The Unifying Creative-Meditation Technique and physiological measurement of anxiety in Romanian Amateur Drivers

Laurentiu Mitrofan, Mihaela Chraif, Florinda Golu, Emil-Razvan Gatej*

University of Bucharest

Abstract

Nowadays, road accidents are very frequent. Anxiety plays an important role in traffic safety. In this study, we tried to prove that the Unifying Creative-Meditation Technique has a beneficial effect on anxiety which was measured through physiological parameters. The participants were 30 drivers (for the experimental group) and 30 drivers (for the witness group) that have been selected from our Department’s students. The subjects had been part of the experimental group were asked to have the driving license for minimum one year.

Results: The research was conducted on a period of two months and the results were tested using SPSS statistical analysis program by applying the T test procedure for testing the mean of the experimental and the witness group.

Conclusions: Considering this results we can say that the Unifying Creative Meditation Technique have a significant effect on reducing drivers anxiety all this reflecting on a high level on safety and performance in driving.

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*Corresponding author.
E-mail address: emilrgatej@gmail.com
1. Introduction

Fearful behaviour concern either advantages (it ensures the thorough analysis of traffic situations, promotes compliance with traffic rules and regulations, prevents hazards tendencies in performing dangerous maneuvers, promotes the adoption of preventive management model) or disadvantages as risk awareness, increased tension, promotes disruption and abandonment attitude regarding difficult tasks, maintains self insecurity and fear all while driving, promotes disorientation and panic in critical, unpredictable situations (Leaf, 1975).

Physiological changes that occur after the powerful manifestation of anxiety can make a person suffering from such disorders to consider that they suffer from certain diseases or that these symptoms are physiological, but they are only the of the manifestation of anxiety. Certain maneuvers or situations can be characterized by anxiety, a feeling that often leads to impaired decisions and committing of errors that lead to incidents or accidents. Statistics show that driving anxiety presents itself more in women than in men, so training to become a driver, amateur or professional, these data should be included in special training programs. Treatment of these manifestations is usually done through gradual exposure to fear, experience fear without running the event, thus producing desensitization.

Therapeutic support and therapeutic analysis are extremely necessary in these cases. Experiential therapy suggests original intervention methods based on individual experience, enabling their resources and coping methods. Thus creative meditation therapy becomes an effective way in the treatment of these symptoms (Ehlers et al., Al., 1994). There was a tendency to conceptualize fear of driving, as a problem that is not always the result of traffic accidents (MVA), which is manifested in different types of severity of symptoms. In addition to the fear of having an accident or a panic attack while driving, some authors have reported social anxiety as another specter of fear, especially the fear regarding performance on the grounds of being criticized or negatively evaluated (Taylor, Deane, & Podd, 2006).

This study indicates that fear of driving is susceptible to treatment, requiring more concentration to find new methods of treatment and increasing their effectiveness, given the increasing volume of situations depicting fear of driving as a problem of high severity. Understanding the clinical characteristics of anxiety and phobias associated to driving has grown significantly in the '80s research. Therapeutic intervention focused on a person with panic attacks or agoraphobia disorder is totally different from intervention aimed at people who have always had a fear of driving. In this case, the relevance of the data must take into account the subject's personal history in terms of management, the context in which they learned to drive and got their driving license and the specific circumstances in which anxiety is manifested stronger and accidents that the individual has had. Therapeutic intervention in the case of driving anxiety must be nuanced and tailored to the individual casuistry, to the variables mentioned above, but also suitable to certain specific maneuvers’ aspects in relation to which various issues may arise (Taylor, Deane, & Podd, 2006).

In 2000, the authors of the above study, Taylor, Deane, & Podd, they reported in a research the fact that there is no significant correlation between driving anxiety and accidents, they also revealed that in the history of those investigated (N = 190) there is rather a correlation between what age one get’s the driving license and driving anxiety related problems.Subjects who obtained the permit before the age of 21 years exhibited speeding problems, while those who had obtained the right of driving later manifested problems in performing certain traffic maneuvers (Taylor, Deane, & Podd, 2000). In the laboratory of Traffic and Transportation Psychology there were many experimental validation studies as Schuhfried, Sommer, Anitei, & Chraif, (2010) used time reaction test, determination test, tachistoscopic test, inductive reasoning test and cognitrone test for an experimental validation study having external criteria the traffic performances scale; Schuhfried, Anitei, Chraif, (2010) introduced and visiotest-campit with reaction time test, determination test, cognitorne test, inductive reasoning test and tachistoscopic test in order to validate experimentally a possible driver testing battery, Anitei, Chraif, Schuhfried, & Sommer, (2011) validated on a representative sample Romanian population (352 people, age between 18-71 years old) the Expert System Traffic psychological assessment based from previous experimental studies on smaller samples. Niciulicea, (2010) applied an experimental design concerning the self-perception aggression in traffic simulation task on Romanian roads in Prahova valley, Sârbescu, (2013) investigated the psychometric properties of the Displaced Aggression Questionnaire on a Romanian students sample, Gâtej (2013a) highlighted the disturbing factors of dynamics that interfere with driving the car, Ioana, Chraif & Anitei (2013) highlighted the effects of cell phone
conversations during driving, Gâtej (2013b), make a theoretical analysis on studies about driving anxiety from the view of experimental research.

2. Objectives and Hypotheses

2.1. Objectives

In this study we are trying to prove the effect of the UCM technique on reducing drivers’ anxiety and to reveal a link between reducing anxiety and improving performance.

2.2. Hypothesis

There are differences in the level of anxiety measured from a physiologically point of view, as a consequence of a training program based on the meditative-unifying model and computer simulation.

3. Research Methods

3.1. Participants

The participants were 30 drivers (for the experimental group) and 30 drivers (for the control group) that have been selected from our students’ department.

3.2. Instruments

3.2.1. STAI state-trait anxiety inventory was developed by Spielberger in 1968. It consists of two self-assessment scales for measuring two distinct concepts regarding anxiety: state anxiety (A-state) and trait anxiety (A-trait) (Spielberger, Gorsuch & Lushene, 1970).

Scale Y-1 feature consists of 20 descriptions (example: I feel calm, I feel secure) on which people express how they feel in general on a scale of 1-5 where (1-almost never; 5-almost always). Scale Y-2 state also has 20 descriptions (example: I feel pleasant, I feel rested) but the instructions require the subjects to indicate how they feel at a given moment on a scale of 1-5 where (1-almost never, 5-almost always). Researchers can use the A-state to determine current levels of anxiety induced by stressful experimental procedures or as an indicator of the level of self-control (Spielberger, Gorsuch & Lushene, 1970).

3.2.2. Measurement of physiological parameters such as blood pressure and pulse rate was done using a semi-professional BALANCE KH-8099 Digital Blood Pressure Monitor device as well as a professional MAC Sphygmomanometer device, mounted on a simulation device built to carry out this research.

3.3. Procedure

The participants were 30 drivers (for the experimental group) and 30 drivers (for the control group) that have been selected from our students department. The subjects of the experimental group were required to have a driving license for minimum one year.

4. Result

Anxiety is a phenomenon likely to psychologically and physiological influence the quality of driving a vehicle. The interposition of anxiety while performing maneuvers or in situations that a driver is forced to manage can lead
to impaired decisions and commitment of errors cause a high risk status. This parameter is manifested in a very wide range of values in relation to the activity of driving, being equally present in the minor elements in carrying out this activity, but can also take phobic valences (Marks, 1987).

Tabel 1. Mean and standard deviation for the all variables of study (AV1, AV2, TA sys1, TA sys2, TAdia1, TAdia2).

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>AV 1</td>
<td>90,4</td>
<td>11</td>
</tr>
<tr>
<td>AV 2</td>
<td>69,5</td>
<td>7,06</td>
</tr>
<tr>
<td>TA sys1</td>
<td>128</td>
<td>18,97</td>
</tr>
<tr>
<td>TA sys2</td>
<td>105</td>
<td>10,80</td>
</tr>
<tr>
<td>TAdia1</td>
<td>80,30</td>
<td>9,64</td>
</tr>
<tr>
<td>TAdia2</td>
<td>60,10</td>
<td>6,98</td>
</tr>
</tbody>
</table>

AV1= heart rate 1; AV2= heart rate 2; TA sys1= arterial pressure 1; TA sys2= arterial pressure 2; TAdia1= diastolic arterial pressure 1; TAdia2= diastolic arterial pressure 2.

The parameter "ventricular rate" was measured during the development of the program on the simulator only if the case of the experimental sample, obtained values being compared during the first simulation session of the first meeting and those obtained in the last simulation session of the last meeting. The relevance of these measurements is relative, given the complexity of the variables which may determine cardiac operation and the fact that we are dealing with a sequential measurement, and not a continuous one. However, taking into account the methodology and experimental limits of the measurement of this parameter, there is a significant difference between the two sets of values.

Table 2. Independent t test and paired t test for the studied hypotheses

<table>
<thead>
<tr>
<th>Variable</th>
<th>M1</th>
<th>M2</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>AV1-AV2</td>
<td>44,5</td>
<td>53,5</td>
<td>-4,50</td>
<td>.001</td>
</tr>
<tr>
<td>TA sys1-TA sys2</td>
<td>128</td>
<td>105</td>
<td>2,58</td>
<td>.014</td>
</tr>
<tr>
<td>TAdia1-TAdia2</td>
<td>80,30</td>
<td>60,10</td>
<td>3,69</td>
<td>.005</td>
</tr>
</tbody>
</table>

AV1= heart rate 1; AV2= heart rate 2; TA sys1= arterial pressure 1; TA sys2= arterial pressure 2; TAdia1= diastolic arterial pressure 1; TAdia2= diastolic arterial pressure 2.

Given the results shown above, the research hypothesis which assumes improvements in the effectiveness of attention in the case of taking part in a training program based on unifying creative meditation is accepted for a sample of 80 subjects. Results on the "anxiety-trait" scale were significantly improved after attending the training program based on meditation and creative computer simulation (M1 = 44.5, M2 = 53.5, t = -4.50 p <0.05). The data presented in the tables and graph above do not lead to the acceptance of the hypothesis of the existence of significant differences in systolic contextual blood pressure during computer simulation in the test cabin, tested at the beginning of the experiment and after the workout based on MCU and SC.

In other words, strictly in this experimental context we can not consider a significant decrease in this parameter, an optimization physiological level might be due largely to the proposed training. However, we must talk about a number of limitations of this difference, which can be expressed by the influence of variables beyond the experimental control such as familiarity with the environment and context of research, resulted in a small difference between the two data sets. This hypothesis is not supported on a sample of 80 subjects (M1 = 105 mmHg, M2 = 128 mmHg, t = 2.58, p = 0.014) We can see, however, regarding the two areas, a difference of 23 mmHg, possibly due to the training process. Having an increased effect size, it can be safely infirm this contextual hypothesis.

Considering the results obtained above, the hypothesis that anxiety described by diastolic blood pressure will decrease to optimal physiological functioning limits accepted for a sample of 80 subjects. Measurements made at the beginning and end of the workout, statistically support this assertion (M1 = 60.10 mmHg, M2 = 80.30 mmHg, t = 3.69, p = 0.05).
Blood pressure is a physiological indicator of great interest in modern research. Although there are a number of normal oscillations throughout the day, high levels of blood pressure may reflect a clear level of stress and anxiety. Measurements made by us in this research were based on the assumption of the existence of proportional increases (to limit pathological) of the blood pressure proportionally to the stress levels experienced during the course of driving. Similar to the "white robe" syndrome (high blood pressure in the presence of a healthcare professional), we can speak of an increase of this parameter in people exhibiting a high level of anxiety in relation to the context and the activity of driving a car when put in that situation.

The training we proposed in this research, through its’ deeply realistic component, running parts of the sessions inside the real interior of a car, but also through the MCU intervention technique over the subjects’ psyche had in view a multidirectional intervention, oriented towards making the individual to easily and safely perform this activity.

5. Conclusion

Driving anxiety sources may be constituted by past events of the individuals’ driving experience as well as by irrational elements came from the experience of others or scenarios they were exposed to. Fear of having accidents, panic attacks during driving, social anxiety manifested by the idea of being criticized or negatively evaluated are some striking manifestations of this phenomenon.

The instrument we propose to investigate this parameter contains a fine deceleration of anxiety as a state and as a trait. As a state, anxiety while driving is expected to be "treated" through gradual exposure and enriching the experience in this activity when it is presented as a state, whereas anxiety as a trait stems to have deeper pathogenic cores, an area that can be reached by particular deep psychological processes.

References


