Introduction

- Qualitative (Baker and Melby, 1996) and quantitative (Holeckova et al., 2006) studies have shown evidence of the benefits of effective communication in the care of critically ill patients.
- Most comatose patients are initially hospitalized in intensive care settings where nursing care focuses on interventions to diminish disruptions in cognitive, physiological and psychosocial processes (Walker, 1998).
- Verbal communication is a way of orientating and providing meaningful sensory input to an unconscious patient.
- Verbal communication can help patients preserve self-identity and self-esteem and reduce social isolation (Elliot and Wright, 1999).
**Purpose of our study**

- **Characterise** and **standardise** verbal communication that critical care nurses and families use with unconscious patients.

- **Building a stimulus message** to be used with unconscious patients, to examine if the effects of familiar and unknown voices would be significantly different (blood pressure, pulse, oxygen saturation level, temperature, glycaemia level and ECG values were monitored as evidence of auditory perception).

**Method**

- The verbal communication of critical care nurses and patients' families, as reported in the literature, was thoroughly analysed, including references related to verbal communication by the patients’ family and intensive care nurses.

- The results of the content analysis were used to build the stimulus message, which was further refined with the cooperation of a group of experts (speech and Language therapists, and psychologists).

- The stimulus message has an increasing degree of stimulation throughout: **pleasant contents** → **orders**
## References’ thematic areas

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<tr>
<th>THEMATIC AREAS</th>
<th>Advantages of verbal communication with the unconscious patient</th>
<th>Responses of unconscious patients to verbal communication</th>
<th>Purpose of verbal communication by nurses</th>
<th>Purpose of verbal communication by patients’ family</th>
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<tr>
<td></td>
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<td>- Puma and Schiedermayer (1990)</td>
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<td>- Vertly (1996)</td>
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<tr>
<td>TOTAL NUMBER</td>
<td>6</td>
<td>8</td>
<td>10</td>
<td>5</td>
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### Advantages of verbal communication with the unconscious patient

- **Therapeutic relationship**: 9.5%
- **To apply the scientific methodology**: 9.5%
- **Feedback**: 14.3%

FOR INTENSIVE CARE NURSES

TOTAL: **33.3%**
Advantages of verbal communication with the unconscious patient

- To promote attention: 9.5%
- To promote orientation: 4.8%
- Therapeutic value: 28.5%
- To reduce the risk of psychological disorders: 4.8%
- To reduce anguish: 4.8%
- To reduce anxiety: 9.5%
- To relax: 4.8%

Responses of unconscious patients to verbal communication

- Unaltered physiological parameters: 2.3%
- Brainstem: 2.3%
- Coma patient: 4.8%
- Cerebral sections: 14.0%
- Level of consciousness: 2.3%
- Glasgow Coma Scale score: 2.3%
Responses of unconscious patients to verbal communication

<table>
<thead>
<tr>
<th>PHYSIOLOGICAL ALTERATIONS</th>
<th>Murmurs</th>
<th>Perspiration</th>
<th>Agitation</th>
<th>Spasticity</th>
<th>To cry</th>
<th>P300</th>
<th>Electroencephalogram (EEG)</th>
<th>Intracranial Pressure (ICP)</th>
<th>Arterial pressure</th>
<th>Corporal temperature</th>
<th>Breathing</th>
<th>Pulse</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2.3%</td>
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<td>2.3%</td>
<td>2.3%</td>
<td>2.3%</td>
<td>11.6%</td>
<td>11.6%</td>
<td>4.8%</td>
<td>11.6%</td>
<td>16.3%</td>
</tr>
</tbody>
</table>

72.1% Spasticity

Purpose of verbal communication by nurses

<table>
<thead>
<tr>
<th>TO INFORM</th>
<th>Clinical equipment</th>
<th>Member of a family contact</th>
<th>Clinical status</th>
<th>9.8%</th>
</tr>
</thead>
<tbody>
<tr>
<td>TO PRAISE</td>
<td>Corporal movement</td>
<td>Comfort</td>
<td>Consciousness</td>
<td>20.6%</td>
</tr>
<tr>
<td>TO STIMULATE</td>
<td>Movement</td>
<td>Response to auditory stimulus</td>
<td>Decreasing level of anxiety and stress</td>
<td>To collaborate</td>
</tr>
</tbody>
</table>
Purpose of verbal communication by nurses

**TO EVALUATE**
- Cerebral reflexes: 4.9%
- Daily habits: 3.9%
- Time and space: 14.7%
- Motive to be unconscious: 3.9%

**TO IDENTIFY**
- Nurse’s action: 7.8%
- Member of the family: 1.0%
- Nurse: 8.8%
- Coma patient: 44.1%

**TO ORIENT**
- Nurse’s action: 21.7%
- Medicine: 1.0%
- Member of the family: 1.0%

Purpose of verbal communication by patients’ family

**TO STIMULATE**
- To forget the accident: 0.2%
- To collaborate: 0.6%
- Orientation: 0.4%
- Religion belief/faith: 2.8%
- To encourage and to tranquilize: 5.6%
- Response: 0.6%
- Recovery: 12.8%

**TO ORIENT**
- Group contact: 3.7%
- Relative contact: 4.8%
- Daily habits: 0.7%
- Time and space: 0.4%
- Admission motive: 4.1%
Purpose of verbal communication by patients’ family

TO INFORM
- Repentance: 0.4%
- Impotency feeling: 0.6%
- Clinical status: 2.0%
- Family support: 1.5%
- Religion belief/faith: 10.8%
- Clinical equipment: 0.2%
- Barrier to communication: 0.4%
- Clinical care: 1.9%
- Missing: 5.8%
- Relation with the coma patient: 15.6%
- Daily living: 4.2%

TO IDENTIFY
- Relative: 8.8%
- Coma Patient: 6.7%

Composition of the stimulus message

Presentation and orientation
- Identification of the person coma
- Identification of the professional (name, profession)
- Time orientation (time, month, day of the week and weather)
- Space orientation (current localization, bed and procedures)
- Presentation of the study

Information
- Current facts
- Information concerning the family
- Information concerning prior (to coma) daily life activities
- To remember important events

Functional assessment and stimulation
- Stimulate and evaluate verbal reply
- Stimulate and evaluate opening of eyes
- Stimulate and evaluate motor reply
Stimulus message

Presentation and orientation

- Bom dia Senhor(a) A (no caso da pessoa significativa deve dizer o nome pelo qual era habitual chamar a pessoa em coma). Como se está a sentir hoje?
- O meu nome é B e sou um dos enfermeiros que está a cuidar de si (no caso da pessoa significativa deve identificar-se dizendo o seu nome e grau de parentesco ou vinculação).
- Hoje é dia x de (mês), é (dia da semana) e são y horas da manhã. Está uma manhã cinzenta e fria característica de Inverno (se for outra época do ano deve-se adaptar).
- Agora está numa enfermaria de cuidados intensivos para termos oportunidade de cuidar melhor de si e vigiarmos continuamente se está tudo bem. Está numa sala diferente com muitos aparelhos e muitas pessoas a circular (no caso da pessoa significativa deve referir que são os enfermeiros, médicos e outros profissionais que estão a cuidar dele(a)).

Information

- Não sei se já tentou comunicar connosco, ou até se lhe prestaram atenção quando o tentou fazer anteriormente, mas tente agora. Nós não sabemos se o senhor nos consegue ouvir, mas pensamos que sim, por isso vamos estar atentos.
- Tal como já lhe disse, estive a conversar com a sua família e queria dizer-lhe que está tudo bem com ela. Os seus familiares disseram-me que gostam muito de si e que esperam que recupere rapidamente. O Senhor gosta da sua família?
- Quando conversei com a sua família também me disseram que o senhor é professor de Português. Disseram-me que gosta muito daquilo que faz. Deve ser interessante poder ensinar outras pessoas. Sente saudades dos seus alunos? (deve-se adequar esta parte à profissão da pessoa em coma).
Stimulus message


Conclusions

- The standard speech stimulus developed will facilitate the communication with the unconscious patients as assessed by the proposed physiological signals.
- The findings of this study highlight the need for formal support systems and continued education for nurses about the benefits of verbal communication.
Future work

- Monitoring the ECG signal, blood pressure, pulse frequency, oxygen saturation level, glycaemia level and temperature, before, during and after the auditory stimulation of the patient in coma with a \textit{strange voice} and a \textit{familiar voice}.

- The most significant person, whose voice we recorded, was selected using a \textit{sociometry test}.

- The integrity of the auditory system will be evaluated in a preliminary phase based on \textit{auditory evoked potentials}.

- Selection of coma patients will be based on the results of a thorough \textit{assessment} using the \textbf{Portuguese version of the CRS-R}.

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Collecting data with Datex-Ohmeda S/5 Collect

Online waveforms

1. Waveforms available for selection
2. A maximum of 4 waveform boxes
3. The waveform selected to be displayed in the first waveform box. The unit used is displayed under the selection box.
4. Use the graph palette to scroll the display area of the graph and to zoom in and out of sections of the graph.
5. Waveform end time
6. Red waveform cursor.
7. Scroll bar and scroll box. By moving the scroll box you can move to the desired part of the waveform.
8. Waveform start time
Collecting data with Datex-Ohmeda S/5 Collect

Online trends

1. Trends available for selection
2. A maximum of 4 trend boxes
3. The trend selected to be displayed in the first trend box. The latest numerical parameter value and the unit are also displayed.
4. Use the graph palette to scroll the display area of the graph and to zoom in and out of sections of the graph.
5. Trend times