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SAFETY AND PROTECTION FOR HOSPITALIZED CHILDREN: LITERATURE REVIEW

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This narrative-descriptive review is about the safety/protection of hospitalized children who, due to their fragility, vulnerability and peculiar growth and development conditions need special attention from health professionals. This study aimed to identify knowledge production on safety, protection and violence to hospitalized children between 1997 and 2007. In total, 15 national and international articles were analyzed, using the key words: hospitalized child, safety, violence and nursing. This qualitative approach enabled the development of four categories: adverse occurrences; medication errors; notification of adverse occurrences; and safety of pediatric patients. Results indicate the need to develop strategies to reduce the probability of these events occurring during children's hospitalization, so that they do not suffer any problem neither violation of their fundamental rights.

DESCRIPTORS: child, hospitalized; safety; violence; nursing

SEGURIDAD Y PROTECCIÓN PARA EL NIÑO HOSPITALIZADO: ESTUDIO DE REVISIÓN

El estudio trata de la seguridad y protección del niño hospitalizado que, por su fragilidad, vulnerabilidad y condiciones peculiares de crecimiento y desarrollo, necesita atención especial de los profesionales de la salud. Es una revisión narrativa y descriptiva que tuvo por objetivo identificar la producción de conocimiento sobre el tema de la seguridad y protección del niño hospitalizado, en el período comprendido entre 1997 y 2007. Fueron analizados 15 artículos, nacionales e internacionales utilizando las palabras clave: niños hospitalizados; seguridad; violencia y enfermería. El abordaje cualitativo permitió la formulación de cuatro categorías: ocurrencias adversas; errores de medicación; notificación de eventos adversos; y, seguridad del paciente pediátrico. Los resultados apuntan la necesidad de desarrollar estrategias que reduzcan la probabilidad de la ocurrencia de estos eventos, durante la hospitalización del niño, para que él no sufra cualquier daño ni violación de sus derechos fundamentales.

DESCRIPTORES: niño hospitalizado; seguridad; violencia; enfermería

SEGURANÇA E PROTEÇÃO À CRIANÇA HOSPITALIZADA: REVISÃO DE LITERATURA

O estudo trata da segurança/proteção da criança hospitalizada que, devido à sua fragilidade, vulnerabilidade e condições peculiares de crescimento e desenvolvimento, necessita de atenção especial dos profissionais de saúde. É uma revisão narrativo-descritiva que objetiva identificar a produção do conhecimento sobre a temática da segurança, proteção e violência à criança hospitalizada, no período de 1997 a 2007. Foram analisados 15 artigos, nacionais e internacionais, utilizando-se as palavras-chave: criança hospitalizada, segurança, violência e enfermagem. A abordagem qualitativa possibilitou a formulação de quatro categorias na análise: ocorrências adversas, erros de medicação, notificação de ocorrências adversas e segurança do paciente pediátrico. Os resultados indicam a necessidade de se desenvolver estratégias que reduzam a probabilidade da ocorrência desses eventos, durante a hospitalização da criança, para que ela não sofra qualquer intercorrência nem violação de seus direitos fundamentais.

DESCRITORES: criança hospitalizada; segurança; violência; enfermagem

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INTRODUCTION

Children and their companions' protection and safety, and their implications for health, have driven research and enabled discussion on the quality of health care. Nevertheless, few studies addressing the subject and problematizing the countless interfaces of health care users' protection and safety were found[1-3].

This theme sharpens focus on the subject of institutional violence perpetrated in health care services, which is little discussed or contextualized because it is a difficult topic to address and, sometimes, not perceived by most professionals and even users. Several actors are involved in this context (nursing, medical and social worker teams, among others), in different situations (unnecessary mechanical splints, prescription errors, errors in medication administration, incorrect examination requests, prolonged fasting and non-scheduled surgical procedures, bureaucratic procedures in care, inflexibility regarding companions, verbal aggression, misinformation, etc.), which are themselves unpredictable. The users of services are exposed to risks, errors, adverse events and/or accidents during health care.

Health environments are characterized by macro complexities, related to technologies and multiprofesional teams working in these environments, with particular manifestations. We frequently observe health professionals using power and domination relations that characterize their praxis in relation to service users, whether at hospitals, health units, emergency services, or others. This study focuses on the hospital context and, thus, it is important to problematize the theme and contextualize it to policies humanizing health care and protection[4-6]. Health professionals should be concerned to ensure children's and adolescents' rights and commit themselves to promoting a population's health, according to the *Child and Adolescent Statute* (ECA)[6].

Around 3 to 4% of hospitalized patients are impaired by care actions that are supposed to help them. It is estimated that approximately 44 and 98 thousand Americans die every year as consequence of errors in heath care. Health services should be qualified to prevent errors[5]. The literature does not provide statistics that contextualize the Brazilian reality, which highlights the importance of research addressing this theme.

Institutional violence is understood as that practiced in or by public services themselves by action or omission, and is also comprised of abuses committed due to unequal power relations between users and professionals inside institutions[7]. Protection of children is understood as the guarantee of the fundamental rights and legal dispositions established by ECA[6].

Authors' professional experience as pediatric nurses, enabled the visualization of several situations related to violence, risk, vulnerability, safety and protection in a context opposed to the humanization of hospital care. This study aimed to identify discoveries concerning safety, protection and violence to hospitalized children between 1997 and 2007.

METHOD

This is a descriptive narrative review, traditionally known as a literature review[8]. Sources used in this study were scientific articles published between 1997 and 2007. The following question guided the articles search: what has the national and international scientific literature presented on safety/protection of hospitalized children? Sources were selected through searches in electronic databases of the Library Automation System of the College of Nursing of the Rio Grande do Sul Federal University (BDENF), in the Latin American and Caribbean Center on Health Sciences Information System (LILACS), National Library of Medicine (MEDLINE), Scientific Electronic Library Online (SCIELO) and Cumulative Index to Nursing and Allied Health Literature (CINAHL). The following descriptors were used: hospitalized child, safety, violence and nursing.

The initial search resulted in 21 articles, of which 15 were selected. The selection was based on previous reading of the abstracts on the databases, which evidenced the studies carried out with children, while others were related to adults. Thus, the inclusion criteria were: being a scientific article published between 1997 and 2007, related to child health, containing aspects in the abstract indicating it addressed safety/violence.

Information analysis was done by an exploratory reading of the bibliographic material found using a qualitative approach. Reading of the articles revealed central convergences, which were synthesized, grouped and categorized. Categories were: adverse occurrences, medication errors, notification of adverse occurrences and safety of pediatric patients.

RESULTS

Table 1 shows the results of the database search, listing the titles, authors and dates for subsequent analysis. All articles were fully read and only the ones including aspects related to safety, violence and protection of hospitalized children were selected.

Table 1 – List of articles found in the research

	Title	Author	Year
1.	Nurse Staffing and Adverse Events in Hospitalized Children	Mark, B.A.; Harless, D.W.; Berman, W.F.	2007
2.	Medication Safety in Critically Ill Children	Lesar, T.S.; Mitchell, A.; Sommo, P.	2006
3.	Falls in Hospitalized Children	Razmus, I. et al.	2006
4.	Basic Concepts in Pediatric Patient Safety: Actions Toward a Safer Health Care System	Napier, J. Knox, E.	2006
5.	Adverse Events and Preventable Adverse Events in Children	Woods, D. et al.	2005
6.	Reporting of Medication Errors by Pediatric Nurses	Stratton, K.M. Et al.	2004
7.	Pediatric Patient Safety in Hospitals: a National Picture in 2000	Miller, M.R.; Zhan C.	2004
8.	Strategies for the Prevention of Medical Error in Pediatrics	Fernandez, C.V.; Gillis-Ring, J.	2003
9.	Patients Safety Events during Pediatric Hospitalizations	Miller, M.R.; Elixhauser, A.; Zhan, C.	2003
10.	Ocorrências Adversas e Consequências Imediatas para os Pacientes em Unidade de Cuidados Intensivos Pediátricos.	Harada, M.J.C S.; Marin, H. F.; Carvalho, W.B.	2003
11.	Hospital-Reported Medical Errors in Children	Slonim, D. et al.	2003
12.	Principles of Patient Safety in Pediatrics	American Academy of Pediatrics	2001
13.	Medication Errors and Adverse Drug Events in Pediatric Inpatients	Kaushal, R. et al.	2001
14.	Medical Error Reporting: A Survey of Nursing Staff	Antonow, J.A.; Smith, A.B.; Silver, M.P.	2000
15.	A Violência à Criança Hospitalizada: a Dimensão Ética da Intervenção Terapêutica	Ribeiro, R.L.R.; Ramos, F. R.S.	1999

DISCUSSION

Hospitalized children are more vulnerable to violent actions, need closer supervision and cannot decide about their own care[1]. They can suffer different forms of institutional violence, which, many times, are ignored and unnoticed by health professionals. Over time, these forms of violence become invisible both to the ones directly responsible for care as managers and other professionals. The categories that emerged from data analysis are presented next.

Adverse occurrences

An adverse occurrence is an undesirable event, harmful or not, to the patient and which occurs during the provision of health care in consequence, or not, of the failure of the professional responsible for care, and may compromise patient safety[9-10].

A study carried out with 3,719 patients from 0 to 20 years of age in U.S. hospitals showed that adverse events occur in 1% of pediatric hospitalizations and that 0.6% of them are preventable. Adolescents (from 13 to 20 years) suffered the highest number of adverse events (3.41%); 78% of the adverse events occurred with newborns, 10.8% in children at school age (1 to 12 years) and 78.6% of the adverse events with adolescents were preventable[11].

A 2000 study carried out with 5.7 million children and adolescents under 19 years old in 27 American states described adverse events in hospitalized children and assessed their related

factors, based on the patient safety indicator developed by the Agency for Healthcare Research and Quality. It showed that the main adverse events were those related to obstetric traumas, or vaginal *birth using instruments*, (21.52%), followed by obstetric traumas without instruments (10.72%), rescue failures (7.03%) and postoperative sepsis (1.03%)[12]. A similar study, covering 3.8 million children and adolescents, showed analogous results, also pointing out the higher occurrence of adverse events related to traumas in newborns (1.54%), postoperative infections (0.44%) and obstetric complications (0.26%)[13]. These analyses demonstrate that events are similar and can be prevented, however, further research is needed.

Document analysis of the U.S. health system showed that between 1988-1997, the incidence of medical errors in pediatric patients increased from 1.81% to 2.96%[14]. A nursing study carried out in Brazil in the pediatric intensive care unit of a school hospital in São Paulo presented 2.9 adverse occurrences per child as a result of nursing care practice. This research identified events related to medication (32.7%) as the most frequent, followed by mechanical ventilation/ airways (29.2%), nursing procedures (16.8%), catheters, probes and drains (14.3%), equipments/ materials (4.4%) and others (2.6%)[10].

Falls in the hospital environment are another type of common problem in the context of user safety. A study that analyzed files of 200 patients who had fell in a hospital in the United States identified that 82% of children were with parents during falls[15]. Falls can be related to insecurity and apprehension within parents inside the hospital environment, besides circumstances associated to workers' daily practice and issues related to health care institutions.

The environment and the organization of work in hospital can cause violence, since carelessness and workers' lack of motivation are visible through careless hygiene, inattentiveness in the work environment and in following a routine and the prevalence of adult-centered technologies[16]. Factors related to the organization of work, very common in daily nursing practice, can also trigger errors: the accumulation of activities, inadequately trained and insufficient personnel, lack of material resources, interruption by colleagues during procedures and environmental conditions, such as poor illumination and presence of noise, make children more vulnerable to adverse events.

Of the adverse events, 34.2% occurred in obstetric services, 18% in surgical services and 14.5% in pediatrics[11]. The emergency sector most lent itself to the occurrence of errors. Intensive care and oncology services, due to the complexity of care, were also places likely to present errors[17].

The type and incidence of errors are related. Boys had higher rates of medical errors in all years. Another aspect revealed is that most occurrences happened to children between 6 and 12 years of age in all years of study[14]. In the case of boys, the cultural expectations at this age to "act like a man", or be courageous and strong, are very deep, leading them to react to stress with stoicism, isolation, passive acceptance or hostility, rage and aggressiveness[18]. These behaviors can trigger negative attitudes in health professionals, stimulating the occurrence of adverse events such as inappropriate mechanical restraint, verbal aggression, incorrect procedures and even inappropriate administration of medication.

Younger children (under one year old) suffer the highest number of adverse events[12]. Children under one year of age control their environment through emotional expressions, such as crying or smiling or manual exploration through touch[18].

These issues are presented as risk factors for adverse events. Adverse events are significantly associated with the increase in length of hospitalization, costs and mortality during hospitalization[12-13]. Thus, specific actions are suggested for each stage of development and adaptations according to the needs of each child inserted into a care environment.

Medication errors

Of the 15 articles found, four address only medication errors, defined as errors in prescription, interpretation, dispensing, administration or monitoring of medicine. Adverse reactions to drugs are harms caused by the use of some medication[19].

Children are more vulnerable due to the greater variation of their weight, which makes the calculation of the dosage more difficult, present variations in the level of physiological maturation, difficulties in patient identification, limited ability to communicate, higher probability of overdoses or low doses[20]. Newborns suffered the highest number of medication errors (62%) and the most adverse reactions (20%)[19].

A study examining adverse occurrences involving medication errors as the main undesirable cause of nursing malpractice, due to alterations in metabolism and excretion of drugs, shows the need to divide medication into several doses, besides adjusting them to child's weight[10]. The frequency of adverse reactions is related to the number of medications used, severity of patients' disease and care acuity[20].

Regarding the type of medication error, dosage errors were the most frequent (28%), followed by errors in administration routes (18%) and errors in recording administrations (14%). Concerning the stage at which error occurs, most are at prescription (74%) and administration errors are around 10%[19]. There is risk of error in dosage calculation, since children are changing physically and physiologically. There is also the possibility of error due to inadequate knowledge of pharmacokinetics, pharmacodynamics and the toxicity of some drugs administered to children[17].

Dosage errors are the most common, especially in cases of overdose[20]. The reasons for medication errors are distractions and interruptions (50%), dose fractionation (37%) and various incompatible medications to the same patient (35%)[21].

Studies show that 5.7% of medication prescriptions present errors and 0.24% show adverse effects to drugs, of which 19% were preventable[19]. Adverse occurrences with medication can lead to increases in treatment costs and length of hospitalization, causing serious consequences to patients' health. It can affect children's safety and the quality of care delivered[10].

Thus, a pertinent question is how nursing professionals' education addresses this aspect and encourages the search for improved and updated knowledge, so that they are able to critically interpret prescriptions.

Notification of adverse occurrences

The true frequency in which medication errors occur is not actually known, due to the difficulty in identifying and quantifying the problem. The frequency in communication of errors varies considerably, due to the methods used, definition of adverse reaction and/or error and care environment[20].

Communication of the occurrence of adverse events is very important because it allows the measures necessary to revert such events be rapidly taken. A new culture should be established in health services with a view to learn from errors and not only search for the guilty. The critical and investigative perspective of errors in health services should supersede the punitive impulse. These need to be studied and solved, aiming to favor users and all those involved in the health care process[9].

Another survey showed that studied nurses estimated that 67% of medication errors that occurred in their units were properly communicated[21]. It is worth reflecting on the Brazilian reality. Does the culture of communicating errors exist? How does one discuss the importance of users' safety and protection in view of possibilities of errors and/or harms with the health team?

The following motives were among reasons noted not to report adverse occurrences: nursing is more focused on people than on the system and nurses are afraid of the consequences they would suffer in communicating errors[22]. This is another aspect that deserves attention. What are the consequences for workers in case they report an error? What does the law provide? How do users and/or relatives cope with this situation in the event they are informed? What support network do workers have to facilitate communication? Is there a collective awareness of workers, managers and of the administrative body that damages to patients should be reported, studied, prevented? These questions could be discussed among people involved in the safety and protection of health services users.

A study evidenced that 53% of the medication errors occurred in the prescription, 37% were interpretation errors, 44% dispensing errors, 43% administration errors, and 30.5% of all observed errors were formally communicated. The errors most frequently formally communicated were the ones regarding administration (51%), followed by interpretation (24%) and prescription (16%)[23].

Unfortunately, the action that is commonly adopted when an error occurs is the punishment on the part of the hospital and practitioner's omissionn. Besides feeling guilty for the adverse occurrence caused to patients, workers can receive a warning or even be fired. This surely leads to undernotification of adverse events due to the fear of being punished.

Safety of pediatric patients

Patient safety is defined as the prevention of errors in health care and the reduction of the repercussions from errors in patients' lives and health. Patient safety is influenced by the work environment, and formed by involved workers, workers' individual and collective issues and institutional aspects, among others[7].

Concern for patient safety is recent and has global dimensions. This can be observed through the World Health Organization and the World Alliance for Patient Safety, as well as other organizations that were created with this concern, such as the National Patient Safety Foundation, the Agency for Healthcare and Quality (AHRQ) and the National Coordinating Council for Medication Error Reporting and Prevention[24].

There are few publications regarding the safety of pediatric patients, and usually they are based on strategies already observed with patients in general. All levels of health should be concerned to prevent errors. The first step is to identify errors and study their occurrence patterns to reduce the probability of occurrence of adverse events[5]. Individual surveillance, although necessary, is not enough to develop safe care for children. Strategies should support the organizational process to improve the quality, safety and health in pediatrics[24]. The main aspects for safety in the health system should be: leadership, information systems and notification of errors, change of behavior patterns, increase and/or reinforce family and patient involvement[20-24].

Patient safety should be the priority, thus, there should be ongoing education programs for professionals regarding this issue. The notification of errors should be non-punitive and confidential, so that there can be significant learning from its occurrence, enabling critical reflection of the errors presented.

In 2001, a guidebook was published by the American Academy of Pediatrics to promote safety in the health system, whose recommendations are: build a system of errors notification; develop guides for hospitals by multidisciplinary teams to promote patient safety, with special attention to pediatric patients, and the creation of a patient safety program that promotes collective commitment to safety[5].

Focus on patient safety and the quality of care, with consequent development of a culture of safety, enable the team to feel safe when reporting an adverse event[22].

FINAL CONSIDERATIONS

This study permitted verifying that there is an incipient Brazilian production of research on safety and protection of children in hospital environments, with two articles found in the studied period. On the other hand, this study demonstrated international mobilization in favor of safety and protection of hospitalized children, especially in the United States. Recent concern with this theme, focused on adult health, is identified in the Latin American Journal of Nursing. Thus, it is essential to stimulate the production of studies regarding children and adolescents.

Adverse events, as presented in this study, are considered frequent forms of institutional violence and are part of daily practice and can have light, moderate or severe consequences. The most reported event found in the studies was medication error, to which nursing is directly related, since it controls the last stage of this process, that is, the administration of medications.

Workers should have an attitude stressing the importance of reporting errors aiming to implement measures for patients as well as to avoid new errors with similar characteristics. However, this does not always occur, as oftentimes workers are fearful of punishment and do not know the real aim and importance of reporting errors.

The adverse occurrences described here are focused on medical interventions; however, it is worth highlighting the role of nursing professionals in this situation. The supervision of nurses in the teams' direct work should be the basis of decision-making, established on scientific knowledge, supported by law, ensuring the safety and protection of children and families. The participation of children's family in the identification and prevention of adverse occurrences is also reinforced.

It is known that adverse occurrences will happen. These tend to diminish, though, with the implementation of safety precautions focused on users' protection. Greater mobilization of professionals, managers and politicians in the debate and the reformulation of public policies so as to recommend measures of safety and protection for users in the hospital environment is evidently needed.

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