ABSTRACT
Objective: to learn communication strategies with the person undergoing invasive mechanical ventilation.
Methodology: systematic review for the purpose of answering the question << Communicating with the person undergoing invasive mechanical ventilation: what are the strategies? >> through empirical studies in databases and virtual libraries, between January 2001 and December 2011, selected according to the PICOS method.
Results: the strategies must be carefully selected and adapted to the needs of the person in critical condition; simpler and more accessible strategies are assumed as preferred and can be used separately or combined.
Conclusion: the strategies for communicating with the person subjected to invasive mechanical ventilation are yes-no signs, VOCAs (Voice Output Communication Aids), gestures, nods, lip reading, hand squeezing, facial expression, pen and paper, using the alphabet, words and pictures chart, body language and touch.
Descriptors: Nurse-Patient Relations; Communication; Pulmonary Ventilation.

RESUMO
Objetivo: conhecer as estratégias de comunicação com a pessoa submetida a ventilação mecânica invasiva.
Metodologia: revisão sistemática com o propósito de responder à questão << Comunicar com a pessoa submetida a ventilação mecânica invasiva: que estratégias? >>, por meio de estudos empíricos, em bases de dados e bibliotecas virtuais, entre janeiro de 2001 e dezembro de 2011, selecionados de acordo com o método PICOS.
Resultados: as estratégias devem ser criteriosamente selecionadas e adaptadas às necessidades da pessoa em situação crítica; as estratégias mais simples e acessíveis assumem-se como preferenciais, podendo ser utilizadas de modo isolado ou combinado.
Conclusão: as estratégias para comunicar com a pessoa submetida a ventilação mecânica invasiva são sinais sim-não, VOCAs (Voice Output Communication Aids), gestos, acenos de cabeça, leitura de lábios, aperto de mãos, expressão facial, papel e caneta, uso do alfabeto, quadro de palavras e imagens, linguagem corporal e toque.
Descritores: Relações Enfermeiro-Paciente; Comunicação; Ventilação Pulmonar.

REFERENCES

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INTRODUCTION

Every day nurses are faced with issues and decisions that need up to date scientific evidence and that show betterment in their practices. It is in this sense that the systematic literature review identifies, evaluates and summarizes the findings of several empirical studies, making the evidence-based practice more accessible, simultaneously based on a rigorous scientific design. For this systematic literature review the key terms considered were; "communication" and "ill on ventilated", an association which resulted in the research question; "Communicating with the person undergoing invasive mechanical ventilation: what are the strategies?". The question is framed in terms of population, intervention, comparison, results and type of study, constituting the elements of PICOS (Participants, Interventions, Outcomes, Comparison and Study), which gives coherence to the entire work and defines the inclusion criteria.1-2

Communication is considered as the foundation of nursing, the art of patient holistic care and the center of a large part of the health care system.3-4 The nurse/patient communication directs the nursing interventions to a scientific, technical, relational and ethical perspective, thus contributing to the improvement of nursing care quality standards.5 Effectively, communicating with the person undergoing invasive mechanical ventilation has been recognized as a priority for research in intensive care, despite the current lack of empirical studies.6-8

The person with orotracheal intubation is unable to communicate verbally. In addition to this "communication barrier", during their hospitalization in Intensive Care Unit (ICU) the person is also subject to therapy being, pharmacological or for the disease itself, which may limit other forms of non-verbal communication. The ICU environment in which these people are submitted to are sources of stress, which can add to their health condition and the difficulties in socially interacting and communicating their needs, desires, and/or feelings.9-10 For this reason it should be pointed out that the orotracheal intubated people must be assured about the temporality of their inability to speak, there are authors who have completed their studies that generalize the communication interactions between nurse-intubated patient lasts less than 30 seconds and consist of instructions, Information related to the physical care, yes/no questions and orders, showing that the less communicative the hospitalized person, less communicative are care providers.11 Effectively, there are studies that suggest that the people subject to invasive mechanical ventilation recall the communication as one of more negative aspects of their hospitalization.12

The best source of information about the hospitalized person is the person them self, by which the nurse should structure their interventions so as to be able to communicate effectively and, thus, to obtain information that may be relevant to the provision of care.12 Therefore, they can increase well-being and avoid misunderstandings.10 In addition to an established relationship being an essential prerequisite for the establishment of communication, is a well-known fact that the adequacy of the communication means also has a preponderant role, and it is vital that nurses working in intensive care have training about the different communication techniques, mainly in people, conscious during the invasive mechanical ventilation, therefore it cannot be expected that all these nurses naturally develop this ability or are skilled in the use of technology strategies, which are currently in expansion.13

METHOD

This systematic review aims to identify the strategies used to communicate with the person subjected to invasive mechanical ventilation through the question “Communicating with the person undergoing invasive mechanical ventilation: what are the strategies?”. For the research of relevant empirical studies, the selected terms were: comunicação, doente ventilado, cuidados intensivos, communication, ventilated patient, intubated patient and intensive care. The researched databases were B-On, EBSCOhost, SciELO and Web of Knowledge. As a complement the Google Scholar search engine was used and the bibliographic references of the Articles consulted were considered.

There were 46 articles identified by title, relevant to this study and by reading the Title, Abstract and application of the criteria for inclusion and exclusion, 28 were eliminated. With the full reading 8 were rejected, having 10 accepted articles. Of the 10 selected articles the year, country, author(s), participants, interventions, outcomes and study design were identified. Considering the empirical studies by inclusion and exclusion criteria described in Figure 1,
which presents. It used the PICOS method for the critical analysis of the studies.

![Table 1. Inclusion and exclusion criteria for empirical articles.](image)

**RESULTS**

After a critical assessment of the empirical studies, as well as the credibility and relevance of the data, it was found that 2 were guided by a deductive paradigm, 4 by an inductive paradigm and 4 are mixed study.

With regard to the country, it was in the United States of America that had the highest number of empirical studies (6). Brazil, Israel, England and Sweden published 1 study each.

The analyzed articles show that the number of participants in the deductive study ranged between 40 and 65, in inductive ranged between 6 and 65 and in mixed study between 11 and 50. Regarding the paradigmatic orientation and the sample size, in several studies, there were no significant differences in the results obtained. All of the gathered studies evidenced information relevant to the answer to the initial question of this research, since the data revealed strategies for communicating with the person undergoing invasive mechanical ventilation as well as relevant nursing interventions. The results obtained are summarized in the following Figure 2.

<table>
<thead>
<tr>
<th>Author(s)/ year/country</th>
<th>Participants (P)</th>
<th>Interventions (I)</th>
<th>Results (O)</th>
<th>Type of Study (S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barlem, Rosenhein, Lunardi and Filho (2008) Brazil</td>
<td>7 Patients who were hospitalized in General ICU, with ages between 21 and 73 years, residents in the urban environment, oriented in time and space, with the ability to communicate and with different causes of hospitalization.</td>
<td>To understand the importance of communication as an instrument to humanize the nursing care in an ICU, we collected clinical data of the ICU discharge record book, participants were selected at random and semi-structured interviews were conducted then recorded in audio. The data were submitted to discourse analysis.</td>
<td>The nurses adopted different communication strategies with patients hospitalized in the ICU - verbal and non-verbal - transmitting to them safety, respect and affection.</td>
<td>Qualitative</td>
</tr>
<tr>
<td>Happ, Garrett, Thomas, Tate, George, Houze, Radtke and Sereika (2011) USA</td>
<td>40 Participants. 10 Nurses from the Medical ICU and Cardiothoracic Surgery ICU, with a minimum of 1 year of ICU experience, speak English and worked 2 consecutive weeks of daytime shifts. 30 Patients over 18 years of age, with an endotracheal tube or tracheostomy likely to remain in the 48 hours of study, which understand English and with a Glasgow Coma Scale (GCS) score of less than 13</td>
<td>To describe the communication interactions, methods and strategies between the nurses and the critical patients with ‘communication barriers’ admitted to ICU, on video 4 interaction sessions spontaneous nurse-patient, during 2 consecutive days were recorded. Data were also collected such as the hospital environment, routines, and interruptions in the interaction, use of equipment or communication tables. Data on demographics, severity of the disease, delirium and agitation-confusion were collected, respectively by: Center for Research in Chronic Disorders at the University of Pittsburg School of Nursing, Acute Physiology and Chronic Health Evaluation (APACHE) III, Confusion Assessment Method-ICU (CAM-ICU) e Richmond Agitation and Sedation Scale (RASS). The</td>
<td>The nurse-patient interactions were considered very brief and ¼ were abandoned, ignored or not understood. The most used communication techniques were yes/no signs, nods, lip reading and gestures. There were flaws in eye contact, speaking too fast and giving information in excess. There was little use of pen and paper and the nurses had never used tables or other instruments to optimize communication. The nurses demonstrated lack of ability to apply appropriate strategies in the communication.</td>
<td>Quasi-experimental</td>
</tr>
</tbody>
</table>
Happ, Roesch, and Garrett (2004) USA

11 Critical patients intubated, which respond to verbal stimuli, able to follow simple orders, which include English and are able to achieve the level 6/8 of the Cognitive Intelligence Screening Tasks.

To describe the characteristics of endotracheal intubated patients who use VOCAs (Voice Output Communication Aids), the pattern of use, the quality of communication and the intrinsic barriers to this method, clinical and demographic data were collected, applied scales APACHE III, Therapeutic Index of Severity Score (TISS), ECG and Ease of Communication Scale (ECS). The patients we educated on the operation of VOCAs (MessageMate and DynaMyte) and conducted semi-structured interviews and questionnaires. The quantitative data were analyzed by statistics (mean, frequency, standard derivation). The characteristics of the communication interactions were coded by Observation of Communication Event Record.

The use of the VOCAs method in critical patients with endotracheal intubation is possible, being considered as a communication facilitator, especially between the patient and their family. However, there are improvements to be implemented such as the design, multidisciplinary team training, to do an individualized assessment of each patient and combine the VOCAs with other strategies.

Happ, Tuite, Dobbin, DiVirgilio-Thomas and Kitutu (2004) USA

50 Hospitalized patients in ICU (medical, cardiothoracic surgery, coronary, liver transplantation, intermediate general surgery, trauma and neurosurgery), with an average age of 62.3, who received mechanical ventilation and died during hospitalization.

To describe the skills, methods and communication content with ventilated patients in ICU and who eventually died, clinical information and demographic records by electronic and paper were obtained. The communication interactions between the patient and the nurses, doctors, family and other health care professionals were considered, collected in the first 10 communication episodes for each patient. To identify the difference between the content and the method of communication, the presence of sedation or physical restriction the Statistcal Package for the Social Science (SPSS) software version 11.5. was used For the content analysis of the communication resorted to The Qualitative Data Analysis (ATLAS.ti) software and with the content analysis.

The majority of the terminally ill hospitalized in ICU and mechanically ventilated communicated through gestures, nods andlip movement. The nurses can administer sedation and analgesia narcotics, improving the comfort of these patients, without the hampered ability to communicate.

Khalaila, Zbidat, Anwar, Bayya, Linton and Svri (2011) Israel

65 Critical patients submitted during at least 24 hours to invasive mechanical ventilation and extubated in the last 72 hours. Aged 18 years, focusing on the person, space, time and the clinical situation.

To verify the association between the communication and stress characteristics in patients submitted to invasive mechanical ventilation, clinical and demographic data were collected and conducted structured interviews, during hospitalization in the ICU. The psychological distress and perceived difficulty communicating were

The patients submitted to invasive ventilation show moderate/high level of psychological and emotional stress when trying to communicate. The nurses should be more sensitive to these difficulties and adjust the sedation, analgesia and the easy and accessible communication methods (tables of words or images, use of alphabet,
evaluated, respectively, by the Hospital Anxiety and Depression Scale and the Ease of Communication Scale. The number of communication methods was measured by the Menzel communication checklist and by the stressful experiences associated with the endotracheal tube by the ICU Stressful Experiences Questionnaire. The data were analyzed using the SPSS software version 17.

To investigate the perception and the communication experience of patients hospitalized in ICU and the members of the multidisciplinary team, semi-structured interviews were carried out using the triangulation for comparisons and possible corroborations between data obtained for both groups of participants. The discourse analysis was performed.

The failures in the patient communication and the associated stress are not always detected by the members of the multidisciplinary team. Communication strategies should be simple and accessible (pen and paper and table with the alphabet) and professionals should be trained to use them.

To understand the frustration level of patients submitted to invasive mechanical ventilation and verify the usefulness of the communication methods used by health professionals, the clinical and demographic data were collected and conducted interviews of 20-60 minutes, recorded in audio and subjected to content analysis. The data were analyzed using the SPSS version 10.0 and NUDIST.

The patients submitted to invasive mechanical ventilation experience high levels of frustration when trying to communicate their needs. The professionals should be sensitized with the level of frustration of these patients contributing to the improvement of their experience through the availability and provision of reading and writing material in order to facilitate communication.

To identify the level of frustration and the perception of the adequacy of the ventilated patient communication, interviews were conducted for 20-60 minutes, using a questionnaire with open questions and questions using the Likert scale, which were audio recorded. Content analyses of the interviews were performed. The demographic data were collected by means of medical records and questioning the patients. Throughout the study, we used the Vidatak EZ Board communication table and the Wilcoxon signed-ranks test to compare the level of frustration with and without the use of the communication table. The qualitative and quantitative data were analyzed using, respectively, to the software NUDIST and SPSS version 10.0.

A communication table, when used properly during mechanical ventilation, reduces the patient's frustration regarding communication and improves the transmission efficiency of what they think they need or feel. The content, format and materials recommended for the creation of communication tables include letters and large images and use of strong colors.

To describe the experience and perception of nurses regarding communication interventions in critically ill patients contributing to the improvement of their experience through the availability and provision of reading and writing material in order to facilitate communication.

The nurses revealed that, in general, the strategies used to increase their capacity and confidence in communicating with
The communication strategies with the patient with the “communication barrier” admitted to ICU, identified in the studies considered, were the verbal and non-verbal communication, signs yes-no, VOCAs, gestures, nods, lip reading, hand squeezing, facial expression, pen and paper, use of letters of the alphabet, table of words and images, body language and the touch. These strategies are consistent with what is evidenced in the literature. VOCAs described above corresponds to the Voice Output Communication Aids and is considered an alternative technological strategy in which the patient writes a digital message, with the use of a keyboard, where the computer reproduces the message in voice. Regarding communication tables, there is also the fact that the content, format and materials recommended for its creation include letters and large images and use of strong colors.

Despite the fact that currently there is a big bet on strategies of more sophisticated communications, the use of simple strategies and effective (writing, gestures and images) provide a great improvement in the communication process, increase the well-being and decreasing the hospitalization time. People should be encouraged to correctly articulate the words so that they can interpret lip reading of and the nurses should be properly positioned, so that the interpretation is facilitated, and should reduce the visual or audible distractions during communication.

So that the use of these strategies can be successful, the considered empirical studies revealed that the nurses should be trained for their application, to do an individualized assessment of each person and if necessary combining several strategies, adjusting sedation and analgesia, in order to improve their comfort and without fear that the communication ability of the person is changed, adapting simple and accessible communication methods, availability and proper use of communication tables. The quality of communication depends on the experience and the training of nurses, evidenced the importance of identifying the communication needs, adequacy of communication strategies and designing of a care plan. In addition to encouraging the collaboration of other multidisciplinary team elements, as well as to raise awareness and support for family members for the establishment of an effective communication. In the literature is that the nurses try to validate information, repeating the non-verbal messages and, during the communication, they shall do so brief, clear, simple and adapted to the patient.

In this systematic literature review it complies that the nurses should avoid being brief and abandoning, ignoring or not understanding what the person tries to express, a fact evidenced by other authors.
when referring to some nurses they leave the communicating by difficulty to understand, not providing time to do so. 5,7,15 before the appropriate use of each strategy, taking into account the customization of each person admitted to ICU and submitted to invasive mechanical ventilation, the nurse enhances safety, respect, affection and promotes a communication more natural and effective, as is described by other authors. 9,14,18,25 In fact, the communication difficulty is considered as one of the stress generator factors in the person subjected to invasive mechanical ventilation, by which the adequacy of the strategies described will contribute to the humanization of care and consequently improving the delivery of nursing care. 26

Relationally, illustrated in Figure 3, are the identified communication strategies, the Nursing implications and the factors to be raised and/or avoided.

![Figure 3. Representation of strategies for communicating with the person subjected to invasive mechanical ventilation](image)

There are several strategies for communicating with the person subjected to invasive mechanical ventilation, which can be carefully chosen and adapted to the needs and potentialities of each person, when in a critical situation. In view of the different forms of communication - verbal and non-verbal - the nurse will be able to identify the strategy that best fits the current circumstances of the person with the “communication barrier”: yes-no signs, VOCAs, gestures, nods, lip reading, hand squeezing, facial expression, pen and paper, use the alphabet, table of words and images, body language and touch. Training and Availability for the application of each of these strategies are assumed as priorities that critical care nurses must be sensitive. It will be the efficient and effective use of each of these strategies that contribute uniquely to the welfare, safety and respect for the person undergoing invasive mechanical ventilation. Only then nurses will approach, increasingly, their practice quality standards of nursing care.

In this sense, it is suggested that there should be a greater investment in the education and training of nurses about the different forms of communication with the person with “communication barriers”, especially in context of ICU.

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