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# Designing Job Descriptions for Toxicology Nurses

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**Abstract**

This study aimed at designing job descriptions (JDs) for toxicology nurses at NECTR - Cairo University Hospitals. The Center composed of ICUs (24beds) and ER (4beds).Throughout the "developing of JDs" the methodological design was used. The Sample composed of all Nursing Staff at NECTR (N=30). The Nursing Activity Checklist and Job Analysis Questionnaire tools were developed, with 12 dimensions and 123 items and had an excellent reliability and validity. The Nurses' roles were described and identified for the highest and lowest tasks, to examine the frequency, importance, and difficulty of each task. Thus each category had various duties and tasks. Based on the Jury/ experts' opinions, the investigator developed validated JDs for Toxicology Nurses (DON, Deputy DON, Charge Nurse and Staff Nurse). The educational sessions were successful in increasing the nurse's knowledge about the newly designed JDs. This study concluded that it is necessary to implement the designed JDs and develop educational programs to improve the nurses' disabilities at NECTR.

**Keywords:** Job description, Standards of nursing practice, Nursing process, job analysis

## 1. Introduction

In the most basic sense, a lack of a job description (JD) may make it difficult for an employee to have an accurate and complete understanding of his or her role. JD is a structure standard that should outline the required knowledge, skills, abilities, duties, responsibilities, performance and scope of authority for specific position to ensure that the correct people are hired for the job (Brannick, Levine, & Morgeson, 2013; Sullivian, & Decker, 2013). Nevertheless, some JDs are completely separate from the standards of practice with no indication of the expected job behavior related to each position defined in the standard (Jernigan, & young, 2010).

JD involves also establishing rational basis for the salary structure, clarifying relationship between jobs, analyzing employees duties, evaluating job performance, orienting new employees, assisting in hiring and placement, establishment lines of promotion, identifying potential training needs, critically reviewing existing work practices, providing data as to proper channels of communication, developing job specification, serving as a basis for planning staffing levels, all are the most vital requirements and responsibilities are the part of the job and directly linked to the achievement of the goals of the organization (Brannick et al., 2013; Sullivian, & Decker, 2013).

In fact, job analyses is used to identify the differences and similarities among different positions, achieve knowledge and requirements on jobs to prepare a JD and job evaluation (Palmer, 2010; Royer, et al., 2010; Vati, 2013). According to Cucina, Martin, Vasilopoulos, and Thibodeuax (2013), there are two broad categories of job analysis elements, job oriented and worker oriented. Job-oriented elements focus on the job itself and the work or tasks performed by incumbents, whereas worker-oriented elements focus on collecting information regarding the competencies required in performing a job.

The American Nurses Association (ANA), (2010), was the first association to design the standard of nursing practice for all areas including emergency nursing practice and intensive care nursing practice. As stated by Hardingham and Lorine (2009); Mamseri and Mc Bezuidenhout (2012), these standards were divided into four phases related to the steps of nursing process to meet the needs of nursing services. The standards provide a method to ensure that patients are receiving high quality of care and that the nurse knows the essentials to provide nursing care (Youngjin et al., 2014).

Moreover, researchers and professionals are generally in agreement over the main content of JD and the specific uses, it is necessary to involve and inform those who are unfamiliar with the job about what it entails. JD contains many features including the position title and location, reporting relationship, job summary, the physical environment, culture, interpersonal interaction, skills, specifications, education and qualification (Vati, 2013).

## 2. Significance of the Study

The National Center for Clinical and Environmental Toxicology Research (NECTR) –Cairo University Hospitals is busy center with an average admission of 900 patients per month. After extensive review of literature by the research investigator, the result showed that there was no available specific JDs related to any level of nursing providers dealing with admitted patients in toxicology center. At the above mentioned center, the investigator observed that the nurses were confused and had conflict between themselves and medical staff from the overlapping of their roles, which could jeopardize the quality of patient care. Therefore, these nurses must have JDs to identify their roles in caring of patients with different diagnoses such as addiction; drug misuse; organophosphate pesticides poisoning; snake; and spider, insect bite. Hence, the study aimed at designing JDs for toxicology nurses. The objectives are: (1) assess the nursing tasks currently performed at National Egyptian Center for Clinical and Environmental Toxicology Research (NECTR)- Cairo University Hospitals;(2) develop and validate the job analysis questionnaire and nurses activity check list tools;(3) assess the levels of importance and frequency of nursing tasks; (4)design job descriptions for toxicology nurses- based on the previous findings; (5) assess the validity and applicability of the proposed job descriptions; and (6)communicate the designed job descriptions with the nurses at the mentioned center.

General system theory (GST) was developed to simplify the complexity of work and make it more understandable (von Bertalanffy, 1962). The development of the GST came as a result of the author's perceived need for a theory to guide research in multiple fields. Standards are the first component of the system; they provide the input into the second component (job descriptions). The job description (thru put) transform the information received and produce the output, it has a purpose to provide process to utilize for the delivery of the best quality of nursing care, consists of interrelated components (assessment, planning, implementation, and evaluation), and the component interact in an orderly fashion (Jernigan & Young, 2010).

## 3. Materials and Methods

**Research Design**: Methodological research design was used for this study.

**Setting:** National Egyptian Center for Clinical and Environmental Toxicology Research (NECTR) – Cairo University Hospitals. The center composed of ICUS (24beds) and ER (4beds).

**Sample:** All the nursing staff at NECTR; composed the study sample; one Director of Nursing, one Deputy Director of Nursing, Charge Nurses (12) and Nursing Staff (16). (N=30).

**Tools of Data Collection:** The following developed tools were used to develop job descriptions:

**The first tool**: Job Analysis Questionnaire (JAQ) was developed by the investigator after revision of the related literature and observation of the nurses at NECTR- the clinical areas. The Job Analysis Questionnaire includes two parts. **The first part** is the characteristics of the participants such as qualifications, title, age, years of experience, educational courses and salary. **The second part** consisted of 12 dimensions and123 items (tasks) for job analysis related to specific tasks under the following dimensions: (A) Patient' assessment, (B) nursing care plan, (C)nursing intervention, (D) medication administration, (E) nursing professionalism, (F) infection control standards, (G) nursing skills, (H)basic nursing care, (I) nursing management, (J)nursing leadership, (K) quality of nursing care and (L) nursing education.

**The second tool**: Nurses Activities Checklist (NAC) was developed by the research investigator utilized the same information of the Job Analysis Questionnaire.

Table A. Scoring System According to the Mean Value:

| Mean * | Degree of importance | Frequency |
|---|---|---|
| 1.1- 1.8 | Lowest importance | Lowest frequency |
| 1.9-2.6 | Not important | Low frequency |
| 2.7- 3.4 | Neutral/Disinterest | Neutral/Disinterest |
| 3.5- 4.2 | Very important | High frequency |
| 4.3- 5 | Highest importance | Highest frequency |

(Statistical institute – Cairo University, 2016). *M= mean value

**Reliability:** The reliability and face validity established and the result was extremely reliable and valid as presented in (Table B).

Table B. Reliability and Face Validity of JAQ (N=123):

| Dimensions | N of Items | Importance | | Frequency | |
|---|---|---|---|---|---|
| | | Cronbach's Alpha | Validity | Cronbach's Alpha | Validity |
| 12 | 123 | .980 | .990 | .987 | .994 |

**Validity:** The content validity of the tools established by the five members of Jury/experts in nursing and toxicology specialty. The same members assessed the content validity of the proposed JDs with minor modifications.

**Ethical Consideration:** Primary Approval was obtained from the Research Ethics Committee of Faculty of Nursing- Cairo University. Also an official permission was obtained from NECTR administration to conduct the study. Each participant was informed about the aim and importance of the study and has the right to withdraw at any time without penalty. Written informed consent obtained from the participants and confidentiality was assured.

**Procedure:**

**Preparatory phase**: An official permission was granted to proceed with the proposed study, followed by a meeting between the investigator and the Director of NECTR to explain the purpose of the study, asked for cooperation to facilitate the data collection. The investigator had several meetings with the nursing staff in groups and individuals to introduce and explain the nature and purpose of the study. The written consent was obtained individually from each participant. The research investigator assessed the nursing tasks currently performed by nurses in different clinical areas using the nurse's activities checklist. The data collection was from, May up to October 2016.

**Planning and Implementation phase**: After the approval of developed Job Analysis Questionnaire (JAQ) by the five experts. The investigator had several meetings with the nurses in different clinical areas to explain the JAQ for correct completion. Finally, the participants received the JAQs tool and had 35-45 minutes to finish. The completed NAC and JAQs were analyzed; the nurses' roles were described and identified for the highest and lowest tasks for each frequency and importance. Each nursing category had a variance of duties and tasks. Based on the experts' opinions responses, the investigator prepared the final validated form of the JDs for Toxicology Nurses ( DON, Deputy DON, Charge Nurse and Staff Nurse).

**Outcome Phase**: The developed JDs for NECTR nurses were accurately validated by the five experts. The investigator conducted four educational sessions for all nursing categories to introduce the benefits of the JDs. Finally, the test result revealed that; the educational sessions were successful, in increasing the nurses' knowledge about the developed JDs for toxicology nurses.

**Dissemination phase**: The JDs will be suitable for nurses who are working at NECTR. The JAQ Tool can be disseminated for use in any toxicology center.

**Statistical Analysis**

The data pertinent to job analyses were scored, tabulated and analyzed by computer using the statistical package for the social sciences (SPSS) Program version 21.

**4. Results**

In this chapter the results and analysis for this study are presented as follows:

**Part one.** Characteristics of the participants (table 1).

**Part two**. Descriptive analysis of participants tasks according to its importance and frequency from table 2.1 to 2.12.

**Part three:** Statistical distribution of participants' knowledge Pre/posttest (table 5.2).

*4.1 Part one: Characteristics of the participants*

Table 1. Frequency Distribution of the participants' Characteristics (N=30).

| Nursing Staff Characteristics | Intervals | No | Percentage |
|---|---|---|---|
| Gender | Male | 10 | 33.33 |
| | Female | 20 | 66.67 |

| | | | |
|---|---|---|---|
| Age in years | 20 to< 30 | 10 | 33.3 |
| | 30 to< 40 | 11 | 36.7 |
| | 40 to < 50 | 6 | 20.0 |
| | >50 | 3 | 10.0 |
| Qualification | Master in nursing | 1 | 3.3 |
| | BSN (a)* | 0.0 | 0.0 |
| | SSND (b)* | 25 | 83.4 |
| | Technical Institute Diploma | 4 | 13.3 |
| Experience | 1 to <5 years | 4 | 13.3 |
| | 5 to <10 years | 8 | 26.7 |
| | 10 to < 15 years | 8 | 26.7 |
| | 15 to >20 | 10 | 33.3 |
| Previous work field | ER | 3 | 10.0 |
| | ICU | 14 | 46.7 |
| | Internal medicine | 3 | 10.0 |
| | Pediatric | 2 | 6.7 |
| | Others e.g. Clinics | 8 | 26.6 |
| Training or courses | Nothing | 9 | 30 |
| | One | 11 | 36.7 |
| | Two | 8 | 26.7 |
| | Three | 2 | 6.6 |
| Training or courses in toxicology field | Nothing | 14 | 46.7 |
| | One | 12 | 40 |
| | Two | 1 | 3.3 |
| | Three | 1 | 3.3 |
| | Four or more | 2 | 6.7 |
| Positions | Director of nursing & Deputy | 2 | 6.7 |
| | Charge nurses | 12 | 40.0 |
| | Nursing staff | 16 | 53.3 |
| Salary | 1000 to< 1500 | 13 | 43.3 |
| | 1500 to< 2000 | 3 | 10.0 |
| | 2000 to< 2500 | 6 | 20.0 |
| | 2500 to< 3000 | 6 | 20.0 |
| | > 3000 | 2 | 6.7 |

(a) BSN: Bachelor Science of Nursing. (b) SSND: Secondary school of nursing diploma.

Table 2.1 Descriptive Analysis of "Patient' Assessment' Tasks" (N= 30).

| **A** | Items/ Tasks | *Importance* | | *Frequency* | |
|---|---|---|---|---|---|
| | | *M* | *SD* | *M* | *SD* |
| 1 | Assess the level of consciousness and responsiveness. | 4.83 | 0.46 | 4.53 | 1.22 |
| 2 | Assess the patient for the type of poisoning, time and route of administration. | 4.83 | 0.46 | 4.47 | 1.25 |
| 3 | Assess the patient for the level of poisoning through the result of investigation. | 4.53 | 0.57 | 4.50 | 1.23 |
| 4 | Assess vital signs e.g. changes; in breathing, pulse rate, and blood pressure. | 4.80 | 0.48 | 4.47 | 1.25 |
| 5 | Assess the condition of patient and the level of pain before and after treatment. | 4.20 | 0.89 | 3.77 | 1.28 |
| 6 | Assess patient allergies and poisoning' symptoms e.g. nasal congestion, difficulty swallowing, tightness in chest, generalized warmth, tingling of the hands, feet, or lips | 3.93 | 0.87 | 3.43 | 1.19 |
| 7 | Assess for signs and symptoms of fluid and electrolyte imbalances (lethargy, oliguria, anuria, and delirium). | 3.87 | 0.90 | 3.17 | 1.18 |
| 8 | Assess injury prevention measures e.g. suicidal attempt. | 4.03 | 0.96 | 3.13 | 1.33 |
| 9 | Assess for central venous pressure (CVP). | 3.90 | 0.96 | 2.60 | 1.13 |
| | Total | 4.33 | 0.53 | 3.79 | 1.01 |

*M*= mean, *SD*= Standard deviation

Table 2.2 Descriptive Analysis of "Nursing Care Plan' Tasks". (N=30).

| **B** | Items/ Tasks | *Importance* | | *Frequency* | |
|---|---|---|---|---|---|
| | | *M* | *SD* | *M* | *SD* |
| 1 | Perform admission procedure for patients, with special nursing care plan and ask for help if needed. | 4.37 | 0.81 | 3.50 | 1.43 |
| 2 | Plan to practice holistic and continuity of patient care | 3.67 | 1.27 | 2.70 | 1.44 |
| 3 | Collaborate/ coordinate within interdisciplinary care givers | 3.67 | 1.18 | 2.63 | 1.52 |
| 4 | Set priorities of the requirements of the center and responding to emergency | 3.83 | 1.46 | 2.37 | 1.42 |
| 5 | Prepare patient for discharge or transfer | 4.03 | 0.67 | 3.57 | 1.10 |
| 6 | Report the panic result of laboratory / investigation to the treating physician and the direct supervisor | 4.80 | 0.48 | 4.07 | 1.23 |
| 7 | Involve patient/family in care | 3.43 | 1.48 | 2.63 | 1.67 |
| 8 | Write an incident report as soon as it happens and submit it to the direct supervisor for corrective action. | 4.00 | 1.05 | 3.53 | 1.61 |
| 9 | Ensure that medication, supplies are adequate for patient care. | 4.83 | 0.53 | 4.40 | 1.27 |
| 10 | Avoid wastage of supplies. | 4.30 | 0.70 | 3.30 | 1.51 |
| 11 | Check the equipment and supplies before use and make sure of the usability. | 4.80 | 0.66 | 4.43 | 1.25 |
| | Total | 4.16 | 0.64 | 3.28 | 1.04 |

Table 2.3 Descriptive Analysis of "**Nursing Intervention'** Tasks" (N=30).

| **C** | Items/ Tasks | *Importance* | | *Frequency* | |
|---|---|---|---|---|---|
| | | *M* | *SD* | *M* | *SD* |
| 1 | Record the nurses notes and nursing activities in the medical file like injuries, type of poisoning, contamination of the skin, dressing, impact of chemical, fluid intake and output, etc. | 4.77 | 0.57 | 4.50 | 1.14 |
| 2 | Care of mechanical ventilated' patient | 4.83 | 0.53 | 3.23 | 1.25 |
| 3 | Report to the treating physician and the direct supervisor when observed any abnormal signs or significance developed in the patient's condition. | 4.87 | 0.43 | 4.50 | 1.14 |
| 4 | Insert different types of catheters venous catheter, urinary catheter and gastric tube. | 4.73 | 0.58 | 4.40 | 1.25 |
| 5 | Perform ECG for the patients as needed and identify regular heartbeat. | 4.50 | 0.51 | 3.73 | 0.98 |
| 6 | Carry out gastric lavage as instructed by the doctor, saves the content of the stomach or vomitus for testing. | 4.70 | 0.60 | 4.43 | 1.01 |
| 7 | Perform hand-off / handover communication report. | 4.90 | 0.40 | 4.57 | 0.82 |
| 8 | Assist physicians during patient's examination and rounds | 4.87 | 0.51 | 4.50 | 1.11 |
| 9 | Give blood transfusion according the doctor order and the policy. | 3.37 | 1.30 | 1.80 | 1.19 |
| 10 | Perform effective cardio pulmonary resuscitation (CPR). | 4.80 | 0.55 | 3.03 | 1.35 |
| 11 | Perform different types of suctions | 4.73 | 0.64 | 3.23 | 1.17 |
| | Total | 4.64 | 0.45 | 3.81 | 0.85 |

Table 2.4 Descriptive Analysis of **"Medication Administration'** Tasks". (N=30).

| **D** | Items/ Tasks | *Importance* | | *Frequency* | |
|---|---|---|---|---|---|
| | | *M* | *SD* | *M* | *SD* |
| 1 | Follow the ten rights of medication administration including: patient, medication, dose, route, time, documentation, education, refusal of medication, assessment and evaluation. | 4.87 | 0.51 | 4.10 | 1.19 |
| 2 | Give medication according to a written instructions from the physician | 4.83 | 0.53 | 4.43 | 1.25 |
| 3 | Make skin test (allergic test) before giving antitoxins like scorpion and snake serums and monitor the patient. | 3.50 | 1.48 | 3.27 | 1.46 |
| 4 | Inquiries about drug orders with the treating physician e.g. re-read | 4.73 | 0.58 | 3.90 | 1.30 |
| 5 | Observe the patients and recognize side effects and adverse reactions of the drug. | 4.40 | 0.97 | 3.20 | 1.24 |
| 6 | Administer oxygen therapy according to the physician instruction. | 4.57 | 0.90 | 3.17 | 1.12 |
| 7 | Calculate dosage / kg for the antidote treatment. | 4.20 | 1.03 | 3.67 | 1.37 |
| 8 | Maintain the required degree of cooling of vaccine, anti-toxin. | 4.73 | 0.64 | 3.43 | 1.65 |

| | | | | | |
|---|---|---|---|---|---|
| 9 | Administer IV fluids and use scientific, correct ways in mixing solutions. | 4.73 | 0.58 | 4.13 | 1.25 |
| 10 | Keep and give narcotic medications according to the instructions and regulations of the toxicology center. | 4.80 | 0.61 | 3.77 | 1.36 |
| 11 | Check the validity/ expired date of drugs including vaccine and anti-toxin. | 4.77 | 0.63 | 4.20 | 1.35 |
| | Total | 4.56 | 0.58 | 3.75 | 1.09 |

Table 2.5 Descriptive Analysis of "Nursing Professionalism' Tasks" (N=30).

| **E** | Items/ Tasks | *Importance* | | *Frequency* | |
|---|---|---|---|---|---|
| | | *M* | *SD* | *M* | *SD* |
| 1 | Apply the criteria and instructions pertaining to nursing performance and accept constructive criticism. | 4.57 | 0.63 | 2.70 | 1.71 |
| 2 | Communicate, consult and collaborate with others transparently. | 4.70 | 0.70 | 3.03 | 1.27 |
| 3 | Adhere to the ethics and behavior of the profession, preserves the dignity and respect for patients, and use the correct phone etiquette. | 4.73 | 0.64 | 3.50 | 1.04 |
| 4 | Respond to call and inquiries from patients and their families. Explains the steps of patient' care, and give awareness of health to patient and his relatives. | 4.63 | 0.72 | 3.03 | 1.33 |
| 5 | Participate in team work to gain positive outcome of patient care. | 4.60 | 0.62 | 3.13 | 1.28 |
| 6 | Adheres to the time of attendance according to the work schedule. | 4.90 | 0.31 | 4.53 | 0.82 |
| 7 | Supervise the work, and bear the responsibility and accountability for own decisions, actions and the consequences of those actions. | 4.70 | 0.60 | 3.13 | 1.93 |
| 8 | Intervene in any unsafe or unethical practice. | 4.70 | 0.75 | 2.67 | 1.35 |
| 9 | Protect the patient's privacy and confidentiality. | 4.97 | 0.18 | 4.60 | 0.68 |
| 10 | Follow up the nursing dress code policy and the decent appearance | 4.90 | 0.31 | 4.73 | 0.69 |
| | Total | 4.74 | 0.44 | 3.51 | 0.90 |

Table 2.6 Descriptive Analysis of "Infection Control Standards' Tasks" (N=30).

| **F** | **Items/ Tasks** | *Importance* | | *Frequency* | |
|---|---|---|---|---|---|
| | | ***M*** | ***SD*** | ***M*** | ***SD*** |
| 1 | Apply infection control standards and instructions. | 4.73 | 0.64 | 3.27 | 1.53 |
| 2 | Wear personal protective equipment. | 4.63 | 0.67 | 3.40 | 1.38 |
| 3 | Use Sharp containers for waste disposal and used sharps, e.g. needles and scalpels …. | 4.87 | 0.35 | 4.50 | 0.97 |
| 4 | Participate in activities to monitor and audit hand hygiene. | 4.77 | 0.50 | 3.37 | 1.52 |
| 5 | Inform the director of nursing, about barriers preventing the nursing staff from implementing the infection control guidelines. | 4.57 | 0.68 | 3.80 | 1.22 |
| 6 | Analyze and share information on the causes of infection in the center. | 3.67 | 1.47 | 2.23 | 1.41 |
| 7 | Follow proper cleaning technique | 4.53 | 0.68 | 3.30 | 1.42 |
| 8 | Ensure the validity of sterilized instruments | 4.67 | 0.80 | 2.93 | 1.60 |
| 9 | Protect patients from hospital acquired infection by following universal precaution. | 4.23 | 0.86 | 2.97 | 1.63 |
| | Total | 4.52 | 0.52 | 3.31 | 1.14 |

Table 2.7 Descriptive Analysis of "**Nursing Skills**' Tasks". (N=30).

| **G** | Items/ Tasks | *Importance* | | *Frequency* | |
|---|---|---|---|---|---|
| | | *M* | *SD* | *M* | *SD* |
| 1 | Apply computer skills | 2.60 | 1.61 | 1.57 | 1.10 |
| 2 | Employ conflict resolution skills | 3.77 | 1.31 | 2.53 | 1.59 |
| 3 | Shows flexibility and creativity during times of change. | 3.77 | 1.41 | 2.60 | 1.61 |
| 4 | Operates under different circumstances and skillfully act on emergency situations | 4.53 | 0.57 | 3.70 | 0.92 |
| 5 | Implement time management skills. | 4.13 | 1.11 | 3.10 | 1.32 |
| 6 | Practice negotiation skills. | 4.17 | 1.11 | 3.60 | 1.25 |
| 7 | Performs other tasks assigned to him /her within his/her competence | 4.37 | 0.77 | 3.23 | 1.22 |
| 8 | Operates medical devices skillfully | 4.60 | 0.68 | 4.03 | 1.30 |

| | | | | | |
|---|---|---|---|---|---|
| 9 | Delegates properly to others matching their ability, experience, scientific skills, and acceptance of the delegation | 4.03 | 0.67 | 3.63 | 1.10 |
| 10 | Develop and demonstrates assertiveness technique. | 3.83 | 1.18 | 2.33 | 1.45 |
| | Total | 3.98 | 0.75 | 3.03 | 0.93 |

Table 2.8 Descriptive Analysis of "**Basic Nursing Care**' Tasks" (N=30).

| **H** | Items/ Tasks | *Importance* | | *Frequency* | |
|---|---|---|---|---|---|
| | | *M* | *SD* | *M* | *SD* |
| 1 | Lift the patient and transfer him from department to another consider safety precaution. | 4.87 | 0.35 | 4.00 | 0.83 |
| 2 | Measure and record the amount of intake & output | 4.77 | 0.43 | 3.77 | 0.90 |
| 3 | Observe abnormal bowel habits such as diarrhea, constipation, color/smell changes of stool and inform the direct supervisor | 4.57 | 0.73 | 3.30 | 1.09 |
| 4 | Change the bed sheets, pillows cases and collect dirty sheets in special bags and send them to laundry | 4.80 | 0.41 | 4.23 | 0.77 |
| 5 | Collect and gets patient's samples to /from the laboratory. | 4.77 | 0.43 | 4.30 | 0.75 |
| 6 | Gets and send the needed equipment and supplies to the unit. | 4.67 | 0.48 | 4.20 | 0.76 |
| 7 | Provide post mortem care and deliver bodies to the morgue. | 4.70 | 0.54 | 2.97 | 1.22 |
| 8 | Applies the rules and principles of public safety at work | 4.57 | 0.68 | 3.60 | 1.28 |
| 9 | Receives and re-delivers instruments to the store room after sterilization. | 4.47 | 1.04 | 2.70 | 1.49 |
| 10 | Distributes food trays, feed unable patients, and help them in personal hygiene | 4.20 | 1.38 | 2.47 | 1.53 |
| 11 | Arrange patient rooms and make sure that they are constantly clean. | 4.70 | 0.60 | 4.03 | 0.85 |
| | Total | 4.64 | 1.46 | 3.60 | 0.64 |

Table 2.9 Descriptive Analysis of **Nursing Management**' Tasks (N=30).

| **I** | Items/ Tasks | *Importance* | | *Frequency* | |
|---|---|---|---|---|---|
| | | *M* | *SD* | *M* | *SD* |
| 1 | Supervise the preparation of patient's room, beds, and the cleaning of the unit. | 4.57 | 0.90 | 4.00 | 1.46 |
| 2 | Participates and evaluate the performance of nursing personnel, identifies areas of strengths and weaknesses that need a professional development and makes the necessary recommendations. | 4.57 | 0.67 | 2.03 | 1.43 |
| 3 | Attend and participate in clinical and administrative meetings related to the center. | 3.60 | 0.93 | 1.50 | 0.90 |
| 4 | Watch over the implementation of the necessary medical procedures and complete an emergency medication cupboard in a daily basis. | 4.23 | 0.63 | 2.70 | 1.71 |
| 5 | Organize nursing staff vacations schedule in advance according to the need of the work. | 4.40 | 0.81 | 2.17 | 1.62 |
| 6 | Follow-up the daily work, makes rounds with doctors, ensure the implementation of nursing care, and the patient's consent for treatment is taken. | 4.43 | 0.82 | 4.17 | 1.23 |
| 7 | Prepare daily statistical report for patients. | 4.33 | 0.84 | 4.13 | 1.28 |
| 8 | Submit periodic reports on nursing services to the officials. | 4.03 | 0.93 | 1.90 | 1.52 |
| 9 | Monitor absenteeism and identify reasons for proper corrective action. | 4.47 | 0.78 | 2.40 | 1.71 |
| 10 | Supervise the work of assistant nurses. | 4.53 | 0.82 | 4.33 | 1.24 |
| | Total | 4.32 | 0.60 | 2.93 | 0.93 |

Table 2.10 Descriptive Analysis of "**Nursing Leadership"** (N=30).

| **J** | Items/ Tasks | *Importance* | | *Frequency* | |
|---|---|---|---|---|---|
| | | *M* | *SD* | *M* | *SD* |
| 1 | Communicate with medical director for the management of the daily work at the center. | 4.53 | 0.78 | 3.37 | 1.35 |
| 2 | Organize the nursing personnel readiness for disasters. | 4.40 | 0.81 | 1.37 | 1.31 |
| 3 | Prepare work schedule and assign responsibilities for each member of nursing staff in the center | 4.53 | 0.78 | 1.97 | 1.56 |
| 4 | Provide feedback and evaluate the effectiveness of the used strategies. | 4.43 | 0.82 | 3.30 | 1.26 |
| 5 | work on application of infection control, safety rules and the quality management | 4.50 | 0.78 | 3.53 | 1.17 |

| | | | | | |
|---|---|---|---|---|---|
| 6 | Participate in annual budget | 3.27 | 1.20 | 1.33 | 0.84 |
| 7 | Participate in the appointment of nurses at the center | 3.13 | 1.31 | 1.40 | 0.89 |
| 8 | Recognize the problems of nursing staff, patients, and work to solve all concerns. | 4.40 | 0.81 | 2.20 | 1.47 |
| 9 | Assess the level of nursing achievement and develop recommendation for incentives | 4.47 | 0.82 | 1.93 | 1.41 |
| 10 | Participate in the development and revision of nursing policies and procedures. | 3.70 | 0.90 | 1.43 | 0.86 |
| 11 | Represent nursing division in the Council of the Centre and the General Committees. | 3.87 | 0.94 | 1.57 | 0.94 |
| | Total | 4.11 | 0.74 | 2.16 | 0.81 |

Table 2.11 Descriptive Analysis of "**Quality of Nursing Care**' Tasks" (N=30).

| **K** | **Items/ Tasks** | *Importance* | | *Frequency* | |
|---|---|---|---|---|---|
| | | ***M*** | ***SD*** | ***M*** | ***SD*** |
| 1 | Provide appropriate working environment for patient safety. | 4.60 | 0.68 | 3.47 | 1.28 |
| 2 | Measure the job satisfaction for nurses and also patient satisfaction of care. | 3.57 | 1.25 | 1.23 | 0.63 |
| 3 | Assess the risk such as the patient fall and implement precautions. | 4.33 | 0.66 | 2.97 | 1.33 |
| 4 | Ensure completeness and accuracy of nursing records | 4.63 | 0.67 | 4.23 | 1.36 |
| 5 | Watch over the nurses' attendance "on and off duty". | 4.37 | 0.67 | 2.80 | 1.86 |
| 6 | Ensure that nurses are adequate for patient load and provide needed replacement. | 4.43 | 0.97 | 1.70 | 1.34 |
| 7 | Put the philosophy and objectives of nursing department in line with the goals and philosophy of the center. | 3.40 | 1.10 | 1.33 | 0.84 |
| 8 | Participate in the evaluation, and development of the administrative structure of the department of nursing | 3.60 | 1.16 | 1.27 | 0.79 |
| 9 | Determine the types of the nursing committees, and the members. | 3.53 | 1.01 | 1.20 | 0.48 |
| 10 | Work with other department, and encourage suggestions and improves the nursing services in the center | 3.83 | 0.95 | 1.87 | 1.17 |
| | Total | 4.03 | 0.71 | 2.21 | 0.79 |

Table 2.12 Descriptive Analysis of "Nursing Education" (N=30).

| **L** | Items/ Tasks | *Importance* | | *Frequency* | |
|---|---|---|---|---|---|
| | | *M* | *SD* | *M* | *SD* |
| 1 | Participate in determining the necessary nursing training programs. | 3.80 | 0.96 | 1.50 | 0.86 |
| 2 | Participate in the preparation and implementation of the orientation program me for new nurses | 3.90 | 0.88 | 1.47 | 0.94 |
| 3 | Oversee the implementation of the necessary nursing training programs at work and provide the technical assistance. | 4.07 | 0.64 | 1.73 | 1.14 |
| 4 | Coordinate with officials to train nursing students. | 3.87 | 0.68 | 1.40 | 0.89 |
| 5 | Use scientific evidence as a guide for patient care | 3.87 | 0.90 | 1.90 | 1.13 |
| 6 | Maintain records of various nursing training programs, education and seminars. | 4.00 | 0.79 | 1.57 | 1.01 |
| 7 | Coordinate with the concerned authorities to train the nursing staff on the safe use of medical equipment. | 4.00 | 0.87 | 1.83 | 1.21 |
| 8 | Participate in scientific research and studies to improve nursing performance | 3.27 | 0.94 | 1.30 | 0.84 |
| 9 | Assesse the level of performance of the new nurses during their probationary period and make the necessary recommendations. | 4.00 | 0.70 | 1.40 | 0.72 |
| 10 | Work on developing your own knowledge and skills. | 4.33 | 0.61 | 1.90 | 1.40 |
| | Total | 3.91 | 0.62 | 1.60 | 0.83 |

Table 3. *Pre/posttest difference of knowledge assessment* (*N*=30).

| Serial no. | Knowledge Assessment | Pre | | Post | | Difference | Z test | P-value |
|---|---|---|---|---|---|---|---|---|
| | | No | % | N0 | % | | | |
| 1 | Benefits of JDs | 17 | 57 | 27 | 90 | 33% | -3.15 | 0.002 |
| 2 | Elements of JDs | 12 | 40 | 23 | 77 | 37% | -3.10 | 0.002 |
| 3 | The Nurses Roles | 15 | 50 | 21 | 70 | 20% | -1.62 | 0.106 |

## 5. Discussion

As previously outlined, the present study found that more than Two- Thirds of the considered sample were females, this result is congruent with many researchers in Egypt; Abudahi, Fekry and Elwahab (2012); Rushdy, Youssef, Morsy, and Elfeky (2014). Concerning to the age group, Two- Thirds of the sample were in the age group between 20 to 40. This finding is in agreement with that of El Feky, and Ali (2013), who found that participant' ages ranged from 20 to 40 years. Regarding qualifications 83.4% of the considered sample had the secondary school of nursing diploma (SSND) and 13.3% were Technical Institute Diploma, only one (DON) with Master Degree in Pediatrics (DON) and no nurses with BSN degree. This was not surprising because nursing syndicate registered 240,000 nurses (95%) of them were SSND and 5 % were BSN (Egypt Nursing Profile, 2012).

The study result found that almost half of the nurses had no training courses in toxicology field. According to the nurses who attended previously, the provided courses were conducted in English, it was beyond their level of education and was difficult for them to understand. These findings were supported by; El.Sayed, et al. (2015), who found that critical care and emergency nurses dealing with poisoned patients in the same place at NECTR had an inadequate practice and knowledge, about detection and management of poisoning patients. Most of the nurses verbalized that they acquired the work experience at the setting and no need to attend further training, because they are the source of information.

As presented by Taha (2004), who studied the effect of the training program provided for 36 nurses assigned in critical care units. The study was successful with highly significant statistical differences in improving the knowledge of the nurses after the application of the training program. Moreover One -Thirds of the nursing staff salary was less than 1500 Egyptian pound per month; the low salary could be one of the major reason for NECTR nurses doing dual work in private hospitals, to support their families.

The finding of the study indicated that the following tasks had the **highest frequency**:

The staff nurses at NECTR make patients' assessment by getting simple information like the patient's verbal response, taking the data related to the time of administration, route and dose, but not using Glasgow Coma Scale. This finding oppose Santos et al (2016), who found that the majority of nurses (more than 80%) in ICUs has good knowledge about (GCS) Glasgow coma scale; Also taking vital signs is a simple task and considered as an essential element for decision, planning of treatment and resuscitation procedures of the toxicology patient.

Nurses usually in a hurry to finish the endorsement report and many studies suggested that leadership is vital for effective handover, the presence of the nurse in charge at a handover demonstrates a commitment to the process and provides the nurse with an overview of the clinical area (Riesenberg, Leitzsch, & Cunningham, 2010). NECTR nurses consumed a lot of time in filling different forms with redundancy of information.

Additionally, Dingley, et al (2008), found that observations and combination of knowledge sources can identify changes in the patient's clinical status, enabling fast interventions to prevent further deterioration if detected and reported quickly to the treating physician for action. Medical rounds also, provide a huge opportunity for inter - professional learning for the whole multidisciplinary team and for review of patients pre-discharge; and progress (Royal College of Physicians, 2012).

The nurses at NECTR used to leave the unit to collect the medication from pharmacy, some medications were out of stock and requested from the family to purchase. While medication administration has to be given according to the physician instructions, it happened on several occasions that the ER nurses, administered medication to the patient without prescribed order. The last incident happened when the doctor was not around and according to the participants, "if the assigned nurses asked the family to wait for the physician, they will be attacked by them". Although this action could be interpreted as practicing medicine by nurses and possibly lead to a serious penalty. In this respect, NECTR nurses need to stay within their scope of practice and at the same time to be supported by protocol and policy to avoid medication errors and being accused of exceeding the scope of practice (Buppert, 2015).

In line with the protection of the patient privacy and confidentiality; It is amazing about the restricted role at NECTR, nobody can release any information without the permission of the Director. Furthermore, wearing uniforms with identification card was strictly followed by the nursing staff with absence of policy. The nursing uniform support the specialized uniqueness in healthcare, it raises a positive self-image, and considered as a clue to self- confidence and better presentation of nursing profession in the hospital (Desta, Gebrie, & Dachew, 2015).

Concerning, lifting and transferring the patient from department to another considering safety precaution. Waters,

Hughes, and Menzel (2009) stated that nurses should be engaged with the risk assessments in the workplace, selection, and use of the suitable lifting devices and apply evidence-based practices for handling patients. Also, the tasks of delivery of samples to the laboratory, and equipment and supplies to the relevant units, have to be delegated to the nursing assistant to free NECTR nurses for patient care.

The purpose of performance evaluation of nursing personnel is to identify the areas of strengths and weaknesses. The DON at NECTR mentioned that the incentives of nursing staff are connected with their annual appraisal. It was a surprise that the DON at NECTR had no official responsibilities in her performance appraisal form, to be accountable for developing nursing policies and procedures, ensures its availability and implementation.

The finding of the study indicated that the following tasks had the **least frequency**:

Regarding the assessment of injury prevention measures like suicidal attempt the NECTR administration installed windows protection in the second floor to protect patients with suicidal attempt, after an incident happened to a female patient jumped from the window (two years ago). The third floor, still without windows protection. It was noticed by the research investigator that most of the ICU beds had no side rails to protect the patients from falls. Some of the factors involved in these falls were: communication failures, lack of adherence to protocols and safety practices, inadequate staff orientation, and lack of leadership (JC, 2015; Viernes, 2016).

For certain circumstances related to the poisoning patients, the nurses were not able to involve the family in their care. According to Fateel and O'Neill (2015), who presented that; nurses are responsible to ensure patient' centered care is practiced, the international standards of practice for role clarification to be followed, and to involve the family and patient' in the care.

Additionally, NECTR nurses need to give priority to the toxicology center in responding to an emergency. Some of the nurses verbalized that, they had no time to respond to the emergency call. While the CPR certificates were expired, nurses must update their CPR and also the absence of record at NECTR about, whether the previously performed CPR was successful or not as an assessment of the team performance to plan for better practice.

Nurses at NECTR were blamed for several incidents related to the absconded patients. The administration used locked door instruction without written policy to prevent such incidents and give more responsibilities to nurses to control the traffic. The nurses verbalized, that they were not happy to do the job of the security guard and had no time to do other people work. According to many authors, the physical violence against nurses was experienced more frequently in Egypt (62%) (Pinar & Ucmak, 2011).

Nurses at NECTR used to give antitoxin medication to the poisoning patient without skin test and also ignoring to monitor the patient under observation. Such behavior could jeopardize the patient safety (Saminathan, et al., 2015). Some nurses said that this item is the duty of the physician to make the skin test, due to their disabilities to perform the task. Few senior nurses justified the reasons because of the float system, the floated nurse to ER had no idea about skin test and gastric lavage. Tsang, et al (2014), stated that an effective supervision system is required with regular training.

Nevertheless, the participants at NECTR verbalized that the information given as intragroup communication were lacking of transparently and team work, mainly between the groups of nursing staff. Teamwork is frequently considered as the best way to deliver higher performance; increase communication and innovation, continuous progress, increased work satisfaction, improve service quality, lower level of absenteeism, promote staff retention and increase workplace productivity (Kaya, et al., 2013).

Regarding responding to call and inquiries from patients and families. The finding is congruent with the study of Loghmani, Borhani, and Abbaszadeh (2014), who found poor attitudes toward the patients and their families and strictly recommended about the application of the nursing code of ethics and the manager to use corrective action as required, in order for nursing staff to realize, that patient and his family are the center of care in the organization.

Furthermore, the hand wash is well known to be one of the key modes of decreasing health care associated infection and improving patient safety (WHO, 2009). The nurses at NECTR were reluctance to wash their hands between patients. The finding of this study indicated the absence of infection control manual at NECTR. Moreover, the task of food distributing is the responsibility of the dietary department. Schubert, et al. (2008), stated that patients have the rights to be well nourished in clean environment with good personal hygiene.

Though, most of the nurses raised their concern about the dysfunction equipment, the delivery of unfitting spare parts and misplaced equipment. Also, no available computer for nursing staff, to facilitate their work in relation to statistics, lab request, admission, discharge. It is cost effective in the long run, the center can start gradually, to save the nurse' time.

While the NECTR nurses had unsolved conflicts within the groups of nurses in different shifts and between nurses and physicians due to the absence of JDs for the role clarification, policies, procedures and standard of care to control the staff behavior. Such conflicts can arise from the individual's inability to accept various roles, which can lead to stress. Effective negotiation skills resolve conflicts and encourage collaboration, therefore producing a favorable work environment (Nayeri & Negarandeh, 2009).

Hence, all nursing and personnel policies and procedures including vacation policy are necessary to be communicated, and implemented, detailing how much time of each staff member gets and how far in advance they need to request it (Desuyo, 2009). Vacation plan will never function at NECTR with; high absenteeism, abuse of sick leave, maternity leave, emergency leave, and so on… the inability of the nursing administration to replace the staff. Also, the absence of delegation policy, creating a role of ambiguity, when the nurses and general assistance did not know their roles and responsibilities with the big picture of the absence of JDs.

Additionally, no fixed schedule, agenda, and meeting minutes as a record keeping for DON meetings with the staff nurses at NECTR. Also, the absence of a periodic report. The nursing staff at NECTR had high absenteeism and poor attendance rate, some nurses said: “they have to stay more hours waiting for the nurses' arrival of next shift, so they have to compensate by doing the same”. Cohen and Golan (2007), found that absenteeism worsens the difficulty of care delivery in many nations, where the number of nurses available is inadequate to meet all the healthcare difficulties of the population and the health care organization.

The finding of the study indicated the absence of nursing policies related to quality management, infection control, and the safety rules. The role of the leader is to establish the clinical practice policies to guide and motivate nurses - follow the standard of practice, for the organizational control. The DON had no authority to participate in the annual budget at NECTR. According to Gealan, and Patricia (2013), the operating budget is the main budget for the nurse managers and leader to maintain an active role in controlling personnel and supply costs, with the collaboration of nursing staff in all units. Also, the nurses at NECTR had no knowledge regarding disaster plan, this result is similar to the study done by Paganini, et al (2016), who found the staff on duty had poor knowledge of disaster plan. Thus, the leader responsibilities to develop a disaster plan, train and educate the staff, give feedback and ensure, that the plans are known to all nurses.

The responsibility of DON to work on nurses satisfaction includes measures to reduce work-related stress, opportunities for training and development, mentoring, orientation programs, social support, feedback and positive staff motivation by an acknowledgment from the nurse managers and experienced colleagues (Flinkman, et al. 2014). Effective leadership is critical in generating opportunities which create the potential for professional self-development for junior staff (Allan, et al, 2008). Furthermore, the DON has to recognize the importance for the nurses to participate in scientific research and studies to improve their performance.

## 6. Conclusion:

In this study, the validated tool of 12 dimensions and 123 items were utilized as a base for designing JDs for Toxicology Nurses (DON, Deputy DON, Charge Nurse and Staff Nurse) at NECTR. General Systems Theory (GST) was used as a process to follow and facilitate the understanding of the sequence for developing JDs. The duties and tasks of toxicology nurses were identified and extracted from the analyzed tools (JAQ& NAC), grouped and organized according to the variance of the nurses' levels of professional category. The nurses’ roles were adjusted and described by focusing on these tasks that NECTR Nurses considered as the most importantly, with the highest in frequency. The nurses' knowledge, skills and disabilities were observed by the research investigator. This study proposed that educational programs in Arabic are mandatory to improve nurses disabilities and unnecessary tasks not related to nursing should be assigned to other non-nursing staff. Thus the toxicology nurses at NECTR will be able to concentrate on their essential tasks corresponding to the newly designed JDs. The most important area required improvement opportunities as previously discussed is to expand the management and leadership roles of nursing administration at NECTR.

Therefore, the study indicated the following components of the JDs for nursing categories (table 2.1to 2.12).

**Tasks -Staff Nurses Positions:**

**A**1,2,3,4,5, 8, **B**1,2,3,4,5,6,7,10, 11,8,9,11, **C** 1,2,3,4,5,6,7,8,9,10, 11, **D**1,2,3,4,5, 6, 9, **E**1,2,3,4,5,6,8,9,10, **F**1,2,3, 4, 7,8,9, **G**4,5,7,8, 9,10, **H**1,2,3,4,5,6, 7, 8,9,10,11, **I**10, **J**5, **K**4, **L**2,10.

**Tasks – Leadership/ Management positions:**

**A**8, **B**3,4, 8,9,10, **C**7, **E**1,2,3,4,5,6,7,8, 9,10, **F5,** 6, **G**1,2,3,4,6,5,7, 8,9,10, **I** 1**,**2,3,4,5,6,7,9, **H**8, **J**1,2,3,4,5,6,7,8,9,10,11, **K** 1,2,3,4,5,6,7,8,9,10, **L** 1,2,3,4,5,6,7,8,9,10.

With the above mentioned components the tasks were organized to make job description for each category. Thus the validated JDS for toxicology nurses are ready for implementation.

**7. Recommendations**

1. Implement the proposed JDs.
2. Link performance appraisals to nursing staff 'job description at NECTR.
3. Job descriptions should be updated periodically or as needed.
4. The NECTR shall have a well-defined organizational chart to clarify the different positions and lines of authority.
5. Different Nursing policies and procedures should be provided and implemented.
6. Work on solving the problem of absenteeism and poor attendance.
7. Reduce the paperwork and non-nursing tasks to improve the nurses' performance.
8. Provide adequate equipment and supplies for patient care.
9. Special training programs should be provided in Arabic to improve nurses disabilities and expand the leaderships and management roles for nursing administration.

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