

**Positive suggestions used with mechanically ventilated
patients in intensive care unit
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Theses of Doctoral Dissertation**

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1. Introduction

The idea of the study originates in the clinical reality of the intensive care units (ICU). Being weaned off a ventilator machine is often very difficult for ICU patients especially when they have become accustomed to the machine (too long ventilation). Studies have shown that the psychological factors behind this phenomenon are very important, so the question emerged for the therapists working with positive suggestions: how positive suggestive communication can help these patients in the weaning process.

2. Positive suggestion in the intensive care unit

Several studies have provided evidence about the extreme emotional stress experienced by intensive care unit (ICU) patients (Bennun 2001; Cochran and Ganong, 1989; Diószeghy, Péntes 2003; Griffiths and Jones, 2005; Pennock and mtsai 1994, Rotondi 2002, Russell 1999, Van de Leur et.al. 2004). Patients are in a life-threatening state, and they tend to find themselves in an unknown, frightening environment, so usually they feel a high level of anxiety. They are in an artificial and strange world 24 hours per day, and almost all the stimuli around them are meaningless, unexpected and painful. Studies on perceptual deprivation (Heron, 1957) have shown that even healthy persons experience hallucinations, cognitive distortions, emotional lability and disorientation after a relatively short period of sensory deprivation (Cropp et. al. 1994; Topf, 2000). However, the ICU is more than just a perceptual deprivation-situation, because patients experience the effects of **perceptual deprivation AND overflow at the same time, continuously**.

The total defencelessness and dependency (generally the basic vital functions also depend on the ICU team), the lack of control of any events (including their own body), the violation of the usual everyday-life norms and taboos (nudity in the mixed gender ward) along with incapability of communication and motion makes this situation very unique and special. The unexpected, unpredictable and mostly inevitably painful medical procedures seem to be inexplicable and largely meaningless for the patients. As we know (Buda, 1994), any kind of tightly restricted communication, mobility and defencelessness may lead to the disorganization of the adult personality, and to regression into a childlike psychic state. Hence the whole situation leads to the formation of an altered state of consciousness, named by Cheek (1969) as **negative trance**. Learned helplessness (Seligman, 1975) is also common among ICU patients.

Being a patient in the ICU means to be in critical state (Cheek, 1969). Along with the „basic stressors” discussed above, if **mechanical ventilation** is necessary, it makes the situation psychologically more difficult. Mechanical ventilation, beyond the extreme emotional stress, leads to further psychological strains for the physically vulnerable patients. Research on memories and experiences related to mechanical ventilation and sedation became a very important research field (Rundshagen et.al. 2002) over the last few decades. The ventilated patients usually spend more time in the ICU (their basic illness is more serious), so the „basic stressors” have an increased effect on them (Criner and Isaac 1994), than on the non-ventilated patients.

Traumas and the emotional strains experienced in the ICU are related not just to the ICU treatment (e.g. there is a great risk of the ICU-syndrome and delirium), but they also have a long term effect on the patients’ later quality of life (e.g. increased risk of mental illnesses, such as PTSD) (Rotondi et.al. 2002; Russell, 1999). Studies (Schelling et al., 1998; Russell 1999) emphasize the role of psychological support in the prevention of further PTSD. According to their results the ICU staff plays an essential role in the process as those who received enough psychological support felt greater security. The first step for giving

psychological support is communication. However, the last fifty year's rapid technical innovation in the field of medicine was accompanied by a lack of real human contact and communication (Varga, Diószeghy and Fritúz, 2007). Noise from the machines carries more (negative) messages to the patient than human words and communication. Studies on communication in the ICU have found (Mohta et. al. 2003; Wong and Arthur, 2000) that ICU staff spend only a tiny percent (5%!, according to Baker and Melby, 1996) of their worktime in communication with patients. The most important factors related to the amount of communication: awareness of the patient (less awareness – less communication), necessary amount of physical nursing (if more needed – they „had to” do it) and the presence of family members. While the lack of communication leads to worse healing conditions and gratuitous distress, those patients who were communicated with in a proper manner became active participants in their therapy and mobilized their inner healing resources (Russell, 1999; Diószeghy and Péntes, 2003; Griffith and Jones, 2005).

According to these results it is worth paying attention not only to the style (the „how”) but also to the quantitative aspect of communication, since the cognitive style of ICU patients differs from normal, everyday-life information processing, and patients tend to switch to an alternative information processing style (Unestahl 1981, Varga and Diószeghy 2001, 2004b); and in most cases negative trance also occurs (Varga and Diószeghy 2001, Diószeghy and Péntes 2003). Characteristics of this alternative information processing: primary process thinking increases, reality checking and self-control decreases, time- and space distortions, body image changes occur; subjective experiences become more important (Ludwig 1966; Varga, 1989, 2008; Varga and Diószeghy 2001). Patients take every word literally, apply every comment to themselves, interpret everything in a pessimistic way, and language nuances vanish or become too important (Bejenke 1996a and b; Bonke 1990). In this state suggestibility increases, so all the events, the environmental elements around the patients (including words they hear, things they see) can work as potential suggestion, „message that affects” (Varga and Diószeghy, 2001. 10.).

Numerous studies have shown the effectivity of suggestive communication in general (Spanos, Stenstrom and Johnston, 1988; Barsky et.al., 2002; Leigh et. at., 2003; Put et.al., 2004), and in surgery (William et.al., 1994; Maroof et.al., 1997; Eberhart et.al., 1998; Jelicic, Bonke and Millar, 1993; the hungarian studies: Varga, 1998, Varga, Jakubovits and Janecskó, 1995, Jakubovits, Janecskó and Varga, 1998, Jakubovits, 2005a, Jakubovits et.al., 2005b, Jakubovits, 2006). For a review see Kekecs and Varga (2011). Although some results are controversial (Blankfield, 1991; Merikle and Dahneman, 1996), nowadays it is widely accepted that even patients undergoing general anaesthesia can take information from their surroundings, and this information work as (bidirectional) suggestions. The altered state of consciousness of patients under general anaesthesia is close to ICU patients', so it's presumable that ICU patients (even under sedatives) also can take in information.

The phenomena of suggestion is very complex (e.g. there are overlaps with placebo and hypnosis), so researchers need to check several components together (e.g. methodological issues, laws of suggestions, Ewin, 2011) to get a definitive answer for study questions.

Being mechanically ventilated is very complex from the aspect of the necessary, specific suggestions too because it's not only a medical situation characterised by good objective medical parameters, but also has its psychological phases (Varga, Fritúz, Diószeghy, 2007; Varga and Diószeghy, 2004a). Every phase has its own medical goals and psychological needs and tasks, and the sources of psychological stresses are also different. In the initiation of mechanical ventilation it is very important to note that patients have to adapt immediately to a situation at odds with their own physiological breathing process, to cooperate with the machine, with the ICU staff, in a life threatening somatic state, including the extreme emotional stress that accompanies the situation. In the maintenance phase patients

have to maintain long term cooperation, and hence, as this phase is the longest (from hours to weeks), most medical interventions happen here that can lead to further (psychological and medical) problems (e.g. fatigue, giving up, impatience). In the third (weaning off) phase, patients should be weaned off the ventilator machine and returned to normal breathing using their own breathing muscles. This step is not easy because the longer breathing assistance was given, the more difficult it is to return to normal breathing, and usually patients don't expect these difficulties. At the beginning patients often experience shortness of breath, and if not properly informed this may lead to reintubation. The experience of asphyxia may set up a circulus vitiosus of extubation-reintubation. While the patient may be sufficiently well to breath independently (considering her or his medical parameters), the feeling of panic, the psychological factors (anxiety, fear, lack of trust) accompanying asphyxia may themselves prevent the patient breathing properly.

Despite the fact that results concerning the effectivity of positive suggestive communication in medical procedures have been increasingly robust, and more and more studies deal with the psychological side of ICU, **there are no systematic studies (except our team's research) in the literature dealing with the use of positive suggestive communication with mechanically ventilated ICU-patients.**

The main aim of the research discussed in this doctoral thesis is to examine the potential application of positive suggestive communication among mechanically ventilated ICU-patients. The second aim of the study is to analyse which elements of suggestive communication (e. g. timing, content) are the most essential in the facilitation of the healing process.

3. Preliminary study: ICU-patients' experiences and memories

3.1. Aim of the preliminary study

Aim of the pilot study was to examine the ICU-patients' experience of ICU treatment. First of all we wanted to discover which main elements in the ventilated patients' experience differ from that of the non-ventilated ICU-patients', in order to devise proper psychological support based on positive suggestive communication, which can be tested in the main study. The questionnaires and interviews were made by Ágnes Mohácsi (2005). This study is significant as this was the first Hungarian research dealing with patients just discharged (maximum three hours after discharge) from the ICU. Informed consent was taken from the patients. The results are published in several places (Mohácsi, 2005; Benczúr and Mohácsi, 2005; Benczúr, Mohácsi and Varga, 2005).

3.2. The sample

Data collection was obtained from five ICU in Budapest. Necessary criteria for inclusion in ventilated patient group were: minimum 18 years old, minimum 4 hours mechanical ventilation, minimum 2 days in the ICU. Criteria for inclusion in the non-ventilated patient group were: non-ventilation, no experience with ventilation, minimum 2 days in the ICU, minimum 18 years old. Excluding criteria were: mechanical ventilation was begun in a place other than the ICU where the patient was (for ventilated group), preliminary neurological or psychiatric illness, alcohol- or drug abuse, cardiopulmonal resuscitation, any type (time, space) of disorientation. 25 patients were included in the study, 11 in the ventilated, and 14 in the non-ventilated group.

3.3. Method

Patients experiences were explored within 3 hours of discharge from the ICU, in person, and following their informed consent. We used the *Hospital Experience Questionnaire (HEQ)* (developed by Székely, 2002) and an *Interview*, developed by our research team (supervisor:

Katalin Varga). The process was recorded; the average length of the exploration was 25-45 minutes, depending on the patient's needs, conditions, personality.

3.4. Hospital Experience Questionnaire and the Interview

The *Hospital Experience Questionnaire* (HEQ) consists of four introductory, warm-up questions and 22 incomplete statements about the ICU, and the patients' task is to complete the statements based on their experiences. Some of the statements are thematic (about the ventilation, the treatment, surroundings); some of them are open, giving opportunity to the patients to form their experiences the way they like. This method provides opportunity for categorizing the answers based on patients' experiences. Analysis of the questionnaire was made by a category system based on three independent coders' judgements.

The *Interview*, comprising 17 questions, supplements the HEQ and examines the pleasant and unpleasant ICU experiences and the level of patient satisfaction with the overall ICU treatment. It also contains questions about patients' ideas for possible improvement to the ICU treatment and examines the memories of the whole time spent in the ICU and the treatment received. Analysis of the interviews was made (as in the case of the HEQ) by a category system based on independent coders' judgements.

3.5. Results: Patients' experiences

3.5.1. Need for care and attention

According to the results of our study, the staff's attitude is of great importance to the patients. The most prominent pleasant experience is when they experienced real care and attention. This experience was carried in the communication, the opportunity to connect with the surroundings, in touch; in general, experiencing the „real presence” of the medical team.

3.5.2. Pain

In respect of pain reduction, a significant result is that 20% of the whole sample reported it to be inadequate.

3.5.3. Mechanical ventilation

Results relating to mechanical ventilation show that while 71% of the non-ventilated patients are satisfied with the surroundings, 73% of the ventilated patients are dissatisfied (binomial probe significant $p = 0.0001$).

From the main study's perspective (regarding the *Suggestion protocol*) a very important result emerged: 72% of the ventilated patients associated the positive turning point occurred in their healing process to medical procedures connected to ventilation (e. g. extubation, 36%) or to care and attention (36%). Non-ventilated patients associate the turning point to other medical interventions, to personal strength, or to nothing at all, and more importantly, none of them emphasized the care and attention of the team.

3.5.4. Gender differences

We identified gender differences regarding the questions of the ward round; men accept it (50%) and regard it as positive (36%); 36% of women gave no answer to the question, 45% experience it positively, nobody associated it with acceptance.

3.5.5. Positive and negative experiences in general

Answers given to questions regarding the positive and negative experiences in general (HEQ) showed a great variability, but no significant characteristics emerge for significant statistical results. The complexity of the experiences can be seen. Answers regarding the questions about daily rhythm (Interview) show the hectic, and at these times unpredictable rhythm of the ICU.

3.6. Conclusions of the study regarding the suggestions used in the main study

The following aspects have to be included in the *Suggestion protocol*.

- surroundings: (e. g. reframing noises, visual stimuli, creating calm period in cooperation with the ICU-team)
- pain (reframing, imaginative techniques)
- medical procedures (proper and positive explanation)
- care and attention (real presence, caring, touch)
- signs of healing, especially regarding the weaning-off phase (it is essential to form suggestions about returning to the normal breathing at the beginning of the mechanical ventilation because patients' experiences confirm the theoretical statement: „weaning off is a process which starts at the beginning of the initiation of mechanical ventilation” (Varga, Diószeghy and Fritúz, 2007. 141.).

4. Using positive suggestions with mechanically ventilated patients

4.1. Aims of the main study

Problems weaning patients off the ventilator led to the clinical need to help these patients with psychological tools. From this clinical need emerged a scientific question, namely to test the effectivity of positive (hypnotic) suggestions in the weaning off process. It was also essential to analyse the most favourable elements of suggestions regarding mechanical ventilation and to analyse the effect of timing and content aspects of the suggestion given during treatment.

4.2. Places and sample of the main study

The study took place in two ICU in Budapest between September, 2005 and September, 2006. Hospital „A” was the Department of Anaesthesiology and Intensive Care of Semmelweis Medical University; hospital „B” was the Department of Anaesthesiology and Intensive Care of Ferenc Jahn Hospital, Délpest. Informed consent was taken from the patients and the hospitals.

Patients were randomly divided into two groups: patients in the experimental (suggestion) group received 20 minutes positive suggestions daily (based on the Suggestion protocol) from well-trained hypnotists or from experts who completed the *Suggestion in the Somatic Medicine Training*. Suggestions were given in person at the bedside. The control group received the usual ICU-treatment without suggestions.

Inclusion criteria were:

- minimum 48 hours mechanical ventilation

- life expectancy exceeding 30 days (based on medical parameters, judged by the doctors). Cause of ventilation was intentionally disregarded.
- minimum 18 years old, entire hearing in both ears.
- if unconscious, expected to regain consciousness (based on medical parameters, judged by the doctors).

Exclusion criteria: hypertonym arteriosclerosis, chronic pain, migraine, psychiatric illness, hearing disturbances.

79 patients were included in the study, but 16 patients' data were excluded because of several reasons (unexpected discharge, shorter ventilation, statistical reason). The final sample worked with 63 patients, of which 35 were in the suggestion group, and 28 in the control group. In the final sample we included those over 25 years old who were ventilated for a minimum of 48, a maximum of 600 hours, spending an overall length of time in the ICU of up to 700 hours.

There were no differences between the two groups regarding average age and physical conditions (measured by *SAPS* at admission), however patients of the „B” hospital are older (by average 9 years). Average age of the control group in the whole sample is 68,1 years, („A” hospital: 64,1 years, „B” hospital: 70,8 years), the average age of the suggestion group is 66,3 years („A” hospital: 59,4 years, „B” hospital: 70,9 years).

4.3. Examined data

4.3.1. Simplified Acute Physiology Score (SAPS II)

SAPS II was designed to measure the severity of disease for patients admitted to ICU aged 15 or more. The point score (that is an integer point that shows the predicted mortality in percent) is calculated from 12 routine physiological measurements such as oxygenization (SO_2 , PaO_2), levels of Na, K, creatinin, pulse, Na bicarbonate during the first 24 hours, and gives information about previous health status and some information obtained at admission and includes the Glasgow Coma Scale too. The main purpose of this calculation is to provide a value that can be averaged for a group of patients so it does not give the individual chance of survival.

4.3.2. Ramsay-score

The *Ramsay score* (Ramsay et.al., 1974) is used to assess the patients' level of sedation, based on the observation of patients' reactions to stimuli. Results using this scale are correlated with EEG (BIS-monitoring) data (Riker et.al., 1998). The score measures the patients' consciousness in six levels, from the awake, agitated state to even to pain stimuli unresponsive state.

4.3.3. Doctors assessments: First assessment and Daily assessment

First assessment was made by the doctors based on professional opinion in the first 3 hours after admission. It includes the assessment of time required for mechanical ventilation from patient's admission to extubation, and the patient's expected length of stay in the ICU (calculated in days).

Daily assessment was also based on the doctor's professional judgement, and it included the assessment of time required for mechanical ventilation from the patient's admission to extubation, and the patient's expected length of stay in the ICU (calculated in days). It also

included the doctor's assessment of the patients' healing process in three categories (1) as expected, 2) worse than expected, 3) better than expected).

4.3.3. *Suggestion protocol*

Based on the results of the preliminary study and the theoretical background Varga, Diószeghy and Fritúz (2007) worked out the *Suggestion protocol* that takes the psychological phases of the ventilation and the patient's needs and tasks into consideration. Suggestions given in the **initiating phase of ventilation** emphasize information on breathing and ventilation, the temporary nature of the machine, enhancing the control and activity of the patient and, a very important factor based on the preliminary study, the reframing of the fearful environment to a secure place. In the **maintenance phase** suggestions concentrate on medical interventions (endotracheal suctioning, repositioning the endotracheal tube, nebulisation, etc.), alternative ways of communication, cooperation with the machine and ICU staff, signs of healing (especially the extubation in the future), and other hypnotic techniques (e.g. analogies, metaphors and guided imagination) also taking place in this phase. The **finishing phase** contains mainly suggestions for preparation for extubation, further enhancing activity and control, stability of the healing process, and increase of patient's self-efficacy.

4.3. *Method*

The study worked with 3 different teams in both hospitals requiring a high level of cooperation between the volunteers helping in the study.

MEDICAL TEAM: selected the patients into the study, based on inclusion-exclusion criteria, randomized the patients, completed the *SAPS*, *Ramsay*, *Doctors' Assessments* (First and Daily) data.

SUGGESTION TEAM: Members were professional hypnotherapists or experts who completed the *Suggestion in the Somatic Medicine Training*. They gave the 20 minutes semi-standard suggestions (based on *Suggestion protocol*) to the patients daily, in person. They had to check every suggestion they used on the given day with every patient, they had to fill in the exact time of the beginning and the end of their bedside-time. They called the Discharge team's members when a patient in the study was dismissed.

DISCHARGE TEAM: (they were on standby mode) after receiving the information, that there is a discharged patient, they went to the hospitals and collected the patients' experiences as it happened in the preliminary study (*Hospital Experience Questionnaire* and the *Interview* in person).

4.4. *Hypotheses and Questions of the main study*

Hypotheses:

1. The duration of mechanical ventilation (MVH = Mechanical Ventilation measured in Hours) is shorter in the suggestion group, than in the control group.
2. Length of stay (LOS) is shorter in the suggestion group, than in the control group.
3. Mortality rate in the suggestion group is better than in control group.
4. There are less medical interventions (reintubation, cpr) in the suggestion group.
5. The *Suggestion protocol* has valid scales matching the theoretical psychological phases of the ventilation treatment process.

Questions:

1. To what extent are doctors' assessments related to MVH and LOS? Are there any between-group differences in the assessments?
2. How much are doctors' predictions related to survival, do these predictions have any connection with it?
3. What are the most precious elements of suggestions regarding the mechanical ventilation (e.g. timing and content aspects) given under the treatment? Are there any elements which are more important than the others?

4.5. Results of the main study

4.5.1. Effect of suggestions on weaning from the ventilator

The duration of mechanical ventilation (MVH) in the suggestion group is shorter. The preliminary data showed a difference in MVH between the hospitals (in hospital „A” the difference was not significant ($p = 0.14$), in hospital „B” it was strongly significant ($p = 0.02$) between the two groups, so we began to seek for reasons. The first hypothesis (K. Szilágyi, Diószeghy, Benczúr and Varga, 2007) was that the difference is due to the consistent presence of professionals who gave the suggestions or the lack of that (patients receive suggestions from the same person or different persons during their ICU stay). Further examination revealed that the difference is due to the data of patients with , so excluding patients with tracheostomy shows significant results in both hospitals (hospital „A”: $p = 0.04$, hospital „B”: $p = 0.04$).

4.5.2. Effect of suggestions on the LOS in the ICU

Examining the length of stay data we found that there is **no difference between the groups in LOS**. Differences between the hospitals were found again (in hospital „B” it was significant between the two groups, in hospital „A” it was not) but as we have seen earlier, it was due to the patients with tracheostomy, so excluding them the difference between the groups vanishes in both hospitals.

4.5.3. Effect of suggestions on survival

65% of the whole sample of patients (41 patients) were discharged alive from ICU and 34% (22 patients) died, irrespective of hospital or group. **The chance of survival was better in the suggestion group** (tendency: $\chi^2 = 2.93$, $p = 0.07$) than in the control group. **Mortality rates were 46.42% in the control group and 25.71% in the suggestion group.**

Based on the data of the control group, we built a logistic regression model for survival. In the suggestion group, significantly more patients survived with low predicted chance of survival than in the control group. Based on the model, the critical age for male patients is around 75-76: below they are likely to survive while above they die. The same critical age for women is 64-65. We also observe that the survival for female patients is fairly deterministic based on their age while there are more male patients who unexpectedly leave the ICU alive. When comparing the two groups, **in the suggestion group** (contrary to predictions) **more patients above the critical age left the ICU alive.**

4.5.4. Effect of suggestions on the amount of medical interventions

There was a difference between the groups in the amount of reintubation in the whole sample: **the control group needed more reintubation** ($t=2.07$, $p=0.04$). **No difference was found in the amount of cardiopulmonary resuscitation** ($t=0.09$, $p=0.92$).

4.5.5. Doctors' prognosis

Analysis of doctors' assessment (*First and Daily assessment*) showed that around the 3rd day doctors can predict the expected length of treatment and the outcome well. We found a moderate (significant) correlation between doctors' 3rd day-predictions about MVH and LOS and the measured data. Every day, doctors gave an estimate of the improvement in the patient's condition in the scale of "better than expected" (2), "as expected" (1), "worse than expected" (0). The analysis of these estimates also reveals that the doctors, on average, see healing in the control group mainly "worse than expected" and in the suggestion group "as expected" ($t = 2.92$, $p = 0.006$). The possible effect of doctors' knowledge on group membership or the inhomogeneous selection of the groups was ruled out by analyzing third day estimates. On day 3, doctors' evaluations reveal no differences between the control and suggestion groups, as expected.

4.5.6. Analysis of the Suggestion protocol

Analysis of the *Suggestion protocol* revealed that the amount of suggestions given per se has no effect, so **the amount of time per se spent bedside has no effect on the MVH or LOS**. However, the timing data show that the sooner we begin to give the suggestions the less MVH is needed. The analysis of the content aspect of the *Suggestion protocol* revealed that suggestions make valid scales according to the theoretical psychological phases of ventilation. We found two reliable scales: *Ventilation initiation/Information scale* and *Ventilation finishing scale*. Further analysis revealed that the more Ventilation initiation scale-type suggestion is given to the patient, the less MVH is needed. No *Ventilation maintenance*-type and *Ventilation finishing*-type suggestions has any effect on MVH or LOS. It means that **the suggestions that are important regarding their content are the ones which are given during the ventilation process**.

5. Discussion:

The results of the study support the findings that affirm the congenial effectivity of using positive suggestions in somatic medicine. Novelty of this study is that in the literature there are no studies on suggestions used with mechanically ventilated patients. Our results showed that the suggestions are effective in the verbalized scope as found in the literature (Ewin, 2005, 2011; Bejenke, 1996a and b; Varga and Diószeghy, 2001) – time of ventilation, amount of medical interventions decreased in the suggestion group. According to our data it is very important that mortality rate of the control group is the same as expected in ICU-s (Grady, 2001; Péntzes and Lórx, 2004), while the mortality rate of the suggestion group is half of that of the control group. It means that by using this method the chance of survival of ICU-patients can be improved. Regarding the ventilation process, the timing of suggestions seems to be very important: the sooner we begin to give the suggestions, the less MVH is needed.

In summary, being ventilated in ICU is a very complex and stressful situation for the patients, where they have increased needs for social support (Kulcsár, 2005; Varga and Benczúr, 2007) and for the real presence and attention of the team. Our results also give

evidence for the „hows”, hence our *Suggestion protocol* does not only offer the principles based on theories but specific suggestive frames for the ICU-specific situations too.

Our conclusion is that the study fulfilled its aims, the *Suggestion protocol* works and it offers a psychological guideline for the ICU team which can be built into the everyday practice of any ICU.

6. Publications related to the topic:

- Bányai É. & **Benczúr** L. (2008). *A hipnózis és hipnoterápia alapjai. Szöveggyűjtemény.* Budapest: ELTE Eötvös Kiadó.
- Benczúr** L. & Mohácsi Á. (2005). Intenzív osztályon kezelt betegek élményeinek vizsgálata. *Alkalmazott Pszichológia, VII,* (2). 21–37.
- K. Szilágyi, A.; Diószeghy, Cs.; **Benczúr**, L. & Varga, K. (2007). Effectiveness of psychological support based on positive suggestion with the ventilated patient, *European Journal of Mental Health, 2,* 149 – 170.
- Benczúr** L. (2011). Téglák a Gyógyulás Házához. Pozitív szuggesztiók alkalmazása az intenzív osztályon: esettanulmány. In Varga K. (Szerk.). *A szavakon túl. Kommunikáció és szuggesztió az orvosi gyakorlatban.* (pp. 430–445). Budapest: Medicina.
- Benczúr**, L. (2010). Bricks for the House of Healing. Using positive suggestions in the Intensive Care Unit: a case example. In Varga, K. (Ed.). *Suggestive Communication in somatic medicine.* (pp. 401-412.). New York: Nova Sciences.
- Benczúr** L. (2012 – megjelenés alatt). Tudatos és tudattalan motivációs és érzelmi folyamatok. In Bányai É. & Varga K. (Szerk.). *Affektív pszichológia.* Egyetemi tankönyv.

7. Conference and Workshop presentations related to the topic:

- Benczúr** L.; Székely G.; Varga K.; Diószeghy Cs. & Fritúz G. (2004). „És most csak figyelj a légzésedre...”: Pozitív szuggesztiókra épülő kommunikáció a lélegeztetett betegek gyógyításában, Előadás a MPT. XVI. Nagygyűlésén, 2004. Május 27-29. Debrecen
- Benczúr**, L; Mohácsi, Á. & Varga, K. (2005). „Take a nice deep breath – if you can”. Paper presented at the X. European Congress of Hypnosis, Malta/Gozo, September, 17 – 24. 2005.
- Benczúr**, L.; Fritúz, G.; Szilágyi, K.A. & Varga, K. (2006). „Effectivity of positive hypnotic suggestions in the treatment of mechanically ventilated patients”. Paper presented at the XVII. International Congress on Hypnosis, Acapulco, Mexico, August, 21-26. 2006.
- Benczúr** L. (2008). Pozitív szuggesztiók alkalmazása intenzív osztályon fekvő lélegeztetett betegek esetében. Előadás a PPK 5 éves évfordulóján. Budapest, 2008. november 20
- Benczúr** L.; Varga, K ; Fritúz, G.; Szilágyi, K.A. & Diószeghy Cs. (2010). Szuggesztiók az intenzív osztályon. Magyar Pszichológiai Társaság XIX. Országos Tudományos Nagygyűlése. Pécs, 2010. 05. 27-29.
- Benczúr** L. (2011). „Vendég”-szakemberként az intenzív osztályon. Előadás a SASOK (Szuggesztiók A Szomatikus Orvoslásban) képzésen. Budapest, 2011. 11. 05.
- Benczúr** L. (2010). „Vendég”-szakemberként az intenzív osztályon. Előadás a SASOK (Szuggesztiók A Szomatikus Orvoslásban) képzésen. Budapest, 2010. 12. 04.
- Benczúr** L. (2012). Hipnózis, szuggesztiók, módosult tudatállapotok. Előadás a Szintézis Szabadegyetemen, 2012. 01.14.
- Varga K. & **Benczúr** L. (2006). Szuggesztiók a mindennapokban és az orvoslásban. Műhely a Pszinapszis 2006 – X. Budapesti Pszichológiai Napok rendezvényén, Budapest, 2006. március 10-12. *Absztraktkötet, 26.*
- Varga K. & **Benczúr** L. (2007). A szuggesztió, mint érzelmi/társas/információs támasz. Előadás az Illyés Sándor Emléknepok rendezvényén, Budapest, 2007. március 19-21.

8. Supervision of student research related to the topic:

- Barna P. (2007). *Küszöb alatti észlelés és tudat alatti befolyásolás*. Általános Pszichológiai Műhelymunka, Budapest: KGRE.
- Pajkossy P. & Radványi I. (2004). *Poszttraumás stressz-zavar az intenzív osztályon*. Műhelymunka. Budapest: ELTE
- Szabó V. & Ádám K. (2007). *Szuggesztió hatása a fájdalomélményre a fogorvosi kezelésben*. Műhelymunka. Budapest: KGRE.
- Szász O. & Lakatos Hajnalka (2004). *Intenzív osztályon kezelt betegek élményeinek vizsgálata*. Műhelymunka, Budapest: KGRE.
- Szlávik-Keller H. (2011). *A pszichológia szerepe a fogászati fájdalomcsillapításban. A vizuális szuggesztiók szerepe*. Szakdolgozat. Budapest: KGRE.

9. References of the Theses

- Baker, C. & Melby, V. (1996) An investigation into the attitudes and practices of intensive care nurses towards verbal communication with unconscious patients. *Journal of Clinical Nursing*, 5, (3), 185 – 192.
- Barsky, A.J.; Saintfort, R.; Rogers, M.P.; Borus, J.F. (2002). Nonspecific medication side effects and the nocebo phenomenon. *JAMA*, 287, (5), 622–627.
- Bejenke, C.J. (1996a). Painful medical procedures. In Barber, J. (Eds.) *Hypnosis and suggestion in the treatment of pain*. (pp. 209–265). NY. London: W.W. Norton and Company.
- Bejenke, C.J. (1996b). Preparation of patients for stressful medical interventions. Some very simple approaches. In Peter, B. és mtsai. (Eds.). *Munich lectures on hypnosis and psychotherapy*. Munich: M.E.G. Stiftung. 27–36.
- Benczúr L. & Mohácsi Á. (2005). Intenzív osztályon kezelt betegek élményeinek vizsgálata. *Alkalmazott Pszichológia*, VII, (2). 21–37.
- Benczúr, L; Mohácsi, Á. & Varga, K. (2005). „Take a nice deep breath – if you can”. Paper presented at the X. European Congress of Hypnosis, Malta/Gozo, September, 17 – 24. 2005.
- Bennun, I. (2001). Intensive care unit syndrome: a consideration of psychological interventions. *British Journal of Medical Psychology*, 74, 369–377.
- Blankfield, R.P. (1991). Suggestion, relaxation and hypnosis as adjuncts in the care of surgery patients: A review of the literature. *American Journal of Clinical Hypnosis*, 33, (3). 172 – 186.
- Bonke, B.; Fitch, W. & Millar, K. (1990). *Memory and awareness in anesthesia*. Amsterdam: Swets & Zeitlinger.
- Cheek, D.B. (1969). Communication with the critically ill. *American Journal of Clinical Hypnosis*, 12, 75–85.
- Cochran, J. & Ganong, L.H. (1989). A comparison of nurses’ and patients’ perceptions of intensive care unit stressors. *Journal of Advanced Nursing*, 14, 1038–1043.
- Criner, G.J. & Isaac, L. (1994). Psychological problems in the ventilator-dependent patient. In Tobin, M.J. (1994) (Ed.). *Principles and practice of mechanical ventilation*. New York: McGraw Hill. 1163–1172.
- Cropp, A.; Woods, L.; Raney, D. & Bredle, D. (1994). Name that tone: the proliferation of alarm sin the intensive care unit. *Chest*, 105, 1217–1220.
- Diószeghy Cs. & Péntes I. (2003). Kommunikáció az intenzív osztályon: a kritikus állapotú beteg psychés vezetése. In Péntes I. & Lencz L. (Szerk.). *Az aneszteziológia és intenzív terápia tankönyve*. (pp. 571–574). Budapest: Alliter Kiadó és Oktatásfejlesztő Alapítvány.

- Eberhart, L.H.; Döring, H.J.; Holzrichter, P.; Roscher, R. & Seeling, W. (1998). Therapeutic suggestions given during neurolept-anaesthesia decrease post-operative nausea and vomiting. *European Journal of Anaesthesiology*, 15, 446–452.
- Ewin, D.M. (2005). *Burn*. Workshop presented at the X. European Congress of Hypnosis, Malta/Gozo, September, 17 – 24. 2005.
- Ewin, DM. (2011). A hipnotikus szuggesztiók törvényei. In Varga K. (szerk.) *A szavakon túl. Kommunikáció és szuggesztió az orvosi gyakorlatban*. (pp. 100-107). Budapest: Medicina.
- Grady, K.L. (2001). Beyond morbidity and mortality: Quality of life outcomes in critical care patients, *Critical Care Medicine*, 29, (9), 1844–1846.
- Griffith, R.D. & Jones, C. (2005). Delirium and confusion: more than ICU-syndrome. In Ridley, S. (Ed.). *The Psychological Challenges of Intensive Care*. Oxford: Blackwell Publishing Ltd. 28–39.
- Heron, W. (1957). The pathology of boredom. *Scientific American*, 196, 52–56.
- Jakubovits E. (2005). Információfeldolgozás általános anesztézia alatt. *Alkalmazott Pszichológia VII.*, 74–88.
- Jakubovits E. (2006). A hipnózis alkalmazása az anesztéziában. In Vértes G. (Szerk.). *Hipnózis–hipnoterápia*. Budapest: Medicina. 123–143.
- Jakubovits E.; Janecskó M. & Varga K. (1998). Műtét előtti-alatti szuggesztiók hatása a betegek posztoperatív állapotára, *Aneszteziológia és Intenzív Terápia*, 1, 3 – 9.
- Jakubovits E.; Janecskó M.; Varga K.; Diószeghy Cs. & Péntes I. (2005b). A műtét előtti pszichés felkészítés és a narkózis alatti pozitív szuggesztiók hatékonysága a perioperatív időszakban. In Varga K. (Szerk.). *Szuggesztív kommunikáció a szomatikus orvoslásban*. (pp 401 – 419.). Budapest: Országos Addiktológiai Intézet.
- Jelicic, M.; Bonke, B. & Millar, K. (1993). Effect of different therapeutic suggestions presented during anaesthesia on post-operative course. *European Journal of Anaesthesiology*, 10, 343–347.
- Kekecs Z. & Varga K. (2010). Pozitív szuggesztiós technikák a szomatikus orvoslásban. *Orvosi Hetilap*, 152, (3), 96–106.
- K. Szilágyi, A.; Diószeghy, Cs.; Benczúr, L. & Varga, K. (2007). Effectiveness of psychological support based on positive suggestion with the ventilated patient, *European Journal of Mental Health*, 2, 149 – 170.
- Kulcsár Zs. (2005). A társas interakciók pszichológiai hatásai és agyi mechanizmusai. Egy hipotézis körvonalai. Társas támogatás. In Kulcsár Zs. (Szerk.). *Teher alatt... Pozitív traumafeldolgozás és poszttraumás személyiségfejlődés*. (pp. 315–394.). Budapest: Trefort.
- Leigh, J.; Walker, W.L. & Fowler, K.T. (1973). Effect of hypnotic suggestions on the respiratory response to transient CO₂ breathing in man. *Respiration Physiology*, 19, 210–220.
- Ludwig, A.M. (1966). Altered states of consciousness. In: Tart, C.T. (Ed.). *Altered states of consciousness*. New York: Doubleday.
- Maroof, M. Moied, A.S.; Khan, R.M.; Bano, S. & Haque, A.W. (1997). Positive suggestion during surgery reduces post hysterectomy emesis. *Canadian Journal of Anaesthesia*, 44, 227–230.
- Merikle, P.M. & Dahneman, M. (1996). Memory for Unconsciously Perceived Events: Evidence from anesthetized patients. *Consciousness and Cognition*, 5, 525–541.
- Mohácsi Á. (2005). *Az intenzív osztályos kezelés lelki hatásai*. Szakdolgozat. Budapest: ELTE.
- Mohta, M.; Sethi, A.K.; Tyagi, A. & Mohta, A. (2003). Psychological care in trauma patients. *Injury*, 34, 17–25.

- Pennock, B.E.; Crawshaw, L.; Maher, T.; Price, T. & Kaplan, P.D. (1994). Distressful events in the ICU as perceived by patients recovering from coronary artery bypass surgery. *Heart and Lung*, 23, 323–327.
- Pénzes I. & Lorx A. (Eds.) (2004). *A lélegeztetés elmélete és gyakorlata*. Budapest: Medicina.
- Put, C., Van den bergh, O., Van Ongeval, E., De Peuter, S., Demedts, M. & Verleden, G. (2004). Negative affectivity and the influence of suggestion on asthma symptoms. *Journal of Psychosomatic Research*, 57, 249–255.
- Ramsay, M.A.; Savege, T.M. & Simpson, B.R. (1974). Controlled sedation with alphaxalone-alphadolone. *British Medical Journal*, 2, (920) 656–659.
- Riker, R.R.; Simmons, L.E. & Prato, B.S. (1998). Assessing sedation levels in mechanically ventilated ICU patients with the bispectral index and the sedation-agitation scale. (Abstr.) *Critical Care Medicine*, 26(1), A94.
- Rotondi, A.J.; Chelluri, L.; Sirio, C.; Mendelsohn, A.; Schulz, R.; Steven, B.; Kelly, I.; Donahoe, M. & Pinsky, M.R. (2002). Patient's recollections of stressful experiences while receiving prolonged mechanical ventilation in an intensive care unit. *Critical Care Medicine*, 30, (4), 746–752.
- Rundshagen, I.; Schnabel, K.; Wegner, C. & Schulte am Esch, J. (2002). Incidence of recall, nightmares, and hallucinations during analgosedation in intensive care. *Intensive Care Medicine*, 28, 38–43.
- Russell, S. (1999). An exploratory study of patients' perceptions, memories and experiences of an intensive care unit, *Journal of Advanced Nursing*, 29, (4), 783–791.
- Seligman, M.E.P. (1975). *Helplessness*. San Francisco: Freeman.
- Schelling, G; Stoll, C.; Haller, M.; Briegel, J.; Manert, W.; Hummel, T.; Lenhart, A.; Heyduck, M.; Polasek, J.; Meier, M.; Preus, U.; Bullinger, M.; Schüffel, W. & Peter, K. (1998). Health-related quality of life and posttraumatic stress disorder in survivors of the acute respiratory distress syndrome. *Critical Care Medicine*, 26, (4), 651–659.
- Topf, M. (2000). Hospital noise pollution: an environmental stress model to guide research and clinical interventions. *Journal of Advanced Nursing*, 31, (3), 520–528.
- Unestahl, L.E. (1981). *Inner mental training*. Örebro: Veje publishing.
- Van de Leur, J.P.; Van der Schans, C.P.; Loef, B.G.; Deelman, B.G.; Geertzen, J.H.B. & Zwaveling, J.H. (2004). Discomfort and factual recollection in intensive care unit patients. *Critical Care*, 8, R467–R473.
- Varga K. (1989). *A módosult tudatállapotok jelentősége az általános tudatfelfogásban*. TMB Pályamunka, kézirat.
- Varga K. (1998). Szuggesztív hatások az orvosi gyakorlatban, különös tekintettel a perioperatív időszakra. *Psychiatria Hungarica*, 13(5), 529–540.
- Varga K. (2008). Tudatzavarok és megváltozott tudatállapotok. In Kállai J.; Bende I.; Karádi K. & Racsmány M. (Szerk.). *Bevezetés a neuropszichológiába*. (pp. 419–463.). Budapest: Medicina Kiadó.
- Varga K. & Benczúr L. (2007). A szuggesztió, mint érzelmi/társas/információs támasz. *Előadás az Illyés Sándor Emléknapok rendezvényén*, Budapest, 2007. március 19-21.
- Varga K. & Diószeghy Cs. (2001). *Hűtésbefizetés, avagy szuggesztiók alkalmazása az orvosi gyakorlatban*. Budapest: Pólya kiadó.
- Varga K. & Diószeghy Cs. (2004a). A lélegeztett beteg pszichés vezetése. In Pénzes I. & Lorx A. (Szerk.). *A lélegeztetés elmélete és gyakorlata*. (pp. 817–824.). Budapest: Medicina.
- Varga K. & Diószeghy, Cs. (2004b). A szuggesztió jelentősége az orvos-beteg kommunikációban. In Pilling J. (Szerk.). *Orvosi kommunikáció*. (pp. 251–260.) Budapest: Medicina.

- Varga, K.; Diószeghy, Cs. & Fritúz, G. (2007). Suggestive communication with the ventilated patient. *European Journal of Mental Health*, 2, 137–147.
- Varga, K., Jakubovits, E. & Janecskó, M. (1995). A tudatállapot általános anesztézia alatt. *Magyar Pszichológiai Szemle*, LI. (35), 1-2. 58–82.
- Wong, F.Y.K. & Arthur, D.G. (2000). Hong Kong patients' experiences of intensive care after surgery: nurses and patients' views. *Intensive and Critical Care Nursing*, 16, 290–303.