

Work-related post-traumatic stress disorder: report of five cases

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Abstract: Post-traumatic stress disorder (PTSD) may arise after events involving a risk to physical integrity or to life, one's own or that of others. It is characterized by intrusive symptoms, avoidance behaviors, and hyper-excitability. Outside certain categories (e.g., military and police), the syndrome is rarely described in the occupational setting. We report here five unusual cases of work-related PTSD, diagnosed with an interdisciplinary protocol (occupational health visit, psychiatric interview, psychological counselling and testing): (1) a 51-yr-old woman who had undergone three armed robbery attempts while working in a peripheral post office; (2) a 53-yr-old maintenance workman who had suffered serious burns on the job; (3) a 33-yr-old beauty center receptionist after sexual harassment and stalking by her male employer; (4) a 57-yr-old male psychiatrist assaulted by a psychotic outpatient; (5) a 40-yr-old woman, sales manager in a shoe store, after physical aggression by a thief. All patients required psychiatric help and pharmacological treatment, with difficulty of varying degrees in resuming work. We conclude that PTSD can develop even in professional categories generally considered to be at low risk. In such cases, a correct interdisciplinary diagnostic approach is fundamental for addressing therapy and for medico-legal actions.

Key words: Work stress, Psycho-social risk, Mental health, Adjustment disorder, Post-traumatic stress disorder (PTSD), Occupational psychiatry, Psychological assessment

Introduction

Post-traumatic stress disorder (PTSD) is a psychiatric condition which may develop after a terrifying event, usually involving a risk to physical integrity or to life, one's own or of other people. Clinically, PTSD is characterized by: re-experience of the event with recurrent and intrusive

recollections, distressing dreams, nightmares and flashbacks; avoidance of situations recalling the event; hyperarousal causing difficulty in falling asleep or concentrating, or exaggerated startle response^{1–3}).

PTSD is common in military personnel, especially after combat experiences. Other occupations at risk include police officers, firefighters, war correspondents, and health workers (mostly in emergency and intensive care units). Outside of these categories, work-related PTSD is rarely observed⁴.

In the occupational setting, PTSD should be differentiated by adjustment disorder (AD: a much more common

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diagnosis), that is another mental health condition occurring in response to a stressor, in which a number of life changes act as precipitants. Even though DA is less severe than PTSD, patients with DA display either marked distress or impairment in functioning (inability to work or perform other activities)^{2, 5, 6}.

PTSD is a substantial medical and economic burden, and it has recently been highlighted as a public mental health priority⁷. To provide new insight which might facilitate prevention and diagnosis of work-related PTSD, we describe a series of patients, employed in occupations considered to be low risk, among whom the disorder was identified utilizing an interdisciplinary diagnostic protocol.

Patients and Methods

We report five outpatients (three females and two males, all Caucasian) who required a specialist assessment at the Occupational Medicine Unit of our Institute, for psychological health problems related to violence and/or job stress in the workplace.

The diagnostic process began with an evaluation by an occupational health specialist: for each patient a careful work history was collected, as well as family, social, physiological and pathological anamnesis. This step was followed by a complete physical examination.

Subsequently, the diagnostic protocol, developed by our group over the years, included: psychological counseling; Cognitive Behavioral Assessment 2.0 (CBA-2.0); complete personality test MMPI-2 (Minnesota Multiphasic Personality Inventory-2); SCID (Structured Clinical Interview for DSM: Diagnostic and Statistical Manual of Mental Disorders), axis I and II; Short-Negative Acts Questionnaire (S-NAQ); Maugeri Stress Index-reduced form (MASI-R); psychiatric visit^{5, 8, 9}.

The CBA-2.0 is an automated assessment package investigating the cognitive-verbal response system. It includes ten primary scales consisting of: (1) self-reports and questionnaires aimed at identifying and specifying patients' problems; (2) a group of programs and logical rules, implemented on personal computers, providing an editor with items, questionnaire scoring and an analysis of responses; (3) an intelligent program which analyzes the responses emerging from the questionnaires and forms hypotheses for the selection of secondary scales and for further assessment¹⁰.

Scales 1 and 4 are autobiographical files that investigate educational and school history, current conditions of co-existence, significant emotional relationships and related

problems, general health status, eating and sleeping habits, reported psychological problems and the motivation for a possible psychological treatment. Scales 2 (20 items), 3 (20 items) and 10 (10 items) assess anxiety. Scale 5 (48 items) evaluates some stable personality dimensions such as introversion-extroversion, emotional stability, maladjustment and antisociality, simulation and social naivety. Scale 6 (30 items) provides an assessment of stress and psychophysiological disorders. Scale 7 (58 items) assesses fears. Scale 8 (24 items) assesses depressive symptoms. Finally, scale 9 (21 items) analyzes obsessions and compulsions.

The MMPI-2, the updated and standardized version of the MMPI test, assesses the most important structural features of personality and emotional disorders. It includes 567 questions on different topics: general health, neurological conditions, cranial nerves, motility and coordination, sensitivity, vasomotor function, trophism, speech, secretory functions, cardiovascular, respiratory, gastrointestinal and genitourinary systems, habits, family and marital situation, professional activity, education, sexual, social and religious behavior, attitudes towards politics, law and order, morality, masculinity, femininity, presence of depression, manic, obsessive and compulsive disorders, presence of hallucinations, illusions, delusions, phobias, sexual sadistic and masochistic trends. Patients are required to respond to items with "True" or "False"; all omissions and items with dual response are considered as a response "I don't know." The usefulness of information obtained through the MMPI-2 depends on the ability of the subject to understand instructions, carry out the required task, understand and interpret the content of the items, and record the answers correctly. To calculate the scores, a computer program and a manual scoring are available^{11, 12}.

Although MMPI-2 was born in a clinical context, thanks to the fact that it can study both normal and pathological personality characteristics, its administration proves useful also in the occupational and forensic field.

The SCID is a method that, based on a specific protocol, attributes specific symptoms, on which the examiner focuses, to the different disease conditions. For axis I, the process starts with patient history and leads to evaluate the presence of psychiatric disorders, such as anxiety and depression. The axis II consists of a self-report questionnaire followed by an interview regarding critical items of the questionnaire, to identify personality disorders and mental retardation².

The S-NAQ is a psychometrically sound and easy to use instrument to identify targets exposed to varying de-

grees of workplace bullying. It consists of nine questions on specific negative behaviors, measuring exposure to harassment within the last six months. Patients score the frequency of each negative act according to the following response categories: 1-Never, 2-Rarely, 3-Monthly, 4-Weekly, and 5-Daily¹³).

The MASI-R is a multidimensional self-report questionnaire to evaluate job-related stress factors, assessing the impact of job strain on a team or on a single worker. It is composed of 37 items with response on a Likert scale from 0 to 5, and two visual analogues graded 0–100. The tool consists of four scales [Wellness (7 items), Resilience (16 items), Social support (5 items), and Coping (5 items)] and a Lie control scale (4 items). The two visual analogues ask the subject to express an evaluation of satisfaction in the workplace (Analog A) and outside of work (Analog B), thus allowing a comparison between these two important life areas. The instrument provides a reliable and valid measure, useful for early identification of stress levels in workers or in a team along the eustress–distress continuum¹⁴).

At the end of the tests, the patients met a clinical psychologist with specific experience in the field of work psychology, in order to deepen the knowledge of their interpersonal dynamics and to outline their personality structure. The interview was mainly focused on work issues, without neglecting to explore family and social life. The psychological interview also provided the opportunity to critically re-evaluate the responses provided by the subject to psychometric tests.

The psychiatric visit included psychiatric history (family and personal) and mental status assessment (speech, emotional expressiveness, thought and perception, cognitive functions). The answers to psychological tests were again discussed. The psychodiagnosis were formulated according to the DSM-5 criteria.

Informed consent was obtained from each subject, and the ethics committee of ICS Maugeri IRCCS approved the utilization of the patients' clinical data (in anonymous form) for the present scientific report.

Results

Case no. 1

Female, 51-year-old. No psychiatric familiarity. Married with daughter and son. Nothing relevant in the previous medical history (in particular, no psychiatric record). After completing her studies (high school degree), she started working at the age of 20, initially as a typographer, then as

a substitute teacher in kindergarten, and later as a clothing shop assistant.

At age 28 hired by the Italian postal service. After working as a postwoman and front clerk, at 41 she was promoted to director of a peripheral post office. She reported stressful working conditions: lack of preliminary training and professional updating, work overload, frequent overtime, lack of collaborators, occasional hostile behavior from customers, difficulty in commuting, poor support from hierarchical superiors and, above all, lack of security measures.

During the two years preceding our evaluation, the patient, while at work, underwent an armed robbery and two similar, failed attempts (the first time the woman herself managed to lock the door before the entry of the robbers, the second the attackers fled as the alarm system had gone off). As a consequence, she developed a continuous state of anxiety and emotional tension in terror of new attacks, insecurity, fear of going to work (with the need to be taken to and from work by her husband), hyper-arousal in circumstances evoking the working context, panic attacks, and sleep disturbances with nightmares. At this time, a diagnosis of PTSD was formulated by a private psychiatrist.

After a month of absence from work, the patient obtained a job transfer to a larger and less decentralized postal office, with partial improvement of disturbances, but considerable difficulties in adapting to the new situation, with repercussions on social and private life.

At the time of our consultation, the patient was on sick leave and on fluoxetine therapy. Nothing relevant on physical examination. Psychological counselling, psychiatric assessment, CBA-2.0, MMPI-2, and SCID revealed persisting work-related emotional distress, anxious-depressive state (with asthenia, pessimism, and distrust), sleep disturbances, impaired job performance with sense of guilt and inadequacy. Absence of cognitive impairment and pathological personality traits. Defense systems preserved. The patient reported negative behaviors at S-NAQ. MASI-R scores indicated high perceived work-related stress, poor job satisfaction, low coping and no support from colleagues.

Final diagnosis was adjustment disorder with anxiety and depressed mood in pre-existent PTSD (not completely resolved). The patient was referred to the territorial psychiatric service, with the suggestion to resume working only after the reduction of occupational stress factors.

Case no. 2

Male, 53-yr-old. Mother with anxiety-depressive

syndrome. Married with a son. Nothing relevant in physiological anamnesis. After completing his studies (middle school degree), he worked from the age of 17 in the metalworking sector for several employers, as carpenter, pipe maker and welder, suffering four traumatic accidents at work, with loss of distal phalanges of the second, third and fourth fingers of the right hand, as well as two fractures of the right radius. Additionally, he underwent bilateral inguinal hernioplasty and lumbar microdiscectomy.

At age 51, he started working for a large company, dealing with the installation and maintenance of chemical, oil and food plants. Two years before our evaluation, the patient was enveloped by a flare of methane while carrying out structural adjustments in a fuel depot, suffering second and third degree burns on 40% of the body surface. He was hospitalized in a burn center, where serious infectious complications (cutaneous and respiratory) occurred with the need for mechanical ventilation. The burns required multiple skin grafts, and numerous cycles of physiotherapy to recover limb mobility.

After these events, the subject (without previous psychiatric record) developed anxiety with dysphoric mood, phobia, brooding with intrusive thoughts, sleep disturbances with nightmares, significant social distress (with fear to show the burn outcomes). He started private psychotherapy and treatment with anxiolytics and antidepressants. Despite this, the symptoms were still present and serious at the time of our observation. On physical examination: extensive, partly retracting dyschromic scars (left ear, neck, upper limbs, left hip and buttock). The patient (who was on sick leave) told us to have all mirrors and reflecting surfaces removed from his house, to avoid seeing his scars.

Psychological counselling and psychiatric assessment, led to the diagnosis of PTSD (with thymic axis oriented in depressive direction). Absence of cognitive impairment and pathological personality traits. Defense systems adequate. The patient did not report negative behaviors at S-NAQ. MASI-R scores indicated high job satisfaction, but modest support from colleagues.

We advised the patient to continue psychotherapy, and to return to work gradually, and followed by the company occupational physician.

Case no. 3

Female, 33-yr-old. No psychiatric familiarity. Married without children. Nothing relevant in physiological and remote pathological anamnesis (in particular, no psychiatric record). After completing her university studies (philosophy

degree), she worked from the age of 25 as a receptionist and assistant manager in several beauty centers.

Problems started 14 months before our evaluation, when the woman ended a love affair with her employer, who, from that moment, began to victimize her, both in and out of work: marginalization, threats, humiliations, blackmail, stalking, heavy sexual harassment. She developed anxiety, sense of guilt, loss of personal self-esteem, insomnia, intrusive thoughts, hyper-alertness, avoidance behaviors, compulsive actions of personal cleansing, self-injurious thoughts, and physical problems (loss of appetite, vomiting, weight loss, and menstrual irregularities). She took alprazolam for a couple of weeks, without benefit.

The patient quit the job, filed a complaint with the police, and asked for help from the unions and a center for violence against women. The persecution stopped, and the woman entered a psychological support program. In the meantime, she started a new job at a dental office with administrative and secretarial duties. The disturbances improved. However, at the time of our evaluation, she still reported anxiety, depressed mood, fear, brooding, sense of guilt and inadequacy. Nothing relevant on physical examination. Psychological counselling and psychiatric assessment led to the diagnosis of PTSD (in ameliorative evolution). Absence of cognitive impairment and pathological personality traits. Defense systems adequate. S-NAQ and MASI-R scores indicated good adaptation to the new job, with good support from the new employer.

Case no. 4

Male, 57-yr-old. No psychiatric familiarity. Married with a son. Suffering from arterial hypertension (in pharmacological treatment) and recurrent lumbosciatalgia (two previous discectomy interventions). No previous psychiatric record. After completing his university studies (medical degree and specialization in psychiatry), he worked as a psychiatrist in hospital and territorial services. From age 47, head of a public outpatient unit.

Thirteen months before our evaluation, he was physically attacked by a psychotic patient, resulting in the fracture of two right ribs with pulmonary contusion. During the attack, he managed to avoid worse injuries by fleeing to barricade himself in another room. The attacker returned to look for him in the following days with a threatening attitude, until he was subjected to mandatory medical treatment.

After two months of absence, the psychiatrist resumed working in a different town, with difficulties in commuting and in adapting to the new situation. At the time of our

evaluation, he was on sick leave again and on paroxetine therapy. Nothing relevant on physical examination (except the scar outcomes of previous operations on the spine). Psychological counselling, psychiatric assessment, CBA-2.0, MMPI-2, and SCID disclosed profound distress with anguish, depressed mood with crying fits, loss of personal self-esteem, persecution phobia (for himself and his family), re-experience of the event with intrusive recollections, insomnia with recurrent nightmares, remarkable social and occupational difficulties. Absence of cognitive impairment and pathological personality traits. Defense systems sufficiently adequate. The patient reported negative behaviors at S-NAQ. MASI-R scores indicated high perceived work-related stress, poor job satisfaction, low coping and no support from colleagues.

Final diagnosis was PTSD. We advised the patient to start psychotherapy, and to resume working only after clinical improvement and reduction of occupational stressful factors.

Case no. 5

Female, 40-yr-old. Mother with bipolar syndrome. Married with a son. Nothing relevant in the previous medical history (in particular, no psychiatric record). After completing her studies (high school degree), she started working at the age of 20, initially as a bartender, then as sales assistant in various shops. From age 29, she worked in a large shoe store, where she was subsequently promoted to sales manager.

Six years before our evaluation, the woman tried to intercept a thief who had stolen some goods. As a result, she was physically attacked by him, reporting multiple contusions, distraction of the right shoulder, and sprain of the fourth finger of the right hand. Consequently, she developed anxiety, persistent discomfort and concern, continuous state of alert, intrusive thoughts, recurring nightmares, and psychosomatic disturbances (headache, tachycardia, dyspepsia, and menstrual irregularities). She consulted a psychiatrist, who formulated the diagnosis of severe anxiety-phobic syndrome, and started psychotherapy and psychoanalysis sessions.

The clinical picture slightly improved, and the patient resumed working after a couple of months. At this point, she began to be harassed by two hierarchical superiors, without apparent reason: physical and verbal attacks, denigration and humiliation (even in front of customers), obstructionism, disciplinary measures for futile reasons. She also reported degradation with a change of work place, then revoked after legal action.

At the time of our evaluation, the woman was on sick leave and on alprazolam therapy. Nothing relevant on physical examination. Psychological counselling, psychiatric visit, CBA-2.0, MMPI-2, and SCID revealed work-related emotional distress, apathy, anxious-depressive state (with very low self-esteem and crying fits), poor sleep quality, and persistence of the psychosomatic disturbances. Absence of cognitive impairment and pathological personality traits. Defense systems preserved. The patient reported serious negative behaviors at S-NAQ. MASI-R scores indicated high perceived work-related stress, absence of job satisfaction, low coping and no support from colleagues.

Final diagnosis was pre-existent PTSD (not completely resolved) and adjustment disorder (with anxiety and depressed mood), likely resulting from mobbing at work. We advised the patient to continue psychiatric treatment. Work resumption was judged extremely difficult, due to the persistence of occupational stress factors.

Medico-legal actions

The cases were reported to the Judicial Authority, as established by the Italian Penal Code, and referred to the Italian Workers' Compensation Authority (INAIL).

Discussion

Work-related psychological trauma is quite common. However, diagnosing psychiatric disorders caused by occupational stress is not simple: the evaluation is mostly based on the patient's self-reported symptoms, and hospital physicians do not usually have the means to verify directly the existence of stressful agents in the workplace. For various reasons, patients may hide or minimize their symptoms (for example, out of shame or fear of losing their job). Conversely, they may be induced to emphasize them (sometimes even unconsciously), in an attempt to get compensation for the damage suffered or other benefits. To overcome, at least in part, this difficulty, our group has developed an interdisciplinary diagnostic protocol that comprises the examination of the patient by three specialists (occupational physician, psychiatrist and occupational psychologist), and the administration of psychometric tests. Over the past twenty years, this approach has proven useful in diagnosing adaptation disorder and other psychiatric disturbances caused by mobbing and other work-related stressors, differentiating these conditions from non-work-related psychiatric disorders^{5,9}. The five cases reported here indicate that the same protocol is also

useful for diagnosing PTSD, a condition rarely found in outpatient occupational medicine practice. In addition, the five cases are particularly interesting for the unusual jobs and circumstances in which the triggering traumatic events occurred.

The first is a middle-aged woman in whom the disorder arose after three armed robbery attempts. Indeed, exposure to more than one robbery increases the rates of PTSD^{15, 16}. Other recognized risk factors, to which our patient was exposed, are proximity to the robber and the presence of weapons^{17, 18}.

In recent years, bank and postal robberies have been less frequent, due to increased security measures^{17, 19}. Other businesses are now more exposed, such as small retail shops and all night convenience stores²⁰. Our case indicates that peripheral post offices may also be at high risk.

The second case is the victim of a terrible accident at work, causing extensive burns, life-threatening complications, and disfiguring scars. Previous studies indicate that PTSD may be identified in up to 30% of such patients, stressing the need for a dedicated staff psychiatrist in modern burn centers^{21, 22}. In burn victims, life threat perception is the strongest predictor for PTSD occurrence, followed by acute intrusive symptoms and pain associated with the injuries²³. Scarring involving the face and/or other visible body areas (like in our patient) is another important risk factor²⁴.

In the third subject (a 33-yr-old woman), the PTSD was the consequence of psychological aggression, sexual harassment, and stalking perpetrated by a male employer. Violence against women is a substantial mental health concern worldwide. Younger women are more at risk. Among victims, PTSD, depression and substance abuse are potential and even likely mental health outcomes^{25, 26}. Our patient fought back: she changed job and asked for help (police, unions, antiviolence center, and psychological support), obtaining the cessation of persecution and, consequently, a clinical improvement. This indicates that prompt counteractions can favorably influence the evolution of PTSD in female violence victims.

In the last two patients, the syndrome was the result of physical violence and personal injuries on the workplace. The fourth case is a psychiatrist. Mental health professionals may be exposed to aggression from patients, and report high levels of PTSD symptoms²⁷. Our observation, however, is quite unusual in that the acts of violence generally take place in the hospital (emergency room or psychiatric wards) rather than in territorial outpatient services, involv-

ing nursing staff more often than doctors²⁸).

The fifth subject was assaulted by a shoplifter she had tried to intercept. Similarly to case one, the PTSD was the consequence of a criminal act. For both these women, work resumption was particularly difficult, and they subsequently developed an overlapped adjustment disorder, thus receiving a double psychodiagnosis. This is uncommon, since people who have experienced a traumatic event are usually diagnosed as either suffering from PTSD or from AD, however it should not be considered surprising for two reasons: (i) workers suffering from PTSD and other stress-related disturbances readapt with difficulty to their previous job²⁹; (ii) in many cases, there is a co-morbidity between PTSD and other disorders (such as depression, anxiety and substance abuse). For example, in a study of combat veterans, nearly 80% of PTSD cases met the criteria for at least one personality disorder³⁰. Our diagnostic conclusions were based on an analysis of the chronological appearance of symptoms: both patients first manifested the PTSD, then benefited from a period of sick leave, started treatment with partial improvement of disturbances, returned to the same job encountering notable difficulties, and only thereafter did they develop the AD.

The case of the fifth patient is singular, since she was subjected to mobbing after resuming working. Indeed, women quite often experience hostile behavior after returning from sick leave or maternity⁵. Mobbing (or bullying) is one of the most formidable psychosocial risk factors found in the workplace. It consists of repeated and prolonged psychological harassment, towards a worker, due to hostile actions usually carried out by a superior (vertical mobbing or bossing) or by a small group of colleagues (horizontal or transversal mobbing), exercised through aggressive, persecuting and detrimental behaviors of personal and professional dignity, capable of provoking damage to individual psychophysical health³¹.

Treatment of PTSD includes psychological and pharmacological interventions. Most guidelines identify trauma-focused psychological interventions (such as cognitive behavioral therapy) as first-line treatment options^{32, 33}. In the acute phase following the traumatic event, it is important that the individual regains emotional control, restores interpersonal communication and group identity, recuperates a sense of empowerment through participation in work, and strengthens hope and the expectation of recovery. Such an approach, known as psychological first aid, has given satisfactory results³⁴. Pharmacological treatments include antidepressants (such as selective serotonin reuptake inhibitors, serotonin and norepinephrine

reuptake inhibitors, and monoamine oxidase inhibitors), sympatholytic drugs such as alpha-blockers, antipsychotics, anticonvulsants, and benzodiazepines^{1, 35}). In this context, the correct diagnostic assessment of work-related PTSD by hospital occupational medicine units can be very useful to address patients towards an appropriate therapeutic path, in order to promote their psychological well-being and work reintegration.

The evolution of work-related PTSD (as well as of other conditions due to occupational stress) is complicated and difficult to predict. In a significant portion of patients, the disorder tends to improve over time, even in the absence of treatment. However, in many others the symptoms persist even after several years, making return to work difficult or impossible^{29, 36}), as in the cases reported here.

The present report highlights the need for preventive interventions. Prevention of work-related PTSD includes a sound organizational and psychosocial work environment, systematic training of employees, social support from colleagues and managers, and a proper follow-up of employees after a critical event³⁷).

The five cases were referred to the appropriate legal authorities. Work-related stress and resulting disease has complex medico-legal implications, in the penal, civil, and insurance contexts³⁸). For example, the Italian Workers' Compensation Authority (INAIL) includes "mental and psychosomatic illnesses due to work organization dysfunction (organizational coerciveness)" among the inventory of occupational diseases (Italian Ministry of Labour and Social Policy: Decree 27th April 2004). Thus, an accurate diagnostic procedure is essential not only for clinical (prognostic and therapeutic-rehabilitative) reasons, but also for the possible demonstration of the causal link between traumatic events in the workplace and suffered mental damages⁵). At the time this article is written, the medico-legal evaluation of the five reported cases is still ongoing. A previous explorative follow-up study indicated that our certifications lead to outcomes favorable to the worker, after litigations (or extrajudicial agreements) with INAIL and/or the employer, in at least half of the cases²⁹).

Conclusion

PTSD can arise as a consequence of accidents or assaults in the workplace, even in professional categories generally considered to be at low risk. In such cases, a correct interdisciplinary diagnostic approach is fundamental for addressing therapy and for medico-legal fulfillments.

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