1: Frequency distribution of opinions of the study sample subjects about safety compliance of co-workers (n=364)

Figure 2: Displays that the majority (34.5%) of the study sample saw that they are not complied with safety measures while (27.4%) saw that they are complied with safety measures

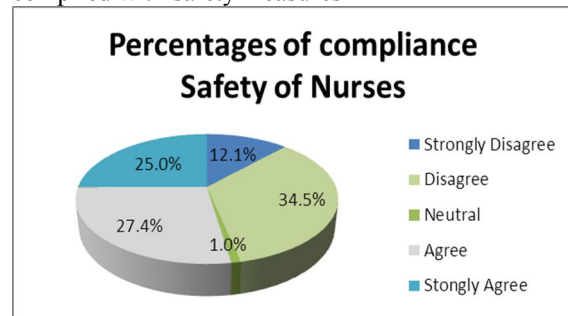


Figure 2: Frequency distribution of opinions of the study sample subjects about their safety compliance (n=364)

Figure 3: Illustrates that the majority (44.4%) of the study sample saw that they are not satisfied by their work while (28.8%) saw that they are satisfied by their work

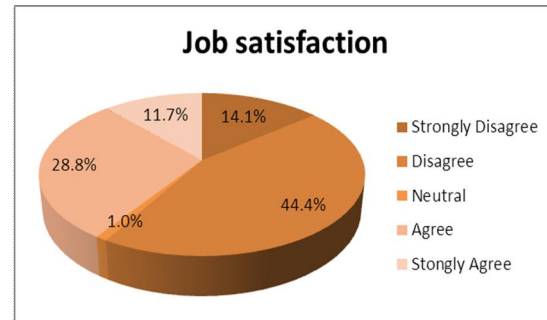


Figure 3: Frequency distribution of opinions of the study sample subjects about their job satisfaction (n=364).

Figure 4: Demonstrated that the majority (61.4%) of the study sample reported that the hospital safety practices are not achieved while (13.4%) saw that the hospital safety practices are achieved.

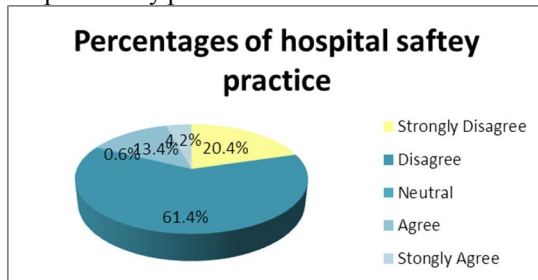


Figure 4: Frequency distribution of opinions of the study sample subjects about the hospital safety practices (n=364)

Figure 5: Displays that the majority (42.1%) of the study sample reported that their mood in work can be influenced a little while (28.9%) saw that their mood in work can be affected quite a bit.

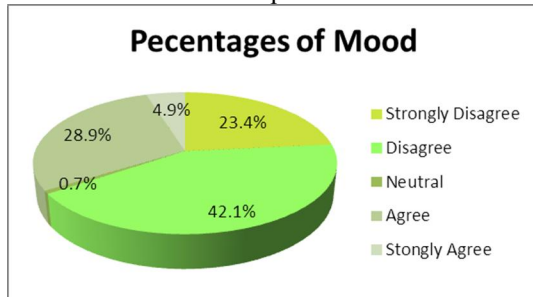


Figure 5: Frequency distribution of opinions of the study sample subjects about their mood in work (n=364)

Figure 6: Shows that the majority (33.6%) of the study sample have a consciousness in work while (31.9%) saw that their consciousness in work can be affected.

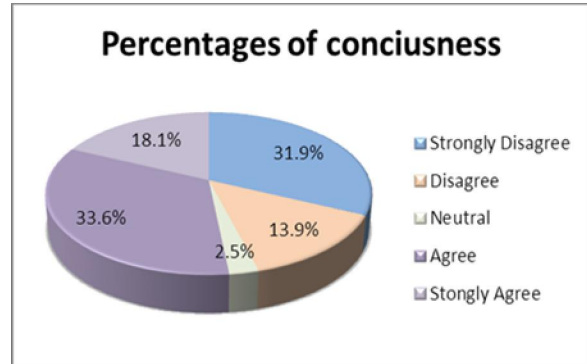


Figure 6: Frequency distribution of opinions of the study sample subjects about their consciousness in work (n=364).

Table 2: Clarifies that there are a statistically significant difference between Self-reported safety compliance and co-workers' ratings of safety compliance at level (0.000), While there are not statistically significant differences among Self-reported safety compliance or co-workers' ratings of safety compliance and: job satisfaction, organizational safety climate; mood at work and conscientiousness.

Table 2: Correlations among the study variables (n=364).

Conscientiousness	Mood at work	Organizational safety climate	Job satisfaction	Self-reported safety compliance	Co-workers' ratings of safety compliance	The study variables	
-0.067	0.085	-0.031	0.027	0.182**	1	Pearson Correlation	Co-workers' ratings of safety compliance
0.205	0.105	0.549	0.604	0.000		Sig. (2-tailed)	
364	364	364	364	364	364	N	
-0.012	0.040	0.006	-0.011	1	0.182**	Pearson Correlation	Self-reported safety compliance
0.816	0.444	0.913	0.832		0.000	Sig. (2-tailed)	
364	364	364	364	364	364	N	

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

Table 3: Displays that there are a statistically significant differences between co-workers' ratings of safety compliance and gender at level (0.001) while there are not a statistically significant differences with age, qualification, position and supervising.

There are a statistically significant difference between self-reported safety compliance and qualifications at level (0.012); while there are not statistically significant differences with age, gender, position and supervising

Table 3: Correlations among the study variables (n=364).

Supervising	Position	Qualification	Gender	Age	The study variables	
0.081	-0.064	-0.097	-0.174**	0.018	Pearson Correlation	Co-workers' ratings of safety compliance
0.121	0.224	0.065	0.001	0.730	Sig. (2-tailed)	
364	364	364	364	364	N	
0.057	-0.038	-0.131*	0.014	-0.087	Pearson Correlation	Self-reported safety compliance
0.277	0.469	0.012	0.783	0.098	Sig. (2-tailed)	
364	364	364	364	364	N	

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

Table4: Shows that there are a statistically significant differences between co-workers' ratings of safety compliance and shift at level (0.021) and hospital (0.002) while there are not a statistically significant differences with experience and sector.

There are a statistically significant difference between self-reported safety compliance and hospital at level (0.019); while there are not statistically significant differences with experience, shift and sector.

Table4: Correlations among the study variables (n=364).

Sector	Hospital	Shift	Experience	The study variables	
0.060	-0.164**	0.121*	0.008	Pearson Correlation	Co-workers' ratings of safety compliance
0.252	0.002	0.021	0.872	Sig. (2-tailed)	
364	364	364	364	N	Self-reported safety compliance
0.009	0.123*	-0.014	-0.061	Pearson Correlation	
0.860	0.019	0.792	0.247	Sig. (2-tailed)	
364	364	364	364	N	

** . Correlation is significant at the 0.01 level (2-tailed). * . Correlation is significant at the 0.05 level (2-tailed).

5- Discussion

Safety is the responsibility of all employees (**Kaila, 2012**). It is widely accepted that unsafe behavior is intrinsically linked to workplace accidents. A positive correlation exists between workers' safe behavior and safety climate within the construction site environments. Construction workers' attitudes towards safety are influenced by their perception of risk, management, safety rules and procedures. (**Ali, 2006**).

The aim of this study was to explore relationship among nurses' safety compliance, organizational safety climate, personality variables and job satisfaction at Zagazig University hospitals. To fulfill this aim the following research objectives were formulated to: a) assess the compliance with safety practices among nurses at Zagazig University hospitals and b) Explore relationship among nurses' Safety compliance with: Organizational safety climate, personality variables, job satisfaction ;and socio-demographic and job characteristics of the study sample at Zagazig University hospitals.

a- Assess the compliance with safety practices among nurses at Zagazig University hospitals:

Table (1) shows that, the majority (44.2%) of the study sample's ages were under 30 years. Regarding gender the majority (95.6%) of the study sample were females. Regarding years of experience the majority (80.2%) of the study sample have experience less than 20 years. Regarding qualification, the majority (87.9%) have nursing school diploma. As regard to job position, the majority (82.4 %) of the study sample works as a nurse. Regarding working shift, the majority (56.3%) of the study sample works in morning shift.

Results of the present study revealed that about (35.9%) of the study sample saw their co-workers are not complied with safety measures while (29.6%) saw their co-workers are complied with safety measures. However, the results should be much higher, as workers should follow no-tolerance safety procedures, which if not existed, could lead to serious injuries and

risks on site this might be due to individual perceptions' differences of safety measures, there are some efforts done from management of Zagazig university hospitals regarding safety measures, infection control, risk management...etc through the continuous development center in the new surgery hospital but there is not follow up and absence of control for those who take training or workshops so some of them may not comply as well as not all nursing staff receive these workshops. It appears that, in the present sample, employees did not share strong common perceptions about the safety climate within their units. This result was consistent with **Zohar and Luria (2004)** who reported that safety climate strength depends on extent to which the management follows consistent patterns of behavior when implementing safety. If the patterns of managers' behavior are variable and managers inexplicably modify the priority of safety, the consensus among group members will be reduced. As well as consistent with **Cutter & Jordan (2004)** Non-compliance among health care workers could also be due to their belief that their workload is increased by adhering to universal precautions and therefore, these procedures are difficult to accommodate due to day to day current clinical pressures. Other reasons include perceived reduction in dexterity when wearing gloves, and the absence of penalties (**Abdulraheem, et al., 2012**).

The results indicated that about (34.5%) of the study sample saw that they did not comply with safety measures while (27.4%) saw that they complied with safety measures. the results should be much higher as mentioned above, this might be due to despite working on the same hospital unit, nurses had dissimilar perceptions of emphasis on safety. This may be attributed to the fact that hospital setting is a complex environment and employees attend to multiple safety-related cues in their work setting, besides the above rationales for coworkers there are severe shortage in nursing staff so they give priority to basic nursing care needs as well as many of them were not convinced in applying these measures as it is not

priority for them or non-compliance with safety policies. This result was antagonized with **Clark, (2006)** who concluded that the overall ratings of safety compliance were high indicating that hospital nurses in this sample were taking the required safety precautions. These results are not surprising. High levels of safety compliance are to be expected considering the many years of concentrated effort on the part of the continuous development center (CDC) and occupational safety and health assessment (OSHA) to implement and oversee safe work practices in the health care industry. Mandatory safety training and compliance monitoring have been widely implemented.

This result was consistent with **Dement et al., 2004 and Sax et al., 2005** who clarified that despite non-compliance with safety policies remains a major cause of work-related injuries in health care settings. Despite a general increase in awareness of the risks associated with exposure, there is deeply troubling evidence of a widespread lack of compliance with universal precautions (UP) among health care workers. As well as consistent with **Luoy, (2010)** who identified that compliance with standard precautions was found to be low in the surveyed nurses. The quartile range of the overall score for compliance for all nurses was 48.29. In addition **Regina et al. (2002)** revealed that the nurses' knowledge of UP was inadequate. In addition, UP was not only insufficiently and inappropriately applied, but also selectively practiced. The results also showed no significant relationships between the nurses' knowledge and compliance with UP. It is recommended that UP educational programmes need to consider attitudes in conjunction with empirical knowledge. Nurse managers and occupational health nurses should take a leadership role to ensure safe practices are used in the care of patients.

It was found that about (44.4%) of the study sample saw that they are not satisfied by their work while (28.8%) saw that they are satisfied by their work this may be due to there are many problems the nursing staff facing as salary, shortage of staff, high workload, family problems in which the majority of them under 30 years so they have children problems besides many of them from rural areas so they have transportation problems, psychological challenge in which some doctors treating staff nurses with bad manners or conflict between diploma nurses and bachelor nurses and lack of safety measures for nursing staff to protect them from infection or incidents in work. while there were some satisfied that they view generally that at least they have work and income while there are many other graduates from other faculties do not have work

This finding is consistent with the finding of a study done in 2004 in Canada on community pharmacists in whom the respondents reported that adequate staffing; increasing resources and salary were main factors for improving job satisfaction of pharmacists (**Trends and insights, 2004**). This result was also congruent with **Yami et al. (2011)** who concluded that about sixty seven (46.2%) of the health workers are dissatisfied with their job. The major reasons reported for their dissatisfaction were lack of motivation, inadequate salary, insufficient training opportunities and inadequate number of human resources. Only sixty (41.4%) health professionals were satisfied with their job, the major reasons given were getting satisfaction from helping others and professional gratification. Suggestion given by the respondents to improve job satisfaction and increase retention rate included motivation of staff through different incentives such as bonus, house allowance, salary increment, establishing good administration management system and improving hospital facilities and infrastructure.

According to the present study, It was found that the majority (61.4%) of the study sample reported that the hospital safety practices did not achieved while (13.4%) saw that the hospital safety practices achieved this may be due to there was not sincere efforts to implement the universal precautions (disorganized efforts), lack of budget, lack of human resources, less or no control or follow up in many areas in which we talk about 8 hospitals, some head nurses may not aware by their role and responsibility in this area ;and a copy of the hospital safety manual was not available in each area.

According to the present study findings the majority (42.1%) of the study sample reported that their mood in work can be influenced a little while (28.9%) saw that their mood in work can be affected quite a bit this may be due to the challenges, stressors, workload, increasing demanding from community that the nursing staff face in university hospitals.

It was found that the majority (33.6%) of the study sample have a consciousness in work while (31.9%) saw that their consciousness in work can be affected this may be due to the variations in personality variables or characteristics, the awareness of them by their roles, responsibilities, sense of dealing with patients and their point of view in which some saw that it is just a work.

b- Explore relationship among nurses' Safety compliance with: Organizational safety climate, personality variables, job satisfaction; and socio-demographic and job characteristics of the study at Zagazig University hospitals:

As predicted the results of the present study indicated that there were a statistically significant

difference between self-reported safety compliance and co-workers' ratings of safety compliance at level (0.000), in which the nursing staff view themselves and their coworkers respond to safety compliance measures nearly at the same percentages that could be due to all of them work in the same climate, little control, absence of reward for doing the safety measures or punishment for not doing the safety measures, nurse's understanding of his or her safety compliance and sometimes less awareness about the benefits of compliance to safety measures.

This result was supported by **Clark, (2006)** who stated that self-reported role definition breadth was positively correlated with coworkers' ratings of safety compliance in which she considered the self-reported safety compliance as part from nurse's roles and responsibilities and name it as self-reported role definition and she added that motivation theory provides one possible explanation of this relationship. Employees should be motivated to perform those work behaviors that are strongly associated with organizational rewards or sanctions. By including safety compliance in the category of required behavior, health care workers are more likely to comply in order to obtain organizational rewards and avoid sanctions.

Contrary to the predictions there were not statistically significant differences among self-reported safety compliance or co-workers' ratings of safety compliance and conscientiousness from the point of view of the researcher this might be due to the nursing staff may have conscientiousness but not comply with safety measures and vice versa in which this depend on personal convictions that these measures important or less important, control and follow up. Most personality and attitude predictors (conscientiousness, mood and job satisfaction) were unrelated to safety precautions this may be attributed to the type of psychological mechanisms that may be responsible for safety measures.

This result was antagonized with **Barrick et al. (2001)** who reported that it is especially useful for predicting complex work behaviors that require being thorough and following rules such as compliance with safety guidelines. The relationship between conscientiousness and safety compliance was stronger for those employees who held narrow role definitions. Broad role definitions appeared to buffer the link between conscientiousness and safety compliance. When safety compliance is seen as a central part of nurse's job and not a discretionary behavior, conscientiousness has no affect on his or her compliance as well as with **Clark, (2006)** who mentioned that the personality trait of conscientiousness was positively correlated with safety compliance. Conscientious nurses were more

likely to comply with safety regulations compared to their less conscientious counterparts.

Contrary to the predictions there were not statistically significant differences among self-reported safety compliance or co-workers' ratings of safety compliance and mood at work that could be due to nurses who apply safety measures will do it in case of their mood positive or negative and vice versa.

This result was consistent with **Tepper et al. (2001)** who described that individuals with broad compliance-specific role definitions (consider or incorporate the safety measures in nursing duties) are more consistent in their compliance. Their work performance is less affected by their emotions and/or job attitudes. Whereas those who have narrow role definitions are likely to demonstrate a stronger link between their mood, attitudes, and safety compliance. From the employer's point of view, broad role definition might be very desirable because it acts as a buffer against potentially negative influences on job performance. A person who believes that a particular behavior is an expected and required part of his or her job will consistently perform that behavior despite negative mood, low job satisfaction

This result was antagonized with **Bachrach & Jex (2000)** who revealed that the negative mood-compliance relationship was partially mediated by role definition. It appears that negative mood may have been partially responsible for narrow role definitions which in turn were related to decreased safety compliance in addition and with **Clark (2006)** who stated that mood was related to safety compliance and added that nurses who reported high positive mood (i.e., being interested, alert, and exited) at work were more likely to comply with safety compared to their counterparts who did not report high positive mood. Nurses who were high on negative mood described themselves as irritable, distressed, and upset. These respondents were less likely to comply with safety regulations compared with less distressed coworkers. This suggests that distress is an impediment to safety compliance whereas being in a good mood makes one more likely to comply. These findings suggest that health care providers should be concerned about their employees' emotional well-being at work. By striving to reduce potential causes of distress common in healthcare such as understaffing, role overload, and work-family conflict, employers could make health care a safer place for employees as well as patients.

Contrary to the predictions there were not statistically significant differences among self-reported safety compliance or co-workers' ratings of safety compliance and job satisfaction this may be due to some nurses did not consider the safety measures as part of their work and put it as less important issues so

even if they are satisfied or not they will not do the safety measures so this possible due to their thinking, the result of the present study differs with **Hofmann et al., (2003)** who revealed that nurses who were generally satisfied with their jobs were more likely to comply compared to their dissatisfied coworkers. It is possible that safety compliance is a behavior that is guided by the principal of social exchange and with **Clark, (2006)** who reported that job satisfaction was positively related to compliance. Employees who find their jobs pleasant and enjoyable may feel obligated to reciprocate by engaging in an organizationally valued behavior such as safety compliance.

The results of the present study revealed that there was a statistically significant difference between co-workers' ratings of safety compliance and gender at level (0.001) while there was not statistically significant difference between self-reported safety compliance and gender this may be due to the some of nursing staff view their co workers women comply with safety measures compared to men and at the same time due to the small number of men the self-reported safety compliance was reported that no difference in gender that many staff did not have men in their areas. This result (regarding co-workers' ratings of safety compliance and gender) was consistent with **Lee and Harrison, (2000)** who added that major differences by gender and work area were found to be linked with prior accident involvement of the employees and with **Clark, (2006)** who stated that women were significantly more likely to comply with safety precautions compared to men. It is somewhat difficult to interpret this gender effect because of very unequal sample sizes: 87 females and 5 males and the researcher agreed with Clark that it was really difficult. This could be a challenge in nursing research as it has been traditionally a female-dominated occupation.

This result regarding self-reported safety compliance and gender was consistent with **Fang et al. (2006)** who said that gender was found to have no influence on safety climate.

Contrary to the predictions there was not statistically significant differences among self-reported safety compliance or co-workers' ratings of safety compliance and organizational safety climate that might be due to less awareness of nursing staff with the effect of organizational safety climate on safety measures, their view to the concepts of safety measures and safety climate, lack of safety culture, lack of training and lack of effort done from head nurses to their staff nurses, the present study differs with **Clark, (2006)** who clarified that individually perceived safety climate within a hospital unit was positively correlated with compliance among nurses in that unit. Those nurses who perceived high emphasis

on safety within their hospital unit were more likely to comply. They were also more likely to form broad compliance-specific role definitions that incorporated diligent compliance into the required behavior category and with **Ibrahim et al., 2012** who emphasized that safety climate has a positive impact on safety behavior.

Moreover the results of the present study indicated that there was a statistically significant difference between co-workers' ratings of safety compliance and shift at level (0.021) while there are not statistically significant differences between self-reported safety compliance and shift that could be due to the number of staff that who may comply with safety measures working in morning shift in which there are doctor round, may be one from the managerial levels (nursing supervisor, head of department, the hospital manager) can round but in evening and night shifts there was not monitoring, control and follow up. This result was consisted with Lee and Harrison, (2000) who clarified that major differences by shift/days and work area were found to be linked with prior accident involvement of the employees. This result contraindicated with **Trinkoff et al. (2012)** who found that 32 percent work on night shifts (majority of shift hours between 9 p.m. and 8 a.m.) and 26 percent of rotating shift workers (shifts that change periodically from days to evenings or nights) and they experienced long-term insomnia and excessive sleepiness and were unable to adapt their sleep adequately on these shifts.

Despite expectations there were not statistically significant differences among co-workers' ratings of safety compliance or self-reported safety compliance with experience that could be due to the nursing staff who want to obey the safety measures will implement it regardless working from year or 20 years. This result was consistent with **Fang et al. (2006)** who stated that work experience were found to have no influence on safety climate and antagonized with Ali, (2006) who investigated the relationship between personal characteristics and safety climate and found positive relationship between work experience and the perception of risk and with **Gyekye, (2010)** who showed that the major finding was an association between workers' level of experience and perception of workplace safety. The more experienced workers had more constructive perspectives regarding safety than their inexperienced counterparts and also with **Ibrahim et al., 2012** who indicated that the workers, who are older, with more experience, have better safe work behavior.

While there were not statistically significant differences among co-workers' ratings of safety compliance or self-reported safety compliance with age, position and supervising that could be due to the

nursing staff who want to obey the safety measures will implement it regardless age, position and having supervisory role. This result was consistent with **Clark, (2006)** who mentioned that age, job classification, and supervisory status were unrelated to the outcome. Safety climate is an important contextual variable in safety research. It helps individuals interpret cues in their working environment to identify organizationally important behaviors. When there is strong managerial support for safety, adequate safety feedback and training, few obstacles to compliance, and when necessary equipment is provided, nurses are more likely to utilize their safety knowledge and also with **Ibrahim et al. (2012)** who implied that age have no impact on safety climate. But this result was antagonized with **Lee and Harrison, (2000)** who reported that major differences by age and work area were found to be linked with prior accident involvement of the employees, with **Siu et al., 2003** who found that older workers were exhibiting more positive attitudes to safety and with **Fang et al. (2006)** who clarified that personal characteristics namely age was found to be correlated with safety climate

There were statistically significant difference between self-reported safety compliance and qualifications at level (0.012); while there were not statistically significant differences between co-workers' ratings of safety compliance and qualification that could be due to the majority (87.9%) of the studied sample have diploma in nursing and did not comply with safety measures than bachelor nurses who aware with the importance of safety measures to them and patients.

This result regarding self-reported safety compliance and qualifications was consistent with **Fang et al. (2006)** who found that personal characteristics namely education level be related to safety climate and with **Ibrahim et al. (2012)** who indicated that the workers, who are more educated have better safe work behavior.

The results of the present study indicated that there were statistically significant differences among: co-workers' ratings of safety compliance and hospital at level (0.002); and self-reported safety compliance and hospital at level (0.019), that might be due to as rated by nursing staff some staff that work in critical hospitals as new surgery hospital, general medicine hospital, emergency hospital, delivery and premature hospital may comply with safety precautions to protect themselves from infection more than those who work in other areas as cardio thoracic hospital, pediatric hospital, el- salam hospital and economic treatment hospital. at the same time and despite expectations there were not statistically significant differences among co-workers' ratings of safety compliance or self-reported safety compliance with

sector that could be due to the nursing staff who want to obey the safety measures will implement it regardless the place of work or sector

This result was consistent with **Clark, (2006)** who described that there were statistically significant between-unit differences in role definitions. Health care workers' hospital units explained 21% of their role definition variance with employees of non-surgical hospital units reporting lower overall role definition means. In highly specialized health care setting, role definitions specific to safety compliance may be more influenced by strong environmental cues and less by the employee's personality. It is also possible that having had or having witnessed a work-related injury may influence nurse's safety-specific role definition. Nurses working on surgical units are at a higher risk of exposure to contaminants and are more likely to have a first- or second-hand experience with occupational exposure. They may be more directly aware of the potential life-saving benefits of safety compliance.

6-Conclusions

The present study concluded that:

- 1- there are a statistically significant difference between Self-reported safety compliance and co-workers' ratings of safety compliance at level (0.000), While there are not statistically significant differences among Self-reported safety compliance or co-workers' ratings of safety compliance and: job satisfaction, organizational safety climate; mood at work and conscientiousness
- 2- There are a statistically significant differences between co-workers' ratings of safety compliance and gender at level (0.001) while there are not a statistically significant differences with age, qualification, position and supervising. There are a statistically significant difference between self-reported safety compliance and qualifications at level (0.012); while there are not statistically significant differences with age, gender, position and supervising
- 3- There are a statistically significant differences between co-workers' ratings of safety compliance and shift at level (0.021) and hospital (0.002) while there are not a statistically significant differences with experience and sector. There are a statistically significant difference between self-reported safety compliance and hospital at level (0.019); while there are not statistically significant differences with experience, shift and sector

7. Recommendations

The current study recommended the following:

- Zagazig university hospitals' management should provide all necessary personal protective equipments, determine and allocate the needed and required resources.

- Continuous development center in the new surgery hospital should extend the training programs about safety precautions to incorporate all nursing staff, excessive and continuous follow up after that.
- Enhance workers' safety culture and improve safety climate that may lead to better perception and behave more safely.
- safety compliance awareness should be raised through introducing courses of safety in all nursing programs
- Establishment of a safety compliance committee in Zagazig university hospitals'.
- Enforce and ensure the application of safety policy, rules, procedures and regulations.
- There should be coordination between safety compliance committee and all hospitals departments.
- Nursing personnel must be represented in different committees related to safety, infection control, quality assurance and risk management committee.
- Rewards should be given for those who apply safety practices as well as punishment should be enforced for non compliance to safety measures
- Zagazig university hospitals' management should overcome the shortage of nursing staff to enable them to meet the safety requirements and to cut the rationales about work load and limited time.

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