

## Research Article

# Professional Nursing Duties in the Central Services: Hospital Pharmacy Nurses

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*Introduction.* The new demands of a fast changing world necessitate expanding the traditional concepts of nursing, extending the classical aspects to cover new areas. *Purpose.* Based on their professional duties, the nursing team in the pharmacy of a second-level hospital aimed to establish a theoretical and situational framework for nurses working in the central services. *Material and Methods.* Application of the nursing process to nursing work in an area with no direct contact with patients. *Results and Discussion.* The application of the NANDA diagnoses to professional practice enabled the establishment of a nursing diagnosis with the implementation of measures designed to overcome a stressful situation with a risk of becoming unmotivated. *Main Conclusion.* The capacity to adapt the nursing profession to undertake new roles in the field of healthcare and the power of nursing own methodological resources permit the indirect care of “faceless” patients to be complemented with the inclusion of nurses from other services as clients, forming the focus of care, who can thus be helped with their daily care work.

## 1. Introduction

The ability of nurses to adapt to the new demands of a fast changing world necessitates expanding the traditional concepts of nursing [1]. The classical aspects of patient care, teaching, administration, and research now have to be extended to cover the new areas that constant technological advances are creating, including healthcare services involving no direct care activity.

Most tasks undertaken in a hospital are interrelated. These relations depend on several aspects and arise from a great variety of central services, all needed to provide the complex care involved in health problems and the specialized and complementary care required under the Spanish General Health Law [2]. The breadth of professional skills and the very

varied technical nursing qualifications explain the presence of nurses in almost all healthcare services, so much so, in fact, that nursing is the professional category with most members in nearly every hospital [3]. Thus, nurses take on multiple activities, and in almost all areas they are the connecting link between services (both care-oriented and technical), as well as between providers and recipients of the care.

Although the traditional healthcare function of nurses is reflected in the greater number of nursing personnel dedicated to the direct care of patients in hospital units, social understanding and acceptance often take longer to adapt to the events of real life [4] and nurses who are involved in direct patient care often consider working in central services to be “a comfortable job.” This negative idea is mostly due to the lack of understanding of the tasks involved

by nurses in other areas. This itself is a consequence of the compartmentalization of functions and jobs typical of a complex business [5], of the intense workload involved in healthcare [6], and of the generally little thought given by nurses to their own profession. Studies reported at congresses and in professional journals mainly concern techniques and care, and the theoretical works that are published indicate the urgent need for thought, reflection, and evaluation of nursing processes [7–9], in concordance with the continually emerging professional tasks involved in contemporary society [10].

This study arose from the experience of the nursing team in a referral hospital pharmacy and is based on their practice acting as links between the different professional areas, all very interrelated but poorly connected and involving nurses, physicians, pharmacists, and healthcare technicians. Our experience highlighted a requirement to establish a theoretical and practical framework for nursing tasks in the central services.

The research dynamics started by the pharmacy nursing team may provide elements to facilitate reflection on the specific characteristics of the nursing profession that will enable it to adapt to the constant changes now being seen. Thus, some new functions and work areas in the complicated ever-changing hospital setting will be identified as belonging to the nursing profession [11].

Many of the activities undertaken in the hospital pharmacy where this study was undertaken concern the management, preparation, and dispensing of drugs, dietary supplements, and other elements required by the hospital healthcare services and their area of influence, including outpatient services, outlying hospitals, and the health district.

At the end of 2010, with the setting up of the Pharmacy as a Clinical Management Unit, we started a process of renovation and adaptation of the whole service, aimed at improving and widening the services available. No changes were made in the staff, consisting of four nurses, but their duties were increased. These duties now included the daily preparation of parenteral nutrition, which until that time had been done by junior pharmacists.

The application of strict control systems for out-of-hours pro re nata (PRN) drug dispensing involved the identification and correction of numerous errors in the prescription, administration, and/or dispensing of drugs [12]. This led to countless verbal exchanges between the pharmacy nurses and the hospital units.

The modernization and approval of the preparation area for cytotoxic mixtures increased productivity and the work times of the nurses in the biosafety cabinet (BSC), an activity involving biological risk [13] which requires intense physical effort [14] undertaken in isolation [15]. Within a few weeks, there appeared or worsened various physical problems in the back, hands, and neck of the nurses [16]. The nurses therefore expressed concern about making mistakes and experienced emotional changes that affected their work [17].

The main function of nurses is to help the patient and the family of the patient as an independent professional [18], though the final aim is to work in a multidisciplinary team able to respond to new public health needs. In order to

perform this, the ability to evaluate emerging human and organizational needs is required [19].

In a context of increasing workloads, intense emotional pressure, and the absence of any direct contact with the recipients of their work, the four pharmacy nurses started a process of reflection about their professional function accompanied by an intense update in theoretical and practical training to acquire the qualification to enable them to evaluate the situation and initiate research. The purpose of this was to seek solutions to a situation that could worsen the work climate and the physical, psychological, and emotional welfare of the pharmacy nurses [20].

Thus, the main aim of this study was to analyze the nature of the work undertaken by hospital pharmacy nurses and then attempt to integrate their functions (with no patients, students, or clerks) into the fields of healthcare and health education [21].

## 2. Methods

We undertook a cross-sectional, descriptive study between January 1, 2012, and December 31, 2013, analyzing all the data in the Hospital Pharmacy Nursing Incident Book of this second-level referral hospital. This Incident Book is completed by the pharmacy nurses themselves and comprises a record of all activities undertaken by them, whether routine or not, and recording all usual and unusual events, every day of the year. The sample therefore comprises all the activity records carried out by all the nurses for each day during the two-year study period.

The four pharmacy nurses started a work group using the brainstorming technique [22]. The qualitative analyses of these discussions [23, 24] highlighted the need for further understanding of the function of pharmacy nurses. The search for an effective system to analyze their professional work led naturally to the application of nursing own methodology [25] and the design of a care plan.

The first step in the nursing process was to initiate our own specific, reliable records to obtain exact data about the nursing performance in daily activities, classified in six groups: preparations using the biological safety hood (BSH); single dose (PRN); parenteral nutrition; sterile mixtures using the vertical laminar flow hood (LFH); preparation for dispensing narcotic and controlled drugs; and the technical care of outpatients. This information was obtained from the Incident Book.

To formulate a nursing diagnosis of the professional performance in the pharmacy, we undertook an analysis, using the care plan of Virginia Henderson, of the needs affected or at risk of becoming altered based on the assessment of the 14 basic needs, as per the nursing diagnoses of the NANDA [26].

In the planning phase, we implemented systematic quality control mechanisms related to the safety of the patients and the handlers of cytotoxic drugs [27, 28]. We established periods of detailed records of the drugs prepared, aimed at identifying the chemical and ergonomic risks to the BSH handlers: 28 days (March 19 to April 15, 2012), 107 days (April

16 to July 31, 2012), and 39 days (October 15 to November 22, 2013).

For the out-of-hours drugs, we recorded all the PRN requests in a representative 30-day period each year (the last two weeks of April and the first two weeks of May) to quantify the number of request forms and number of drugs and to identify the source of the need to make an official request on the PRN form for a drug that should already have been available to the hospital nurses for administration to their hospitalized patients.

The results of the nursing process were evaluated continuously, with one nurse being responsible for the follow-up, review, and control for two activity groups, with weekly meetings.

### 3. Results

Using the Virginia Henderson care plan of the 14 basic needs, we quantified the number of activities recorded by the pharmacy nurses in 2012 and 2013, classified according to the six groups established (Table 1). The records of the activities undertaken by the nurses in 2012 and 2013 showed that most (50%) concerned the preparation of drugs in the BSH, which surpassed 19,000 mixtures of hazardous products each year [29].

The NANDA nursing diagnoses that were associated with the work in the hospital pharmacy were, by domain, as follows:

- (a) Related with activity/rest: 00093: Fatigue.
- (b) Related with the need for perception/cognition:
  - 00157: readiness for enhanced communication,
  - 00161: readiness for enhanced knowledge,
  - 00184: readiness for enhanced decision making,
  - 00199: ineffective activity planning.
- (c) Related with the need for self-perception:
  - 00120: situational low self-esteem,
  - 00153: risk for situational low self-esteem.
- (d) Related with the need for role/social relationships:
  - 00052: impaired social interaction,
  - 00207: readiness for enhanced relationship.
- (e) Related with the need for coping/stress tolerance:
  - 00076: readiness for enhanced community coping,
  - 00077: ineffective community coping,
  - 00146: anxiety,
  - 00158: readiness for enhanced coping,
  - 00177: stress overload.
- (f) Related with life principles:
  - 00067: risk for spiritual distress,

TABLE 1: Activities recorded by the hospital pharmacy nurses in 2012-2013.

Activity	2012	%	2013	%	Total
Preparation of sterile mixtures in the BSC (Biological Safety Cabinet)	19844	43.30	19701	46.82	39545
Out-of-hours drug (single dose)	13614	29.71	10573	25.13	24187
Preparation of parenteral nutrition	6112	13.34	5622	13.36	11734
Preparation of sterile mixtures in the LFH (laminar flow hood)	1375	3.00	2097	4.98	3472
Dispensing of narcotics	4865	10.62	4078	9.69	8943
Direct techniques for outpatients	18	0.04	4	0.01	22
Total	45828	100	42075	100	87903

00083: decisional conflict,

00175: moral distress.

(g) Related with safety and protection:

00180: risk for contamination.

(h) Related with the need for comfort:

00183: readiness for enhanced comfort.

### 4. Discussion

The use of standardized language enables the systematic collection of information. This, in turn, hastens decision making and unifies nursing criteria for the drawing-up of an effective dynamic care plan [30]. The process of nursing care entails a holistic view of a person, considering their physical, psychic, social, and environmental health in five stages: assessment, diagnosis, planning, activities, and evaluation of the process.

The diagnostic phase in the nursing process is considered by many [31] to comprise the main axis. This phase involves the analysis and interpretation of the assessment data and concludes with the identification and establishment of the real or potential health problems.

The application of the NANDA classification to the situation of nurses in a hospital pharmacy relates to both the specific characteristics inherent to the types of activity undertaken and to the conditions under which these activities are performed. The diagnosis 00093 (*fatigue*) is nowadays common to almost all nursing roles, and in the case of the pharmacy it is also related with 00199 (*ineffective activity planning*), as most of the work done is dependent, with no participation in decision-making or organization of the work times and activities. Pharmacy nurses are submitted to the pressure of a demand that often has to be fulfilled urgently yet at the same time requires working in different activities and/or physical spaces. These include preparing cytotoxic

mixtures in the BSH, sterile mixtures (e.g., intravitreal, eye-drops, port seals, sterile solutions for dressings, and aerosol inhalers) in the LFH, dispensing narcotics or PRN drugs for a hospital unit, elaboration of parenteral nutrition formulae for outpatients, or sometimes the instructions or even administration of parenteral treatments to outpatients.

The prioritization of activities is a basic element in nursing [32], and, in the case of the central services, the person who requests a task does not see how it is carried out. Consequently, the on-demand work undertaken by pharmacy nurses results in enormous pressure, arising, for example, from ward nurses making an urgent request by telephone or by notes on the PRN drug forms; day-hospital nurses urging a cytotoxic treatment to be brought forward; hospital porters requesting the narcotics; pharmacists demanding the immediate preparation of solutions or sterile preparations; outpatients seeking their eye-drops; and preparing inhaled mixtures or parenteral nutrition [33]. The stress is worsened by everyone's complaints about the delay in the tasks that almost always demand great care, concentration, and a steady pulse, not to mention the unavoidable times for preparation of protective garments and materials, as well as the packaging, labeling, and recording of the end product [34].

This situation of stress due to working under great pressure [35] resulted in the NANDA diagnoses during the first six months of 2012 passing successively from 00153 (*risk for situational low self-esteem*) to 00120 (*situational low self-esteem*), 00052 (*impaired social interaction*), 00077 (*ineffective community coping*), and 00146 (*anxiety*). Furthermore, as a result of restrictions in contracting personnel, in the summer of 2013 the pharmacy nurses were obliged to take on new tasks during the rest periods between activities [36]. As a consequence, this resulted in the worsening of several conditions or the appearance of new disorders:

- (i) Physical: contractures, tendinitis, sprains, and falls.
- (ii) Emotional: feelings of anger, indignity, and blame.
- (iii) Intellectual: difficulty concentrating, mental block, and a defensive attitude.
- (iv) Spiritual: indifference, lack of meaning in the work, and fear of making mistakes.
- (v) Social: apprehension about one or more persons, fear of losing control, and demanding or aggressive behavior.

Application of the Nursing Care Plan resulted in the introduction of the diagnoses 00083 (*decisional conflict*) and 00175 (*moral distress*) due to having to prioritize the preparations of sterile mixtures, increasing to 00180 (*risk for contamination*), due to having to spend most of the day under the two cabinets rather than the vocational desire to help colleagues in the hospital units. Added to these diagnoses were 00177 (*stress overload*) and 00067 (*risk for spiritual distress*).

The continual work group meetings, with the analysis and review of the diagnoses and interventions, reinforced the diagnoses 00157 (*readiness for enhanced communication*), 00161 (*readiness for enhanced knowledge*), 00184 (*readiness for*

*enhanced decision making*), 00207 (*readiness for enhanced relationship*), 00076 (*readiness for enhanced community coping*), and 00183 (*readiness for enhanced comfort*).

The application of the nursing process enabled the team to cope successfully with the difficulties derived from old and new workloads and assimilate the different characteristics of work in the central services, where it is necessary to work efficiently and with due quality in the care of our indirect clients [37]. As these clients are usually inpatients or outpatients who receive the preparations prepared by us, we have attained a new focus on the care of our direct clients and for whom we have set up the Nursing Care Process: the nurses in the various hospital units and hospital services.

## 5. Conclusions

The roles of nurses are, of necessity, varied. They involve diverse fields and take on different forms. Furthermore, they are in continuous evolution in order to respond to the changing care needs in an ever more complex world. In particular,

- (i) pharmacy nurses participate in patient care as an active part of a multidisciplinary care team;
- (ii) the specific role of pharmacy nurses is indirect in that they look after "faceless" patients, though they still have names and personal data that enable their progress to be followed;
- (iii) the direct clients of the pharmacy nurses, as identified in this study, are the nurses in the various hospital units, day hospital, and other services whose direct care work depends on the drugs, mixtures, and treatments prepared by pharmacy nurses;
- (iv) pharmacy nurses attend to new healthcare needs, preparing drugs in a sterile environment and establishing safety filters aimed at avoiding or correcting errors in medication, doses, or administration;
- (v) the fluid and constructive communication between nursing professionals in a climate of positive understanding generates a feedback between the various services, the main beneficiary of which is the patient or client we are there to care for;
- (vi) the nursing process constitutes a powerful efficient tool to diagnose, resolve, and apply nursing care, including that related to the work of nurses themselves;
- (vii) nurses are care providers wherever they work, and the pharmacy nurses in this study are, feel as, and desire to be an integral part of a healthcare team;
- (viii) the evaluation of the results of the nursing process, with continuous review of the diagnoses and interventions, gradually evolved into an intense team relationship. The evaluation of the feedback between the pharmacy nurses and the rest of the hospital resulted in the work being of high quality and enormous intensity.

## Conflict of Interests

The authors declare that there is no conflict of interests regarding the publication of this paper.

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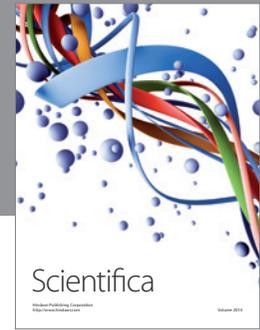
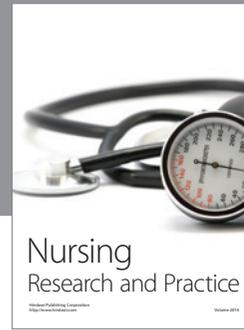
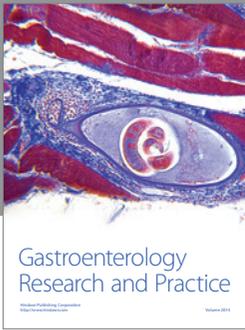
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## References

- [1] R. Morris, P. MacNeela, A. Scott, P. Treacy, and A. Hyde, "Reconsidering the conceptualization of nursing workload: a literature review," *Journal of Advanced Nursing*, vol. 57, no. 5, pp. 463–471, 2007.
- [2] Ministerio de la Presidencia, "Ley 14/1986, de 25 de abril, General de Sanidad," <<BOE>> núm. 102, 1986, [http://www.boe.es/diario\\_boe/txt.php?id=BOE-A-1986-10499](http://www.boe.es/diario_boe/txt.php?id=BOE-A-1986-10499).
- [3] Ministerio de Sanidad, *Servicios Sociales e Igualdad. Estadística de Centros de Atención Especializada*, Ministerio de Sanidad, Madrid, Spain, 2011, <http://www.msssi.gob.es/estadEstudios/estadisticas/estHospiInternado/inforAnual/homeESCRI.htm>.
- [4] P. Wimpenny, "The meaning of models of nursing to practising nurses," *Journal of Advanced Nursing*, vol. 40, no. 3, pp. 346–354, 2002.
- [5] J. Naranjo-Valencia, D. Jiménez Jiménez, and R. Sanz-Valle, "Es la cultura organizativa un determinante de la innovación en la empresa," *Cuadernos de Economía y Dirección de la Empresa*, vol. 15, no. 2, pp. 63–72, 2012.
- [6] H. McKenna, R. Richey, S. Keeney, F. Hasson, M. Sinclair, and B. Poulton, "The introduction of innovative nursing and midwifery roles: the perspective of healthcare managers," *Journal of Advanced Nursing*, vol. 56, no. 5, pp. 553–562, 2006.
- [7] A. L. Kitson, Å. M. Athlin, and T. Conroy, "Anything but basic: nursing's challenge in meeting patients' fundamental care needs," *Journal of Nursing Scholarship*, vol. 46, no. 5, pp. 331–339, 2014.
- [8] C. E. Díaz and J. S. Bertoni, "Enfermería basada en la evidencia y formación profesional," *Ciencia y Enfermería*, vol. 16, no. 3, pp. 9–14, 2010.
- [9] M. Subirana Casacuberta and I. Fargues i García, "Percepción de las enfermeras expertas sobre el reconocimiento de sus competencias," *Metas de enfermería*, vol. 8, no. 8, pp. 62–68, 2005.
- [10] European Agency for Safety and Health at Work, *European Risk Observatory. Community Strategy 2007–2012*, European Agency for Safety and Health at Work, Bilbao, Spain, 2014, <https://osha.europa.eu/en/eustrategy>.
- [11] M. C. González and C. Tarragó, "Capacitación para el cambio," *Acimed: Revista Cubana de los Profesionales de la Información y la Comunicación en Salud*, vol. 17, no. 4, p. 2, 2008.
- [12] J. Kim and D. W. Bates, "Medication administration errors by nurses: adherence to guidelines," *Journal of Clinical Nursing*, vol. 22, no. 3–4, pp. 590–598, 2013.
- [13] NIOSH, *Hazardous Drug Exposures in Health Care*, Centers for Disease Control and Prevention, 2014, <http://www.cdc.gov/niosh/topics/hazdrug/>.
- [14] M. McLeod, A. Zochowska, D. Leonard, M. Crow, A. Jacklin, and D. B. Franklin, "Comparing the upper limb disorder risks associated with manual and automated cytotoxic compounding: a pilot study," *European Journal of Hospital Pharmacy: Science and Practice*, vol. 19, no. 3, pp. 293–298, 2012.
- [15] E. Palma and C. Bufarini, "Robot-assisted preparation of oncology drugs: the role of nurses," *International Journal of Pharmaceutics*, vol. 439, no. 1–2, pp. 286–288, 2012.
- [16] J. Lipscomb, A. Trinkoff, B. Brady, and J. Geiger-Brown, "Health care system changes and reported musculoskeletal disorders among registered nurses," *American Journal of Public Health*, vol. 94, no. 8, pp. 1431–1435, 2004.
- [17] N. Vecchio, P. A. Scuffham, M. F. Hilton, and H. A. Whiteford, "Work-related injury in the nursing profession: an investigation of modifiable factors," *Journal of Advanced Nursing*, vol. 67, no. 5, pp. 1067–1078, 2011.
- [18] V. Henderson, *La naturaleza de la enfermería. Reflexiones 25 años después*, McGraw Hill/Interamericana, Madrid, Spain, 1994.
- [19] L. H. Aiken, S. P. Clarke, and D. M. Sloane, "Hospital staffing, organization, and quality of care: cross-national findings," *Nursing Outlook*, vol. 50, no. 5, pp. 187–194, 2002.
- [20] E. Grau-Alberola, P. R. Gil-Monte, J. A. García-Jueas, and H. Figueiredo-Ferraz, "Incidence of burnout in Spanish nursing professionals: a longitudinal study," *International Journal of Nursing Studies*, vol. 47, no. 8, pp. 1013–1020, 2010.
- [21] B. Seymour, S. Kinn, and N. Sutherland, "Valuing both critical and creative thinking in clinical practice: narrowing the research-practice gap?" *Journal of Advanced Nursing*, vol. 42, no. 3, pp. 288–296, 2003.
- [22] J. M. Cerdà, M. P. Rodríguez, M. H. García, and O. S. Gaspar, "Técnicas cualitativas para la investigación en salud pública y gestión de servicios de salud: algo más que otro tipo de técnicas," *Gaceta Sanitaria*, vol. 13, no. 4, pp. 312–319, 1999.
- [23] C. Pérez Andrés, "¿Deben estar las técnicas de consenso incluidas entre las técnicas de investigación cualitativa?" *Revista Española de Salud Pública*, vol. 74, no. 4, 2000.
- [24] S. G. Isaksen and J. P. Gaulin, "A reexamination of brainstorming research: implications for research and practice," *Gifted Child Quarterly*, vol. 49, no. 4, pp. 315–329, 2005.
- [25] F. Faus Gabandé and E. Santainés Borredá, "Research in nursing care: rigor in search tools and bibliographic synthesis," *Index de Enfermería*, vol. 22, no. 4, pp. 197–198, 2013.
- [26] NANDA, *Diagnósticos enfermeros: definiciones y clasificación 2005–2006*, Harcourt Brace, Madrid, Spain, 2006.
- [27] M. Vuelta Arce, M. Calabuig Muñoz, S. Jornet Montaña et al., "Evaluación de la calidad en el proceso de utilización de fármacos peligrosos: prescripción y preparación," *Farmacia Hospitalaria*, vol. 29, no. 2, pp. 119–125, 2005.
- [28] Ministerio de Empleo y Seguridad Social, *NTP 740: Exposición Laboral a Citoestáticos en el Ámbito Anatómico*, Instituto Nacional

de Seguridad e Higiene en el Trabajo, 2006, <http://www.insht.es/portal/site/Insht/menuitem.a82abc159115c8090128ca100-60961ca/?vgnextoid=db2c46a815c83110VgnVCM100000dc0-ca8c0RCRD&do=Search&idPalabra=xujbba>.

- [29] S. Crauste-Manciet, P. J. M. Sessink, S. Ferrari, J.-Y. Jomier, and D. Brossard, "Environmental contamination with cytotoxic drugs in healthcare using positive air pressure isolators," *Annals of Occupational Hygiene*, vol. 49, no. 7, pp. 619–628, 2005.
- [30] N. C. Frisch and J. H. Kelley, "Nursing diagnosis and nursing theory: exploration of factors inhibiting and supporting simultaneous use," *International Journal of Nursing Terminologies and Classifications*, vol. 13, no. 2, pp. 53–61, 2002.
- [31] S. Moorhead, M. Johnson, J. Michel, A. de Barros, and M. U. Apalategui, "Diagnostic-specific outcomes and nursing effectiveness research," *International Journal of Nursing Terminologies and Classifications*, vol. 15, no. 2, pp. 49–57, 2004.
- [32] S. Lake, C. Moss, and J. Duke, "Nursing prioritization of the patient need for care: a tacit knowledge embedded in the clinical decision-making literature," *International Journal of Nursing Practice*, vol. 15, no. 5, pp. 376–388, 2009.
- [33] M. T. Inaraja, I. Castro, and M. J. Martínez, "Formas farmacéuticas estériles: Mezclas intravenosas. citostáticos. nutrición parenteral," in *Farmacia Hospitalaria*, J. Bonal Falgas, A. Domínguez-Gil Hurlé, M. C. Gamundi Planas, V. Napal Lecumberri, and E. Valverde Molina, Eds., pp. 487–505, FEFH, Madrid, Spain, 3rd edition, 2002.
- [34] L. D. Wolf, P. Potter, J. A. Sledge, S. B. Boxerman, D. Grayson, and B. Evanoff, "Describing nurses' work: combining quantitative and qualitative analysis," *Human Factors*, vol. 48, no. 1, pp. 5–14, 2006.
- [35] E. McNeely, "The consequences of job stress for nurses' health: time for a check-up," *Nursing Outlook*, vol. 53, no. 6, pp. 291–299, 2005.
- [36] J. Heeb and V. Haberey-Knuessi, "Health professionals facing burnout: what do we know about nursing managers?" *Nursing Research and Practice*, vol. 2014, Article ID 681814, 7 pages, 2014.
- [37] M. D. McHugh and A. W. Stimpfel, "Nurse reported quality of care: a measure of hospital quality," *Research in Nursing & Health*, vol. 35, no. 6, pp. 566–575, 2012.



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