Archives of Psychiatry and Behavioral Sciences

ISSN: 2638-5201

Volume 2, Issue 2, 2019, PP: 10-21

Gutierrez Questionnaire for Assessments of Patients after Car Accidents

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Abstract

***Background:** The polytrauma pattern exhibited by survivors of car accidents typically includes pain, pain related insomnia, PTSD, post-concussion and whiplash syndrome, depression, generalized anxiety, and driving anxiety. The Gutierrez questionnaire was developed to facilitate assessment of these symptoms in clinical settings and in litigations involving car insurance companies. This study evaluates its psychometric properties, the frequencies of polytrauma symptoms, and correlations among these polytrauma symptoms.*

***Method:** The Gutierrez questionnaire was administered to 100 patients (48 men, 52 women). Their age ranged from 18 to 85 years with the average at 42.4 years, SD=15.9. Their motor vehicle accident (MVA) occurred, on the average, 11.3 months ago (SD=7.7; range 1 to 34 months).*

***Results:** All patients reported some post-MVA pain, 97% reported difficulties falling or staying asleep, all reported some degree of post-concussion syndrome and of whiplash syndrome, 97% also reported generalized anxiety, 88% depression, and all reported some degree of post-MVA driving anxiety. PTSD was suggested by symptoms such as nightmares (52 % of patients), generalized anxiety, and avoidance of driving (84% of patients avoided driving).*

***Discussion and Conclusions:** The results indicate a polytraumatic symptom pattern of post-MVA patients that consists of pain, insomnia, post-concussion syndrome, whiplash syndrome, PTSD, depression, generalized anxiety, and driving anxiety. This pattern can be easily assessed by Gutierrez questionnaire.*

Keywords: *pain, insomnia, PTSD, depression, anxiety, driving anxiety, accident*

Introduction

Clinical experiences suggest that survivors of motor vehicle accidents (MVAs) exhibit a particular symptom pattern that is often missed in the assessments by psychologists, psychiatrists, nurses, or other medical professionals, those without long experience in this special clinical field. The polytrauma pattern of these patients typically includes pain, pain related insomnia, PTSD, post-concussion and whiplash syndrome, depression, generalized anxiety, and driving anxiety. This symptom pattern of post-MVA patients somewhat resembles the polytrauma clinical triad described by Lew's team [1] on the basis of work with US war veterans who sustained mild traumatic brain injuries: these soldiers exhibited (1) pain, (2) the PTSD, and (3) persistent post-concussive symptoms.

Mild traumatic brain injuries of post-MVA patients usually remain undiagnosed [2] unless the symptoms are very severe. Mild to moderate symptoms of cerebral concussion are usually missed by busy emergency physicians, even though an easy rating scale for retrospective assessment of the immediate concussion symptoms has already been published [2]. The post-concussion syndrome of post-MVA patients is present frequently, but also usually remains undiagnosed by family physicians or clinical psychologists, even

though the assessment of subjective psychological post-concussion symptoms has been made easy by the widely available Rivermead Post-Concussion Symptoms Questionnaire [3] that can be completed within a few minutes during the interview with the patient.

Only two decades ago, most experts in sports medicine still denied the widespread presence of cerebral concussions in players of the American football or in boxing: at that time, the opinion leaders in the medical field insisted such sport concussions are too rare to worry about. This fallacious assumption was held by most family physicians and psychologists at that time. Even at present, some doctoral level health professionals still remain unaware that cerebral concussions can occur without visible external head injuries. Such erroneous beliefs were recently challenged by the brilliant neuropathological-histological research by Bennet Omalu [4, 5], a scientist of Nigerian origin, on autopsies of deceased players of American football: his research has demonstrated that cerebral damage occurs without visible external head injuries, without a full loss of consciousness, and often without disrupting the person's capacity to resume, within a few minutes, some simple well practiced tasks (such as those involved in playing football). Microvascular trauma and axonal shearing are involved in such closed head injuries. The sudden acceleration or deceleration of the head is obviously more forceful in MVAs than in the relatively less intense collisions of players in a football game and is thus more likely to cause a temporary or permanent cerebral impairment. The gray and the white parts of the brain slide over each other during impacts such as during an automobile collision due to differential density of the gray and of the white tissue: axonal shearing occurs with subsequent neurotoxicity and the post-MVA patients experience the subjective psychological post-concussion symptoms as listed in the Rivermead scale.

Furthermore, most MVA patients also report subjective psychological symptoms within the whiplash spectrum, i.e., symptoms of injury to the cervical or lumbosacral spine which are usually associated with unrelenting chronic pain and pain related insomnia. These subjectively perceived symptoms include tingling, numbness, relative loss of feeling in some of the limbs or in other parts of the body, tinnitus, impaired balance, hand tremor, etc. These subjectively perceived symptoms within the whiplash spectrum are an important part of psychological medicine and can be relatively easily assessed by clinical psychologists, psychiatrists, other physicians, or by well trained nurses via the recently published Post-MVA Neurological Symptoms (PMNS) scale [6], designed to quantify the neuropsychological symptoms of the whiplash spectrum.

The already mentioned polytraumatriad [1] by Lew's research group, i.e., the triad of pain, PTSD, and post-concussive symptoms, was extended recently by Peixoto's team [7] to studies on post-MVA patients. However, survivors of the MVAs usually clinically show a more extensive symptom pattern than only a symptom triad. As already mentioned, they typically show almost all of the following: pain, insomnia, psychological symptoms within the post-concussion-whiplash spectrum, PTSD, depression, generalized anxiety, and driving anxiety. All these symptoms need to be assessed in post-MVA patients. This may seem to be a daunting or overwhelming task; however, it can be accomplished easily within 20 to 30 minutes if using Gutierrez Post-Accident Questionnaire, see the full text in Appendix 1. It is free for clinical use by professionals, but it is not for public display and must not be reprinted in texts for the lay public. This interview schedule has been developed by Jaime Gutierrez over the last decade, on the basis of interviews with thousands of post-MVA patients. The advantage of Gutierrez questionnaire is that its use prevents leaving some part of symptomatology of a post-MVA patient undiscussed and undetected. Another major advantage is the relatively short time needed to complete the interview with the patient via this instrument.

The present study evaluates the frequencies of the key symptoms reported by patients on this Gutierrez Post-Accident Questionnaire and their intercorrelations.

Materials and Method

The post-MVA symptoms of 100 patients (mean age = 42.4 years, SD = 15.9, age range 18 to 85 years; 48 men, 52 women) were assessed. All were interviewed via Gutierrez Post-Accident Questionnaire (see Appendix 1). Their MVA occurred, on the average, 11.3 months ago (SD=7.7; range 1 to 34 months). All of them contacted a personal injury lawyer because they had either received no compensation by their car insurance company or were advised that there might

be no compensations unless they retain a lawyer. All of them still reported active post-MVA symptoms.

At the moment of their motor vehicle accident (MVA), 69 of the 100 patients were drivers, 24 were passengers, six were pedestrians, and one was a cyclist. Seventy-one were employed and 29 were unemployed or retired at the time of their MVA.

It is noteworthy that 10% of these patients reached or exceeded the usual retirement age of 65, i.e., they probably paid the mandatory car insurance fees for more than four decades.

This study is primarily of an exploratory nature. Unless otherwise indicated in the text, all significance tests are 2-tailed.

Results

The frequencies of the post-MVA symptoms with respect to pain, symptoms within the post-concussion-whiplash spectrum, and sleep symptoms are listed in Table 1. All items in this table are derived from Gutierrez questionnaire and were coded as absent=0 and present=1.

Table 1: *Reported Frequency of Pain, Sleep Symptoms, and of Symptoms in the Post-Concussion and Whiplash Spectrum*

Pain, Post-Concussion, Whiplash, and Sleep Symptoms	Frequencies - % endorsed (N=100)	Item number in Gutierrez questionnaire
Neck pain	93 %	1
Chest pain	37 %	2
Back pain	96 %	3
Shoulder pain	87 %	4
Pain in arms, wrists, hands	59 %	5
Pain in hips, legs, knees	76 %	6
Pain in feet, ankles, toes	37 %	7
Tingling or numbness	83 %	11
Loss of consciousness during the MVA	18 %	16
Tinnitus	60 %	19
Oversensitivity to loud noise	78 %	20
Oversensitivity to bright lights	75 %	21
Dizziness	80 %	22
Headaches	94 %	23
Impaired memory	87 %	25
Impaired concentration	88 %	26
Difficulty multitasking	83 %	27
Nausea	58 %	28
Fatigue	99 %	29
Sleep problems	97 %	33
Nightmares	52 %	35
Anxiety	97 %	38
Irritability	97 %	40
Feeling depressed	88 %	42
Impatient	91 %	48
Social life deteriorated since MVA	97 %	47

Psychometric Characteristics of a Scale Composed of All Items from Table 1

When all items in Table 1 were combined to form a subscale of Gutierrez questionnaire, the Cronbach alpha coefficient of internal consistency for this subscale was .78, i.e., satisfactory. This subscale (with all 26 items scored dichotomously as absent=0, present=1) could be used as a measure of total impact of the MVA on pain, mood, sleep, and symptoms in the post-concussion-whiplash spectrum. In the present study, the scores on this subscale ranged from 9 to 26 with the average of 20.2 points (SD=3.7). More than 90% of the patients endorsed 15 or more of the 26 symptoms listed in this subscale, i.e., as in Table 1.

It is noteworthy that total scores on this 26 item scale were not significantly correlated (r<.20, p>.05) with age, gender, or the number of months since the MVA: all patients in this sample were still reporting intense post-MVA symptoms at the time of their assessment.

Pain Correlations to Other Variables

The items 1 to 7 were summed to form an overall index of pain, based on the number of locations: each location when endorsed counted one point. The score on this index ranged from 2 to 7 points, with the average at 4.9 (SD=1.3). When item 23, i.e., the headaches, was also added to the overall pain index, the total pain score ranged from 3 to 8 points, with the average at 5.8 (SD=1.4).

Scores on this 8 item pain index were correlated to reports that the patient's social life has deteriorated since the MVA (r=.32, p=.001), feeling depressed (r=.30, p=.002), experiencing nausea (r=.28, p=.004), numbness and tingling (r=.26, p=.009), oversensitivity to bright lights (r=.25, p=.011), tinnitus (r=.23, p=.020), memory problems (r=.20, p=.045), and age (r=.20, p=.045).

Pain related limitations of daily activities can be quantified by adding the patient's responses to all individual sections of item 14, that is, counting one point for each endorsed activity of those seven listed in this item, i.e., walking, climbing, bending, lifting, prolonged standing, prolonged sitting, or reaching out for objects (see item 14 in Gutierrez questionnaire in Appendix). In this study, the average score on this index of physical limitations was 6.6 (SD=1.3), and the scores in this particular sample ranged from 0 to 7. This index of limitations of daily activities correlated significantly with reports of fatigue (r=.36, p<.001), deterioration of social life (r=.36, p<.001), depression (r=.33, p=.001), and the total pain score calculated as the sum of pain locations listed in items 1 to 7, and also headaches as per item 23 (r=.25, p=.012).

Of clinical interest is the variable based on the item 24 which indicates on how many days out of seven days of the week the headaches occurred. The mean score in this sample was 3.8 (SD=2.2) and the observed range was 0 to 7. This variable was inversely correlated with numbers of sleep hours since the MVA (r= -.40, p<.001): those with more frequent headaches obtained less hours of sleep, since their MVA. Patients with more frequent headaches also more frequently reported dizziness (r=.28, p=.005), nausea (r=.27, p=.007), loss of consciousness during the MVA (r=.24, p=.016), oversensitivity to bright lights (r=.22, p=.026), oversensitivity to loud noise (r=.21, p=.039), depression (r=.20, p=.049), and a post-MVA deterioration of their social life (r=.20, p=.048).

Insomnia

Adequate sleep is often seen as an important factor in healing. Insomnia can be operationalized in several ways, based on data from Gutierrez questionnaire. One of these are the patients' responses to item 33 (difficulty falling asleep or staying asleep through the night). This item significantly correlated only with 2 variables from Table 1: anxiety (r=.24, p=.016) and irritability (r=.24, p=.016). The patients with greater difficulty initiating sleep and maintaining sleep more often reported anxiety and irritability.

Lesser numbers of post-MVA sleep hours were reported by persons complaining of nausea (r=.30, p=.003) or numbness and tingling (r=.27, p=.009), and as already mentioned, also by those by reporting frequent headaches (r= -.40, p<.001). Less post-MVA sleep hours were also reported by patients with post-MVA memory problems (r=.26, p=.012), concentration problems (r=.25, p=.016), advanced age (r=.24, r=.018), post-MVA multitasking difficulties (r=.23, p=.024), dizziness (r=.22, p=.035), and with more pain (sum of items 1 to 7 plus headaches, r=.22, p=.034).

To assess the post-MVA deterioration of sleep, it is possible to subtract the number of post-MVA sleep hours (see Item 32 in Gutierrez questionnaire) from pre-MVA sleep hours (Item 31). In the present sample, the average of this new variable was 2.6 hours (SD=1.9). The data on this variable was available for 96 of the 100 patients. The variable ranged from -4 hours to 7 hours: a few persons (6.2% in our sample) slept longer after the MVA, but the overwhelming majority of our patients (84.4%) obtained less hours of sleep since their MVA. Greater decrease in sleep hours was associated with reports of frequent headaches (r=.38, p<.001), nausea (r=.33, p=.001), numbness or tingling (r=.21, p=.044), and memory problems (r=.20, p=.049).

Nightmares are an important aspect of sleep quality and they also are an important sign of PTSD. In this sample, reports of nightmares were significantly associated with those of numbness and tingling (r=.33,

p=.001), depression (r=.26, p=.009), reported loss of consciousness in the MVA (r=.24, p=.015), memory problems (r=.24, p=.016), multitasking difficulty (r=.22, p=.026), and problems concentrating (r=.21, p=.032).

The Post-Concussion Syndrome

An excellent scale for the assessment of the post-concussion syndrome is the Rivermead scale [3]. Thirteen items in the Table 1 are those also listed in the Rivermead scale: headaches, dizziness, nausea, fatigue, sleep problems, depression, irritability, impatience, oversensitivity to loud noise, oversensitivity to bright lights, impaired memory, and impaired concentration. The Rivermead consists of 16 items. Thus, the 13 items listed here represent 81.3% of the Rivermead measure of the post-concussion syndrome. In further calculations, we added the item "difficulty multitasking" (item 27 from Table 1) to the 13 because this item indicates difficulties with information processing, somewhat similar to the item "Taking Longer to Think" from the Rivermead scale. Thus, the subscale of post-concussion syndrome in Gutierrez's questionnaire consists of 14 items. The Cronbach alpha coefficient of internal consistency calculated for this subscale (.68) is acceptable. The average score was 11.2 (SD=2.2), i.e., highly suggestive of an intense post-concussive syndrome. The scores ranged from 5 to 13 points, thus suggesting that all patients probably experienced some degree of cerebral concussion. The overwhelming majority of our patients (84.8%) experienced 9 or more of the 14 symptoms on this post-concussive subscale.

A persistent post-MVA pain is likely to disrupt sleep and would also interfere with the daytime rest and recovery from the post-concussion syndrome. The sum of reported locations of pain (items 1 to 7 from Gutierrez questionnaire, without "headaches") is significantly correlated (r=.38, p<.001) with Gutierrez's subscale of 14 post-concussive symptoms (including "headaches"). Similarly, the pain caused limitations of physical activity (calculated as the sum of endorsed activities in Item 14 of Gutierrez's questionnaire) also significantly correlated (r=.22, p=.033) with Gutierrez's subscale of the 14 post-concussive symptoms. This post-concussive subscale also correlated with reduced post-MVA sleep duration calculated by subtracting the number of post-MVA sleep hours from pre-MVA sleep hours (r=.25, p=.014), i.e., subtracting item 32 from item 31 (see Gutierrez questionnaire in the Appendix). The post-concussive subscale also correlated with the actual number of post-MVA hours of sleep (r= -.34, p=.001): patients with shorter sleep time were those with more intense post-concussion syndrome. Nightmares could also interfere with the restorative function of sleep: in line with this, reports of nightmares were also significantly correlated with the post-concussion subscale (r=.26, p=.006).

For similar reasons, the post-concussion subscale also correlated with reports of tinnitus (r=.29, p=.004), anxiety (r=.27, p=.006), chest pain (r=.21, p=.036), pain in the feet, ankles, and toes (r=.26, p=.009), and pain in the hips, legs, and knees (r=.20, p=.044). The postconcussive symptoms were also associated with a deterioration of the patient's social life (r=.23, p=.021).

Scores on the post-concussive subscale was not significantly associated (p>.05) with age, gender, and number of months since the MVA: all patients in this sample were still reporting an intense post-concussion syndrome at the time of their assessment.

Whiplash Syndrome

The neck pain, back pain, tinnitus, and tingling/numbness (items 1, 3, 11, and 19 in Table 1) are among the most important subjective signs of the whiplash syndrome. In clinical practice, the whiplash syndrome also includes cervicogenic headaches, disturbed sleep, and fatigue; however, including these items in our calculations would cause an undesirable statistical overlap with the post-concussive subscale.

The average score on the 4 item subscale was 3.3 (SD=0.7) and the scores ranged from 2 to 4: this indicates that all patients in this sample experienced some degree of whiplash. The majority (85.0%) of the 100 patients experienced 3 or more of the 4 symptoms. Whiplash is likely to also cause pain in other locations than only in the neck and back, presumably due to damage to afferent nerves that connect the brain, through the spine, to various locations. Consequently, scores on this brief whiplash subscale correlated significantly with reports of pain in arms, hands, and wrists (r=.29, p=.004), pain in feet, ankles, and toes (r=.24, p=.019), and also with the total number of physical limitations of activities listed in Item 14 (r=.22, p=.031). This whiplash

subscale is significantly correlated with the post-concussive subscale (r=.49, p<.001) as well as with some individual post-concussive symptoms: dizziness (r=.40, p<.001), oversensitivity to bright lights (r=.37, p<.001), impaired memory (r=.34, p=.001), depressive symptoms (r=.30, p=.003), impatience (r=.29, p=.004), impaired concentration (r=.29, p=.003), difficulty multitasking (r=.28, p=.006), and oversensitivity to loud noise (r=.24, p=.018). The whiplash subscale also correlated significantly with reports of nightmares (r=.32, p=.001).

Scores on the whiplash subscale were not significantly associated (p>.05) with age, gender, and number of months since the MVA: all patients in this sample were still reporting an intense whiplash syndrome at the time of their assessment.

Driving Anxiety

Items 54 to 65 in Gutierrez questionnaire deal with post-MVA driving anxiety that can reach the intensity of amaxophobia (phobia of being in motor vehicles). The frequencies of endorsement of these items are listed in Table 2.

Table 2: *Reports of Driving Anxiety*

Symptoms of Driving Anxiety since the MVA	Frequencies - % endorsed (N=100)	Item number in Gutierrez questionnaire
Feelings, behavior, and physical reactions while in motor vehicles:		
Nervous in cars	99 %	54
Tense	99 %	54
Worried	99 %	54
Tachycardia	99 %	54
Avoidance of being in motor vehicles	84 %	56
The phantom brake syndrome (as passenger)	81 %	57
Fear in specific driving situations:		
When other vehicles are too close	99 %	58
Driving by the scene of an MVA	77 %	59
Unfavorable weather conditions	95 %	60
On highways	91 %	61
While crossing intersections	91 %	62
While travelling long distances	89 %	63
Fear of future accidents:		
Doubts to regain former confidence in vehicles	90 %	64
Worried about having another MVA	96 %	65

The Cronbach alpha coefficient of internal consistency calculated for this amaxophobia subscale is .66, i.e., acceptable.

The total score on these 14 items listed in Table 1 ranged from 8 to 14 points: this indicates that all patients reported high levels of post-MVA amaxophobia. Some of them were unable to avoid driving due to their isolated or remote geographic location or due to their employment duties; however, as shown in Table 2, the overwhelming majority (84 %, see item 56) of these patients avoided driving since their MVA. The mean score on this 14 item subscale was 13.0 (SD=1.5): this indicates high levels of post-MVA amaxophobia.

The scores on this amaxophobia subscale correlated significantly with pain induced limitations of daily activities as per item 14 of Gutierrez questionnaire (r=.29, p=.004), feelings of impatience (r=.29, p=.004), and with reports of back pain (r=.26, p=.012).

It is clinically noteworthy that scores on this subscale of driving anxiety were uncorrelated (p>.05) with age, gender, the total score on the post-concussion subscale, the total score on the whiplash subscale, reports of headaches, the pain score based on pain locations (as per items 1 to 7), reduced sleep time, post-MVA difficulties falling asleep or staying asleep, and reports of nightmares.

Age, Gender, and Time since the MVA

Neither age nor gender significantly correlated with the reported frequency of the key clinical variables discussed in this article. The only exceptions were correlations of age to post-MVA pain and shorter sleep time since MVA. Similarly, no significant correlations were found of the key post-MVA symptoms of pathology to age, gender, or the number of months since the MVA ($rs<.19$, $p>.05$). All patients in this sample were still reporting intense post-MVA symptoms at the time of their assessment.

Discussion

The correlations found in the present study are consistent with the clinical experience, but almost all of them are of only low magnitude ($rs<.40$) and thus indicate only relatively weak trends.

Of much clinical importance are the frequencies of symptoms reported by the patients in this study. All patients in this sample reported at least 5 of the 14 symptoms of the post-concussion syndrome and 84.8 % reported more than 8 of those 14 symptoms. Similarly, all patients reported at least 2 of the 4 whiplash symptoms and 85.0 % reported 3 or more of the 4 symptoms in the whiplash subscale of Gutierrez questionnaire. The correlations of these two subscales to other variables derived from Gutierrez questionnaire (e.g., insomnia, pain related physical limitations, deterioration of social life) are consistent with the current state of clinical knowledge and thus confirm the construct validity of these post-concussion and whiplash subscales.

The findings of this study of 100 post-MVA patients confirm the concept of polytraumatic post-MVA syndrome as consisting of pain, insomnia, post-concussion syndrome, whiplash syndrome, depression, generalized anxiety, and driving anxiety. In these data from Gutierrez questionnaire, the PTSD is suggested by the presence of nightmares, sleep problems, anxiety, avoidance of driving, and amaxophobia.

The high frequency of the polytraumatic symptoms causes great concern, given the fact that the majority of patients assessed by this questionnaire by us in a pre-screening process usually have their compensation claims rejected by car insurance clerks, even elderly patients who dutifully paid the mandatory car insurance fees for 4 or more decades. For example, the rate of rejections of insurance claims in Ontario over the month of May 2019 of patients with their polytraumatic syndrome documented via Gutierrez questionnaire was 73.7% (Medex data).

Some physicians contracted by car insurance frequently declare that no pathological post-MVA symptoms are present, based on subjective impressions from a brief interview or from inadequate examination procedures such as the Waddell signs [8]. Waddell himself [9] indicated that his procedure is often misused in medicolegal settings and was not designed to "prove" malingering: this procedure cannot rule out organic causes of pain.

Insurance contracted psychologists who write similar rejection reports often rely on psychological tests that were not yet properly validated for post-MVA patients, e.g., tests based on an erroneous assumption that, if the patient shows relatively low level of effort on the test tasks, this indicates malingering. Very prominent among such "effort tests" are Green's two Medical Symptom Validity Tests (Green's MSVTs) [10, 11]. Green's MSVTs are widely used in erroneous psychological reports on post MVA patients [12]. Regrettably, already the names of Green's two tests may imply to readers that they are appropriate and validated for any medical symptoms in any group of patients: this is contrary to standards specified by the American Psychological Association [13] which require that test authors avoid global or vague "validation" claims. Clinical experience indicates that scores of post-MVA patients on Green's tests frequently provide a false diagnosis of malingering or "exaggeration of cognitive difficulties" [12]. Another famous effort based test, the relatively well designed Test of Memory Malingering (TOMM) [14], unfortunately also has its limitations for assessments of certain groups of patients on which it has not yet been adequately validated [15, 16], above all on post-MVA patients. The most important criticism of all these "effort tests" was issued by the American Academy of Clinical Neurology which published a consensus statement to indicate that scores on "effort tests" can be confounded by factors such as fatigue [17]. It is noteworthy that fatigue is a very commonly reported post-MVA symptom, e.g., by 99% of patients in the present study.

The most absurdly flawed of all tests of malingering is the Structured Inventory of Malingered Symptomatology (SIMS) [18, 19]. The SIMS has never been adequately validated to

differentiate malingerers from patients with legitimate medical complaints in accordance with test validation standards of the American Psychological Association [14]. The SIMS is a 75 item questionnaire, but almost all of these items list obviously legitimate medical symptoms: in the SIMS fallacious scoring system, each of these legitimate symptoms, when endorsed, counts one point towards the diagnosis of malingering [20, 21]. The cutoff score is 14: this is reached easily by post-MVA patients because the SIMS rather absurdly includes items related to some of the polytraumatic post-MVA symptom patterns: post-concussion cognitive difficulties such as memory problems (e.g., SIMS Item 30 "I have difficulty remembering today's date," Item 27 "I have difficulty remembering the day of the week," Item 15 "The major problem I have is with my memory"), symptoms within the whiplash spectrum (e.g., SIMS Item 1 "Sometimes I lose all feeling in my hand so that it is as if I have a glove on," Item 26 "Walking is difficult for me because of my problems with balance," Item 35 "Sometimes my muscles go limp for no apparent reason so that my arms and legs feel as if they weigh a ton," or Item 59 "Although I am able to move them with no difficulty, I have noticed several parts of my limbs are numb"), and items about disturbed sleep or depression (SIMS Item 47 "I am depressed all the time" or Item 32 "I have troubles sleeping") [20]. It is inacceptable that the SIMS includes reports of tinnitus (i.e., a medically well-known and frequent post-MVA symptom, see Table 1) as an indicator of malingering (see SIMS Item 44 "These is a constant ringing in my ears") or that the response of post-MVA patients, legitimately diagnosable with mild traumatic brain injury (TBI), to SIMS Item 20 ("My major problem is that my brain is injured") is counted as indicative of malingering. Psychologists who use the SIMS to produce false "expert" reports are guilty of iatrogenic malpractice because treatments and compensations are denied to patients who are legally entitled to them.

To some extent, Gutierrez Post-Accident Questionnaire might be applicable, with minor modifications, also for some descriptive assessments of persons injured in industrial accidents, or on construction sites, or also for descriptive assessments of injured soldiers returning from the tour of duty, as long as these injuries include pain, post-concussion syndrome, and whiplash symptoms. In such cases, the questions about driving anxiety may not be needed.

As already mentioned, the major advantage of Gutierrez questionnaire is the short time needed to complete it in an interview with the injured patients who are usually too tired and in too much pain and discomfort for lengthy interviews and lengthy tests; there is a great need for brief but adequate assessment instruments such as the Gutierrez questionnaire to minimize the time and effort demands on the injured patients.

Although a total score for Gutierrez questionnaire and its subscales can be calculated in research studies or in individual assessments, the primary use of Gutierrez questionnaire is to provide an adequate clinical description of the full symptom pattern of the given patient. If the total score is needed, it can be obtained by adding variables listed in Tables 1 and 2.

Some insurance contracted psychologists might claim that our 100 patients malingered or exaggerated their symptoms for secondary gain. These patients were referred to us by their personal injury lawyer in the context of insurance litigations. A study by Greve's team in 2009 [22] attempted to estimate the prevalence of malingering in 508 chronic pain patients with financial incentive. Unfortunately, the tests used in that prevalence study also included the TOMM (an effort test, not specifically validated on patients with the post-MVA symptom pattern that involves fatigue) and the MMPI2 [23]. The MMPI2 scales have not been developed for the purpose of detection of malingering of severe persistent pain and should not be used for that diagnostic purpose. The MMPI2 validity scales were only validated adequately for detecting exaggeration or malingering of acute or intense mental health symptoms. Even with respect to severe mental health disorders, the MMPI2 validity scales are known to be at times extremely elevated above the usual cutoffs in patients with a legitimate, well documented, severe mental illness. With such problematic instruments, Greve's team estimated the prevalence of malingering as between 20% and 50%: this is likely to be an overestimate due to inadequate tests. Nevertheless, even such overestimates of up to 50% are still markedly below the rejection rates, by car insurance clerks, of 73.7% of claims by patients with the typical polytraumatic post-MVA symptoms (Medex files from May 2019). It is noteworthy that not all post-MVA patients seek a financial compensation when filing their insurance claims: many primarily want to receive specialized treatment for their unrelenting post-MVA pain and for their other post-MVA symptoms.

Conclusions

The post-MVA patients reported a polytraumatic symptom pattern that includes pain, insomnia, post-concussion syndrome, whiplash syndrome, depression, generalized anxiety, and driving anxiety. In addition, the presence of PTSD is suggested by symptoms such as nightmares, driving anxiety, and avoidance of driving. The Gutierrez questionnaire is well suited for assessments of polytraumatic patterns of typical post-MVA symptoms.

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Appendix 1

Gutierrez Post-Accident Questionnaire

Name of Patient:

Date of Loss (i.e., Date of the Accident):

Address:

D.O.B (Date of Birth):

Type of accident: Driver___ Passenger____ Cyclist_____ Pedestrian_____

Description of the accident:

Were you taken (or did you go) to a Hospital/ Medical Doctor/ or Walk-in Clinic:

Investigations done: X-Rays____ MRI____ CT Scans_____ Blood tests_____Bone Scan_____

Do you have a Driver's License? Yes No

Were you employed before the accident?

Duties:

Last day you worked?

Are you currently working? Yes No

If answered Yes, are you currently on modified duties (accommodations)?

Physical / Psychological Screening Questions - **circle all words that apply**

1. **Neck Pain** _ Ltd ROM (i.e., limited range of motion) Stiffness/ Tightness

2. Chest symptoms: Shortness of breath ____ **Chest pain** ___ Where _____

3. **Back Pain** ____ Lower Middle Upper

4. **Shoulder Pain**: Describe:

5. **Pain in the Arms/ Wrists/ Hands**: Describe:

6. **Pain in the Hips/ Legs/ Knees**: Describe:

7. **Pain in the Feet/ Ankles/ Toes**: Describe:

8. Do you tend to lose **body balance**?

9. Since the accident, any difficulty with bowel movement?

10. Since the accident, are you taking pain medications?

11. Since the accident, do you suffer of **Numbness/ Tingling** sensation? Yes No

If yes, specify where:

Starting from shoulders to the elbow area or to tip of your fingers?

Starting from lower back to hips or to the knee area or to the tip of your toes?

12. Since the accident, do you have any clicking/ popping sensations in your joints?

If yes, which joints?

13. Since the accident, do you suffer of muscle spasms in any part of your body?

14. Since the accident, have you experienced any **problems with the following tasks/activities**?

Sitting___ Standing___ Reaching___ Walking_ Climbing___ Bending____ Lifting____

Do they exacerbate your pain?

15. In the accident, did your head hit any part of the automobile?

16. Did you **lose consciousness**? Yes No If yes, how long?

17. Since the accident, are you sensitive to certain smells?

- 18. Does food taste metallic? Any changes with your taste?
- 19. Are you **hearing buzzing sounds, high pitch noise, or ringing in your ears**?
- 20. **Sensitive to loud noises**? Stress? Irritable? Headaches? Dizziness?
- 21. **Sensitive to bright light**? Blurry vision? Headaches? Seeing sparks? Tired faster?

22. Since the accident, do you suffer from **dizziness**? Yes No What triggers your dizziness? Sudden movement___ Motion____ Getting up from a sitting/ bending position___ Waking up in the morning ___

23. Do you suffer of **headaches**?

24. Out of 7 days, **how many days** ____ and how long they last?

25. Are you **forgetting** things on a daily basis?

26. Are you having **difficulty concentrating**?

27. Are you having **difficulty multi-tasking**?

If you are a student, are you having difficulties learning since the accident? Concentrating?

Retaining new information?

28. **Nausea**? Triggered by Migraines___ Medication____ Motion___ Food___ Scents____

29. Since the accident, do you **feel tired** during the day? Do you have low energy?

Sleep Patterns:

30. Did you have any troubles sleeping before the accident?

31. Average number of **hours of sleep before the accident**? _____

32. **Hours of sleep at present**? _____

33. Do you have **difficulty falling asleep or staying asleep** through the night?

34. What keeps waking you up? Pain? Unable to find a comfortable position?

35. **Nightmares**?

36. Active mind due to stress, worries, finance, health?

37. Have you gained or lost more than 15 lbs (i.e., 7 kg)?

Has there been any change in your mood since the accident?

38. Now **more anxious**?

39. Now more nervous?

40. **More irritable** or easily upset?

41. Do you feel stressed out?

42. Do you feel **depressed**? Why?

43. Financial difficulties?

44. Unable to care for yourself?

45. Dependent on others to help you with house chores or driving?

46. Do the post-accident symptoms interfere with any hobbies, exercise habits, family gatherings, or outings with friends?

47. Has your **social life deteriorated** since the accident?

48. Since the accident, are you **less patient, more confrontational**, or more stressed out when dealing with your partner or other family members?

49. Do you have children? Boys ____ Ages: Girls ____ Ages:

Are you worried about your job due to ?

50. Poor performance since accident?

51. Not able to concentrate since accident?

52. The possibility of being replaced?

Pre-MVA symptoms:

53. Did you have any significant emotional or physical problems before the accident?

Driver/Passenger Screening Questions

54. Since the accident, how do you feel as a passenger or driver in a vehicle?

Nervous___ Tense___ Worried___ Heart Races___ Overly alert____

55. Since the accident, do you feel anxious as a Passenger/ Driver/ Cyclist/ Pedestrian?

56. Since the accident, do you **avoid being in a vehicle**?

57. As a passenger, do you at times instinctively press your right foot on the floor "to brake" (the **phantom brake reaction**) since the accident?

Since the accident, what makes you nervous on the road?

58. **Vehicles close** to you?

59. Driving **by the scene of an accident**? Does it trigger flashbacks?

60. Unfavorable **weather conditions**?

61. Driving on **highways**?

62. **Crossing intersections**?

63. **Travelling long distances**?

64. Do you feel sometimes that you will **never regain your former confidence** as a driver or passenger?

65. Do you often feel that you are **about to have another accident**?

I certify that the information provided is true and correct.

_____ _____

Client Signature *Date*

Citation: **Jaime Gutierrez, Vitalina Nosonova, Zack Cernovsky, Milad Fattahi, Silvia Tenenbaum**. *Gutierrez Questionnaire for Assessments of Patients after Car Accidents. Archives of Psychiatry and Behavioral Sciences. 2019; 2(2): 10-21.*