

Clinical Evaluation of the Effectiveness of the MSI-BA Method in the Management of Acute Stress in Cameroon

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Abstract

Initially designed as part of the prevention of post-traumatic stress disorder, we used the Memory Structuring Intervention (MSI) method, one of the most recent Cognitive-Behavioral Therapies, in the management of the state of acute stress. To assess its effectiveness in this context of acute stress, we used a repeated measurement technique to compare the averages. The results show that this technique has a significantly positive effect on the management of the symptoms of the state of acute stress.

Keywords: Memory Structuring Intervention (MSI); Acute Stress; Behavioral Activation (BA)

Introduction

Psychotherapies: evaluative approaches

According to Hill and Lambert (2004) [1], studies on psychotherapies focus either on their effect or effectiveness, or on the psychic processes developed or solicited, or mechanisms of change at work. For Thurin (2009) [2], recent studies in recent years have refocused on the study of processes by trying to answer the questions: "Why and how" does psychotherapy work (does it act)? This refocusing on the study of processes represents a considerable shift in the research paradigm (Gelin, Denis, Livémont and Hendrick 2013) [3]. For these authors, in this new perspective, it is no longer a question of demonstrating the effectiveness of one or more therapeutic "capsules" as is the case in the evidence-based medicine model, but rather of try to understand the processes at work throughout the therapy. Elliott (2010) [3] emphasizes that researchers are therefore trying to get out of the cause/effect research posture by getting closer to the clinic and trying to specify the quality of the "therapy and change" link. However, for a new

psychotherapeutic technique, it would always be ideal to start by testing its effectiveness, to be sure that there is a process of change behind it.

In 2019, a team from WELL-BEING FOR ALL, MENS SANA and the University of Yaoundé 1 provided training for around fifty people, made up of clinical psychologists and Master's students in clinical psychology, working in the department of psychology from the University of Yaoundé 1, to a memory structuring technique called Memory Structuring Intervention (MSI) and Behavioral Activation (BA). A group of laureates of this training have given themselves as their first involvement, to evaluate the effectiveness of this new technique.

Memory structuring intervention (MSI) and Behavioral activation (BA): foundations

Empirical foundations

In fundamental and pioneering research of Memory Structuring Intervention (MSI), referring to therapeutic studies revealing

positive prognostic factors and on works revealing how trauma is managed, Gidron., *et al.* published a study in 2001, where they are developing memory patterning (MSI) in an attempt to prevent post-traumatic stress disorder (PTSD). According to the authors, "MSI attempts to shift the processing of traumatic memory from uncontrollable somatosensory and affective processes, to more controlled linguistic and cognitive processes, by providing patients with organization, labeling and causality" (Gidron., *et al.* 2001, 773) [4]. In this randomized, single-blind pilot study, 17 traffic accident victims at risk for PTSD (heart rate >94 BPM) were assigned to two MSI or two supportive listening control sessions. Three months later, patients with MSI reported less frequent intrusive symptoms, excitement, and total PTSD than controls. A replica study with a larger sample is in progress [4].

Gidron., *et al.* in 2007 [5], duplicated the effects of a memory patterning intervention (MSI), and the moderating role of gender, in relation to symptoms of post-traumatic stress disorder (PTSD). In a sample of thirty-four traffic accident victims, with elevated pulses, were randomly assigned to MSI, or supportive (monitoring) telephone conversations shortly after the accidents. Referring to clinical and neuroscientific studies, MSI teaches chronological organization, labeling of emotions/sensations and description of causality. The authors reassessed the symptoms of PTSD three months later. The results showed no overall difference between the groups. However, the sex-ratio variable showed that, for women, MSI was associated with a reduction in PTSD symptoms than the control treatment, while the opposite pattern was seen in men. According to the authors, the limitations and possible explanations of these results are questionable.

In view of the results of the previous study, the MSI method will undergo an improvement to correct the shortcomings induced by the gender factor. It is in this sense that vagal breathing (VB, vagal breathing) will be added. The MSI-VB will prove to be more effective, and will overcome the limits of effectiveness identified by the gender factor (Gidron., *et al.* 2018) [6]. A new behavioural technique that has been associated with MSI, namely vagal breathing, complements the statement by Learman., *et al.* (2013) [7], who assert that the future of PTSD prevention relies on the consideration of biological markers, pharmacotherapy and exposure psychotherapies.

Theoretical foundations: cognitive-behavioural approach

MSI-VB theoretically falls into the category of cognitive-behavioural therapy (CBT). This is the main psychological approach these days. It is centered on the use of the techniques of behavioural psychology (conditioning) and those of cognitive psychology (learning). Therefore, MSI-VB uses conditioning and learning techniques to prevent PTSD. It will later be called MSI-BA, because vagal breathing (VB) is located in the axis of behavioural activation of cognitive-behavioural therapies.

Study context

The effectiveness of the MSI-BA method on the prevention of PTSD is certainly based on the ability of this technique to deal with the state of acute stress. In the general adaptation syndrome (GAS), the alarm reaction phase corresponds to the state of acute stress. Theoretically, early management of anxiety manifestations, in a person who has experienced a traumatic event, would reduce the duration and intensity of this phase, which would cause less long-term damage. It is in this perspective that the present study is given, to measure the level of the effectiveness of the MSI-BA method on the management of the state of acute stress (ESA). It is not a question of whether the different stress reactions are adapted or not, but of how much MSI-BA modifies the concomitant stress reactions. Because the body's reaction to stress takes more account of the subject's interpretation of the situation than the situation itself, allows us to take subjects from different situations, and at different times. This is the overall assessment of the patient, or the person exposed to a physiologically and psychologically disabling traumatic situation. These are more specifically signs and symptoms such as: cardiac arrhythmia, gastric pain and disorders, myalgia, tension headaches, feeling of internal tension induced by the variation in blood pressure, disturbance of vigilance, perceived suffering and psychological anguish., etc.

Methodology

Sampling

The subjects are patients received at the psychology department of the Henri Pieron Integrative Medico-Psychological Center in Yaoundé (CMPI-HP) and at the DOH'S Medical Center clinic. The different reasons for consultations are: diagnosis of a "serious" illness or infection (Covid-19, HIV, Cancer), abrupt romantic

breakup, sudden death of a loved one, sudden dismissal, leaving a long-term imprisonment, discovery of partner deception, financial fraud. The main inclusion criteria are that the subject must be an adult (at least 18 years old), and have requested an emergency consultation, because we must be reassured that the patient is in a state of acute stress of severe intensity. Patients who made an appointment are directly excluded from the study. Since the objective is to measure the effect of MSI on the state of acute stress, it is essential that the subject is in the first moments of his stress. This allows us to reassure ourselves that the organism is still in the phase of the alarm reaction. A sample of 46 (28 women and 18 men) patients was drawn up over a period of 16 months, from May 2020 to August 2022, with an average age of 28 years.

Data collection technique and protocol

The data collection was carried out by the directive research interview. During the consultation, the patient (i), presenting a state of acute stress of severe intensity, was led to estimate, before the application of the MSI (MSI-VB), his level of stress (score 1), on a Licher-type scale, ranging from 1 (minimum) to 10 (maximum), and to verbalize their suffering in terms of perceived signs and symptoms. This same evaluation was requested at the end of the application of the MSI technique (score 2). The two scores (1 and 2), collected by the subject’s self-assessment of his stress level, were recorded in a double-entry table ().

Data analysis technique

Being in a situation of repeated measurements of the same mean, we used a hypothesis test relating to the comparison of two means when the observations are paired. This is Student’s t for repeated measures, in a large sample.

Analysis of Results

Assumptions and characteristics of the sample

- Research hypothesis (Hr): MSI-VB is effective in the management of acute stress.
- Alternative hypothesis (Ha): the average level of stress before the application of the MSI-VB is higher than that after (Ha:)
- Null hypothesis (Ho): the average stress level before the application of the MSI-VB is less than or equal to that after (Ho:)
- n=46; ddl=n-1=45; α=0,5

Values (critical and calculating) of t and statistical decision

i ₁	10	i ₁₁	10	i ₂₁	9	i ₃₁	10	i ₄₁	8
	5		5		5		3		3
i ₂	8	i ₁₂	10	i ₂₂	10	i ₃₂	9	i ₄₂	7
	4		4		4		5		2
i ₃	7	i ₁₃	10	i ₂₃	10	i ₃₃	10	i ₄₃	9
	3		5		6		7		2
i ₄	9	i ₁₄	9	i ₂₄	10	i ₃₄	10	i ₄₄	10
	3		5		4		4		8
i ₅	10	i ₁₅	8	i ₂₅	8	i ₃₅	8	i ₄₅	10
	4		2		5		3		9
i ₆	8	i ₁₆	10	i ₂₆	10	i ₃₆	10	i ₄₆	8
	5		4		3		5		5
i ₇	10	i ₁₇	10	i ₂₇	9	i ₃₇	7	Σ _{n=1} ⁴⁶ n = 46	□
	6		5		4		5		
i ₈	10	i ₁₈	9	i ₂₈	7	i ₃₈	8	Σ _{s=1} ² s = 2	□
	8		3		3		6		
i ₉	10	i ₁₉	10	i ₂₉	10	i ₃₉	10	Σ _{s=1} ² s = 2	□
	5		6		6		4		
i ₁₀	10	i ₂₀	10	i ₃₀	10	i ₄₀	9	Σ _{s=1} ² s = 2	□
	4		7		4		5		

Table 1

t_{cal} = $\frac{\bar{d}}{s_d/\sqrt{n}}$ With:

d, difference between score 1 and score 2

\bar{d} , Average of the sum of the differences of scores 1 and 2

$\bar{d} = \frac{\sum_1^{46} (s_1 - s_2)}{n}$

S_d, (Square root of the sum of the differences of the squared deviations)/ddl

$S_d = \sqrt{\frac{\sum (d - \bar{d})^2}{n - 1}}$

Parameter	Calculation formula	Numerical value
\bar{d}	$\frac{\sum_1^{46} (s_1 - s_2)}{n}$	4,63
S _d	$\sqrt{\frac{\sum (d - \bar{d})^2}{n - 1}}$	1,38
t _{cal}	$\frac{\bar{d}}{s_d/\sqrt{n}}$	23,15
t _{lu} =	n = 46; <u>ddl</u> = n - 1 = 45; α = 0,5	1,68

Table 2

Figure 1

The hypothesis being unidirectional to the right, with $t = 1,68$ means that t is in the rejection zone of H_0 . Consequently, the H_0 hypothesis is rejected, and H_a accepted.

Based on these results, we can conclude with 95% certainty that MSI-VB significantly reduces the stress level in the patient with an acute stress condition.

Discussion and Conclusion

The results of this study show that MSI-VB significantly reduces the level of stress perception in people in a state of acute stress. This is the level of stress perceived by the subject in a state of acute stress. This reduction passes, by the reduction of the symptoms and signs of the acute stress, perceived by the subject. These results are in line with several studies such as Gidron., *et al.* [5], who study the effect of MSI-VB on, and especially Gidron., *et al.* [6], who showed that by reducing the level of acute stress in patients, MSI-VB contributes to the prevention of PTSD in them. The objective of this study was not to evaluate the effectiveness of MSI-VB in the prevention of PTSD such as the previous related studies, but to evaluate the effect of this technique on the direct and immediate care of the person in a state of acute stress, in the here and now. The present study, conducted in a cultural context different from that in which other studies (Gidron., *et al.*), [5-7] on MSI were conducted, makes it possible to guarantee homogeneity on future general conclusions on this new technique or less new. The results of this study make it possible to confirm with a degree of certainty of 95% that the MSI-BA technique is effective in the treatment of the state of acute stress, and therefore, shows itself as a solution for the premise in care of victims of small and large-scale disasters, due to simplicity and efficiency.

Link of Interest

American Institute for Interdisciplinary Research (AIIR).

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