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Prevalence of Personality Disorder in Hand and Upper Extremity Trauma

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Abstract

Background: Upper extremity is exposed to injuries with physical, mental, social and economic consequences.
Objectives: The aim of this research is to study the prevalence and types of personality disorders in patients with upper extremity trauma.
Methods: We included all patients with upper extremity trauma in a three-month period. The Millon Test was filled by all candidates with a clinical psychologist and psychometric supervision. Results were analyzed statistically.
Results: 202 male patients participated with age range of 14 to 70 years-old, amongst whom 41.4% had personality disorders. The prevalence of personality disorder in violence and self-injury groups was 72.7% and 39.3% respectively in the group of industrial accidents, which showed a significant difference (P = 0.003). Avoidant personality disorders (P = 001), narcissistic (P = 0.003), anti-social (P = 0.002), borderline (P = 0.001) passive aggressive (P = 0.002) were significantly more common in violence and self-injury groups.
Conclusions: The present study revealed that the prevalence of personality disorder in patients with upper extremity injuries is more than that in the society. Due to the high rate of personality disorder in hand trauma victims, routine psychological evaluation of these patients is warranted.

Keywords: Prevalence, Personality Disorder, Hand Trauma

1. Background

Upper extremity trauma is common. This type of trauma is the second cause of referral to emergency wards and many patients are young males (1-5).

Hand traumas are divided into occupational and non-occupational groups. Non-occupational injuries include injuries caused by traffic accident, violence, self-injury, sport, hobbies and home accidents (6). About 30% of emergency referrals are a result of upper extremity injuries (7).

Although upper extremity injuries rarely cause death and mortality, they cause functional disabilities. There may be physical, psychological, social, or economic consequences following hand trauma. Hand trauma is the third leading cause of absence from work (1, 4, 8, 9).

In a few studies, the relationship between hand, upper extremity injuries and psychological disorders was investigated, indicating post-traumatic psychological problems (10-17). Research shows that one's personality plays an important role in accidents (18-20). In one study, it was documented that different levels of responsibility, working conditions, job stress, job dissatisfaction, and personality traits are effective factors causing accidents (20). In another study, psychological factors, such as emotional discontent, anti-social behavior, and hostility in occupational injuries were considered important in accidents (18). In addition, sleep disorder, smoking, and alcohol consumption are effective factors in upper extremity injuries (5, 20). It is also likely that personality traits can affect one's ability to investigate and inspect the workplace, disturb the identification of risk factors, and finally lead to occupational injuries. Individuals possessing aggressive, anti-social and non-organized personality traits are more exposed to danger (21, 22).

Most of these injuries result from occupational injuries, violence, home accidents, self-injury, and traffic accidents (23).

Based on available reports, the prevalence of personality disorder in today's societies is 4 to 15%.

2. Objectives

This study aimed to investigate the prevalence of personality disorders in patients with hand trauma among patients with non-occupational and occupational injuries.

3. Methods

During a three-month period, all patients with hand, arm, forearm and elbow injuries caused by violence, traffic, occupation, home-related accidents and other factors, who were hospitalized, were included in this study.

This study was approved by the ethics committee of Iran University of Medical Sciences and informed consent was signed by all patients.

This study included 202 male patients. Demographic information was collected and recoded by clinical, psychological and psychometric supervision. Also, the second version of the Millon test was completed by patients. This test was translated to Persian and its validity and reliability was approved (Chegini et al.) (24). All Millon tests were scored and analyzed by a clinical psychometrist and in some special cases, an interview was conducted by a clinical psychologist.

This test included 175 true and false questions. According to their responses, scores were given to each patient. Patients with a score of 85 or higher were considered to have personality disorder.

Results were analysed by the SPSS version 20 software.

4. Results

Overall, 202 patients were studied. All the patients were male and the age range was 14 to 70 years, with mean age of 29 $\pm$ 10. Furthermore, 53.5% were married while 46.5% were single. Considering smoking status, 66.3% were non-smokers and 33.7% were smokers. Most of the patients (35.6) had an education level of diploma.

Moreover, 41.1% of participants had personality disorders. The prevalence of different types of personality disorder is shown in Table 1 and Figure 1. Passive aggressive behaviour was the most common personality disorder.

Smoking was significantly higher in the personality disorder group (P = 0.033).

Also, positive history of alcohol consumption was significantly related to positive test results of personality disorder (P = 0.023).

Table 1. Frequency Distribution of Personality Disorders

Personality Disorder	Frequency (%)
Schizoid	14 (6.9)
Avoidant	24 (11.9)
Dependent	11 (5.4)
Histrionic	5 (2.6)
Narcissistic	30 (14.9)
Antisocial	28 (13.9)
Aggressive-sadistic	32 (15.8)
Compulsive	11 (5.4)
Passive-aggressive	38 (18.8)
Schizotypal	7 (3.5)
Borderline	7 (3.5)
Paranoid	4 (2)

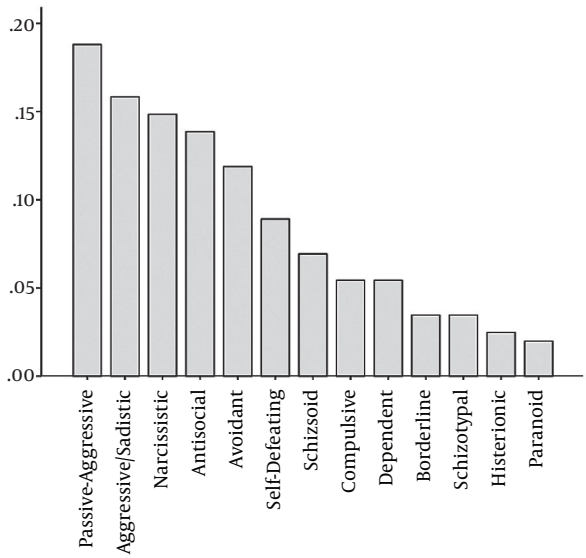

Figure 1. Frequency Distribution of Personality Disorders

There was no significant relationship between personality disorder and age (P = 0.10 - 0.86 in different age groups), marital status (P = 0.048), education level (P = 0.648), the type and location of trauma in the arm, forearm, hand or fingers (P = 0.32 and 0.09, respectively), severity of trauma (P = 0.12) and presence of fractures (P = 0.14).

We divided patients into two groups: (1) injuries caused by violence and self-harm, and (2) injuries caused by occupational, traffic and incidental accidents.

Personality disorder in the violence and self-injury group was 72.7% and this percentage in the second group

was 39.3%, with a noticeable difference (P = 0.028).

When we compared each personality disorder in the two groups, avoidant (P = 0.001), narcissistic (P = 0.003), anti-social (P = 0.002), borderline (P = 0.001), passive aggressive (P = 0.002) personality disorders were significantly higher in the violence group.

Also, the prevalence of schizoid (P = 0.35), dependent (P = 0.58), schizotypal (P = 0.29), paranoid (P = 0.82) and hysterical (P = 0.58) personality disorders had no difference in the groups.

Violence in patients with anti-social disorder (P = 0.002), borderline (P = 0.001), narcissistic (P = 0.003) and passive aggressive disorder (P = 0.002) was more than normal patients. However, in patients with other personality disorders such as schizoid (P = 0.35), avoidant (P = 0.10), dependant (P = 0.58), schizotypal (P = 0.29) and hysterical (P = 0.58), was less than patients without personality disorder.

Table 2. The Most Common Personality Disorders in Order of Frequency

Rank	In the Study of the General Population	In Our Study
1	Histrionic	Passive - aggressive
2	Passive -aggressive	Narcissistic
3	Dependent	Antisocial
4	Antisocial	Avoidant
5	Schizotypal	Schizoid
6	Borderline	Dependent
7	Avoidant	Schizotypal
8	Paranoid	Borderline
9	Narcissistic	Histrionic
10	Schizoid	Paranoid

5. Discussion

The present study confirmed the prevalence of personality disorder in patients with upper extremity trauma, compared to the normal population; therefore, greater attention should be paid to this group. Moreover, type of personality disorder, in the non-occupational group, compared to occupational group, was more common.

About 4 to 15% of the general population has this type of disorder. The incidence of personality disorder was 9% in the study of Samuels et al. (25), 14.4% in Torgersen et al. (26), 9.1% in Lenzenweger et al. (27), and 4.4% in Coid et al. (28). However, the incidence of this type of disorder is not specified in the general population of Iran.

Risk taking behaviours are associated with personal traits. Those with personality disorders are at a higher risk of physical accidents. The trauma may be caused by self-injury, violence, occupational injury and traffic accident. Hence, road accidents are more common among these individuals (22).

Risk taking behaviours make an individual unable to investigate the environment and this may put the person at risk. In a few studies, it was claimed that personal traits including aggressive, anti-social and disorganized personalities commonly increase the risk of accidents. In addition, individuals with some types of disorders are in danger of self-harm, self-suicide or violence (18-20, 27).

On the other hand, upper extremity is the most common part of body at risk of accidents. These accidents include occupational and non-occupational accidents. Occupational accidents constitute 15 to 40% of upper extremity incidents. Sport activities, traffic accidents, recreational drug use, violence and quarrelling, self-harm, and accidental events are other causes of upper extremity injuries (1, 4, 8).

Psychological factors in upper extremity trauma have received less attention. This study was the first to document the relationship between personality disorder and upper extremity trauma.

In our study, all participants were male. They are more involved in violence, and male workers constitute a larger group in Iran. In other studies, the prevalence of injury was 2 to 5 times higher in males. In one study, 93% of patients with traumatic occupational injuries were males (1, 2, 5, 8, 28).

Furthermore, with regards to education level in this study, most participants held a Diploma and Secondary School Degrees. The education level in the present study was higher than that of Grag's study (5).

If we consider personality disorder prevalence of 4 to 15%, we will find that the percentage of personality disorder in patients with upper extremity trauma is higher (41.1%).

According to the findings of this study, the most common personality disorders included passive-aggressive (18.8%), sadistic-aggressive (15.8%), narcissist (14.9%), antisocial (13.9%) and avoidant (11.9 %).

Violence and conflict were regarded as major factors in injuries among patients with personality disorder. This implies that psychological consultation and searching for personality disorders in patients with violence-related trauma are mandatory.

In the present study, it was shown that personality disorders such as borderline, avoidant, anti-social, narcissistic and passive-aggressive are significantly more common in violence and self-injury groups, and the main reason they hurt themselves is violence.

Studies have shown that violence and conflict play an influential role in some personality disorders (25-29). In

2008, de Barrons and de Padua Serafim (29) concluded that borderline and anti-social personality disorders show more aggressive behaviours than other types of disorders.

Individuals with borderline disorder show more impulsive and unplanned behaviours, however, in anti-social personality disorder, the person commits more illegal behaviours (25, 26).

Hence, occupational injuries are more common among these workers (8, 30).

Some hospitalized patients claim that they are injured due to accidents at places like home or work. However, the main reasons may be violence, self-injury and suicide, making them feel embarrassed because of economic (e.g. insurance companies refusing to cover costs) or social problems.

Studies have shown a relationship between personality disorder and committing suicide (31, 32). Different studies revealed that one disorder associated with suicidal behaviours is borderline personality disorder (33-35). Cheng et al. (1990) (36) reported that there was a strong correlation between committing suicide and anti-social personality disorder. In 2001, Mosciki (37) claimed that there was an undeniable trace of anti-social personality disorder in suicidal attempts.

Because of the high prevalence of this disorder among the patients, the psychological examination and the follow-up treatment of all patients are necessary. However, treatment of personality disorders is time-consuming and often fails.

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Footnotes

Authors' Contribution: Mohammad Javad Fatemi: study conception and design and drafting of the manuscript; Kamal Seyed Foroutan: study conception and design, and critical revision for important intellectual content; Hossein Akbari: study conception, design and supervision; Hossein Payandan: analysis and interpretation of data; Fasahat Khazaie, Sahar Amini and Tooran Bagheri: substantial contributions to data collection and analysis; Mitra Niazi, study design, drafting of the manuscript and final approval of the version to be published.

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