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The Psychosocial Characteristics and Needs of Patients presenting with Orofacial Injury

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Summary

Individuals presenting with orofacial injury to urban trauma centers in the US tend to be disproportionately socioeconomically disadvantaged, young, adult, ethnic minority males. Most injuries are assaultive in origin, thus suggesting poor impulse control and maladaptive social behaviors. Compared to matched control populations, orofacial patients are more likely to report higher levels of substance use behaviors and manifest greater levels hostility, anxiety and depression. Although they have significantly greater current and lifetime mental health and social service needs, actual use of social services is relatively low. The underlying psychosocial characteristics of many orofacial injury patients along with unmet service needs render them vulnerable for post-trauma psychological sequelae and may compromise functional outcomes and recovery.

Introduction

Although maxillofacial fractures are one of the more common types of injuries treated at our trauma centers, the surgical literature is largely confined to reporting the epidemiology of these injuries or articulating practice guidelines. The current practice of viewing these injuries only within a surgical context tends to ignore equally salient features that can and do impact the health outcomes. Over the past decade, the efforts of a small group of investigators (1-3) have increasingly sensitized the surgical community to the hidden social and psychological factors that adversely influence treatment response and increase the risk of recidivism or reinjury. Through the efforts of these investigators, orofacial injuries are becoming understood as occurring within an identifiable *interpersonal and intrapersonal context* (4). Providing effective surgical care is a critical aspect of recovery, but so is meeting the concurrent social and psychological needs of patients that may render them at particular risk for poor psychosocial adjustment following the traumatic event. Untreated emotional and behavioral disorders, including depression and antisocial behavior problems, contribute to poor overall social functioning, occupational failure, substance abuse, and continuing risking behaviors that increase the risk of violence and reinjury. This recognition provides the basis for a model of coordinated care wherein the surgeons work together with other specialists to develop and implement a comprehensive, integrated treatment plan that comprehensively addresses both the physical as well as the psychosocial needs of the patient with orofacial injury.

The preceding chapters as well as a number of studies using archival data have summarized the sociodemographic characteristics of persons presenting with maxillofacial fractures to our

trauma centers. Most subjects, particularly those treated at inner city hospitals, tend to be young males who sustain their injuries as a result of interpersonal violence. A retrospective review (5) of 267 patients treated for orofacial injury at a Level 1 trauma unit in Washington, DC, found that the patients were predominantly male (86%) and mostly (37%) young adults between 25 - 34 years. Nearly 79% of the injuries resulted from interpersonal violence and illicit substance use at the time of trauma was reported in 55% of all cases. Similar profiles were reported by Scherer and colleagues (6) who reviewed the hospital records of all 788 patients presenting with facial fractures to a Detroit-based trauma center. The injured population was predominantly male (80.9%) and African-American (71.6%) with assault with a fist or blunt object (70.1%) being the most frequent cause of injury. While these data highlight the association of sociodemographic and interpersonal variables with orofacial injuries, they largely ignore the broader social and psychological factors that led to these injuries or their influence on patient recovery. This is the topic of interest here.

Three research teams across the USA - the University of California, Los Angeles (4,5,6,7), the Medical College of Virginia (Richmond) (7), and the University of Medicine and Dentistry of New Jersey (UMDNJ) in Newark (9) -have recently reported data emphasizing the social and psychological characteristics of persons presenting for care of their facial injuries (most typically, mandible fractures). In contrast to the archival reports mentioned above, these newer studies were designed to collect data *prospectively* and with particular attention paid to obtaining contextual social and psychological data from the patients. The objectives of these studies include determining injury risk factors as well as predictors of outcomes and potential need for other care. Notably, all of these prospective studies involve predominantly socio-economically disadvantaged, ethnically-diverse, populations in urban settings. In this chapter, we compare and contrast the findings of these clinical research teams concerning the sociodemographic and psychological factors present at the time of injury or during the early days of recovery. First, we note the similarities in *demographics* among the samples in these studies. Second, we present published data to highlight *social and psychological factors* associated with orofacial injury. Third, we describe *comparison data* between those with orofacial injury and non-injured, sociodemographically matched controls (8) in order to distinguish personal from environmental factors which may be related to risk of injury. Finally, we discuss the implications of our findings as they pertain to collaborative care models that address the psychosocial aspects in addition to the physical injury. Our overall intent here is to highlight the demographic, social, and psychological factors that may impact on care and subsequent recovery of persons who experience orofacial trauma. Our focus is on perioperative factors that are apparent or readily elicited *at the time of the initial patient encounter or in the early recovery period*, rather than factors, such as the development of anxiety disorders or loss of social support, that may manifest long after the surgical follow-up has ended. The long term psychosocial sequelae will be discussed in subsequent chapters. Our underlying premise is that by viewing patients in a broader context at the initial encounter, clinicians will be able to see beyond the physical injury to include consideration of equally pernicious psychosocial factors that can prevent comprehensive patient recovery or set the stage for recurrent injury.

Sociodemographic profiles of orofacial injury patients

Samples sizes in the cohorts investigated prospectively by the various research groups range from 47 at the Medical College of Virginia (7), to 92 at UMDNJ (9) to 336 injured in the UCLA-led study (8). In two of the research studies - UCLA and UMDNJ—investigators approached consecutive admissions seeking care for an orofacial injury (typically a mandibular fracture); such a recruitment strategy reduces bias and likely increases the generalizability of findings. The strategy for recruitment into the study at the Medical College of Virginia is not clear. In the UCLA studies (2,8,10), patients were approached in the emergency department or shortly thereafter at an early follow-up appointment. The Virginia participants were

approached during an early follow-up appointment whereas it is unclear how soon after the injury participants were enrolled in the UMDNJ study. Causes of the injury were not systematically reported in the samples.

Overall, affected subjects were primarily males (mean percentage range from 78.7-89.9%); the subjects were typically in their late 20s to early 30s (mean age range from 29-35 years). All studies except the one at UMDNJ reported the ethnic compositions of their samples. In the Medical College of Virginia study, African Americans predominated. The UCLA-based studies showed a preponderance of both African-American and Hispanic subjects. The rates of unemployment ranged from 60% to 67.4% in the UCLA studies; the employment status was not reported for the other two samples. Similarly, marital status was only available in the Los Angeles samples; approximately 75% of the participants were currently single. Taken together, these data suggest the typical person presenting for urgent care of an orofacial injury is a socioeconomically, disadvantaged, young ethnic minority male who is currently unmarried. These data are very consistent with the data from earlier retrospective studies (5,6).

Psychosocial needs of injured patients

The sociodemographic description above suggests a pre-existing lack of social support and financial stress in many individuals presenting for care of a mandibular fracture. However, the reports from the three research centers (UCLA; Virginia, UMDNJ) manifest additional social needs and psychological issues in many injured individuals around the time of the injury or in the immediate recovery period. While these variables have been assessed in different ways, the themes emerging from these studies suggest that patients with orofacial injuries have a complicated set of needs and concerns impinging on them at the time of their injury, and are interested in obtaining assistance if it were available to them.

The association of alcohol with injury has long been acknowledged in trauma research and alcohol consumption is a major etiological factor in both intentional and unintentional trauma (11). In their cohort of orofacial injury patients, Auerbach et al. (6) at the Medical College in Virginia found that 36% of the patients had scores on the Alcohol Use Disorders Identification Test (AUDIT) (12) indicative of "hazardous and harmful alcohol use, as well as possible alcohol dependence". From the UCLA group, Wong et al. (13) reported that 31% of their injured sample with PTSD met screening criteria for probable alcohol use disorder using the Rapid Alcohol Problem Screen (14) (see chapter 4 in this volume for greater discussion of substance use issues). The prominence of substance use problems in orofacial injury patients is also recognized by the care providers (15). In a different UCLA cohort, Glynn et al. found (2) that the responses to the commonly used CAGE questionnaire suggested a *possible* alcohol problem in 62% of the subjects (16). These estimates are all markedly higher than the prevalence rates of alcohol problems found in African American (6.92%) and Hispanic (9.08%) males in their twenties found in a recently published large scale national epidemiological study (17). It should be noted here that the *drug use patterns*, in contrast to alcohol use patterns, were not systematically investigated in these samples. Because drug and alcohol use often co-occur, it is likely that even more injured persons would have been identified as having likely substance use issues if drug use patterns had been systematically queried in these studies.

A history of prior trauma appears common in patients with orofacial injuries. At UMDNJ, 42.4% of the sample reported previous injuries; among those, the majority of patients (59%) had experienced assault. Patients previously assaulted were 1.5 times more likely to report assault as the cause of their current orofacial injury. In the UCLA sample, Glynn et al (2) found that 85.1% of their subjects had experienced a prior traumatic event, as operationalized on the exposure items of the Posttraumatic Stress Diagnosis Scale (18). The rates of prior trauma exposure reported in the UMDNJ and UCLA samples are comparable to those reported in large scale studies of ethnically-diverse samples (19,20). The rate of *prior* Post-Traumatic Stress

Disorder (PTSD) reported in the UCLA sample, as indicated by self-report of symptoms, was slightly higher (14.5%) than the rates typically reported in larger epidemiological studies (8-12%) (19,21).

In light of the high rates of prior trauma exposure, alcohol use, and unemployment or underemployment, coupled with the burden of an acute orofacial injury, it is perhaps not surprising that a substantial proportion of injured participants appear open to the possibility of receiving some type of social service or mental health treatment as part of the care of their orofacial injury. In the UCLA sample (8), participants were first queried about their lifetime and current perceived need and use of social service and mental health services, using the Service Use and Adjustment Problem Screen (SUAPS) (22). This brief self-report screening tool included 11 items focusing on mental health and social service problems and utilization. Specific areas assessed included mental health problems, suicide attempts, alcohol use problems, drug use problems, impairment, problems with the law, problems with employment (fired or laid off), school expulsion or multiple suspensions, mental health and substance abuse treatment, and homelessness. Individuals are asked to indicate whether they experienced this situation during their lifetimes. Response options included 1) no, 2) yes, during the past year, 3) yes, but not during the past year, and 4) yes, both in the past year and before that time. Responses are summed to provide an index of 1) any self-identified mental health need 2) any self-identified service need, and 3) any service use. Overall, 78.3% of the sample indicated a lifetime social service need and 53.0% indicated a lifetime mental health need, with 48.6% indicating a *current* social service need and 36.9% indicating a *current* mental health need at the time of the incident. In spite of this need, current service use rates were only 11.3%.

Recognition of this need for either some change in behavior or engagement in collaborative care was reflected in the UCLA and UMDNJ samples. To assess participant interest in an aftercare program specifically designed to address reported mental health problems, Wong et al (13) queried a cohort of UCLA subjects to ascertain their interest in a program designed to help assist them with anxiety, depression, and alcohol problems. Responses were provided on a 3-point scale ranging from 1 (very interested) to 3 (not at all interested). Participants screened into the study (facial injury with a likely diagnosis of PTSD, depression, or an alcohol use disorder) achieved a mean score of 1.68, suggesting at least a moderate interest in aftercare. However, many barriers to accessing treatment were identified by participants (13) and their care providers (15), with the primary barriers being lack of information on suitable programs, cost, transportation, and other competing responsibilities of the care providers. At UMDNJ, Laski et al (9) incorporated the transtheoretical stages of change model (23) to understand the receptivity of participants to attending a workshop to reduce risk of re-exposure to violence.

The transtheoretical stages of change model proposes that individuals pass through predictable stages when improving health behaviors—precontemplation (no active consideration of change), contemplation (consideration of change, but no current commitment to change), preparation (active commitment to change but not taking action yet), action (specific actions currently being engaged in to bring about the behavior change), and maintenance/relapse (behavior change has or has not been achieved for at least 6 months) Most orofacially injured participants in the Laski study were in the contemplation (54%) or preparation stage (28%) to enter a violence reduction program if it were offered. These results suggest that if individuals are approached around the time of injury, they may be especially amenable to address problematic behaviors that continue to put them at risk.

Taken together, the results of these studies suggest that individuals presenting with orofacial injury appear to be an increased risk of concurrent alcohol use problems and likely have had prior traumatic exposure. Most have experienced prior social service and mental health need in their lives and 35-45% are experiencing this need around the time of injury, although actual

service use rates are low. While there appears to be a willingness to consider professional intervention among injury survivors, perceived access is a significant obstacle. These results highlight the multidimensional nature of the obstacles that many injured patients must overcome to achieve high levels of physical and social functioning.

Orofacial injury patients differ from their matched, uninjured cohorts

Socioeconomically disadvantaged individuals tend to be disproportionately affected by facial trauma (24). One challenge to understanding the characteristics of the orofacial injury samples discussed to this point is that many participants were from economically deprived areas and live under extreme social and environmental stress. This pattern of findings raises the question of whether the risk factors highlighted here result primarily from economic deprivation or are they more specific personal characteristics predisposing individuals to an orofacial injury? There are few norms to which we can compare the results obtained in these trials to clarify this issue. In other words, are the social and psychological problems associated with assault-related orofacial injury uniquely associated with this group or are they generally consistent with the socioeconomic milieu in which these patients find themselves?

The data collected as part of a prospective study conducted by the UCLA group (8) helps distinguish the relative importance of social and economic deprivation from other factors that contribute to the risk of orofacial injury and adverse outcomes. Beyond the cohort of 336 orofacial injury patients, similar demographic, social history, and psychological functioning data were collected from 119 patients presenting for elective third molar extractions. Being drawn from the same urban environment, the third molar group served as a control for the larger economic/social context of the injured individuals. Using assessment measures described above, sociodemographic data, information on alcohol use on the CAGE, and data on prior trauma exposure were collected from both groups. A widely used measure of psychological distress and psychiatric complaints, the Brief Symptom Inventory (BSI), (25) was also administered. The BSI is a brief, multidimensional self-report assessment consisting of 53 items in nine dimensions. For purposes of this study, the Anxiety, Depression, Phobic Anxiety, Hostility, and Obsessive-Compulsive scales were used. The patients rated each item on a 5-point scale of distress, from 0 ("not at all") to 4 ("extremely"). Only raw scores were used in the analysis because the study sample substantially differed from the ethnic distribution of the normative sample used to generate the standardized scores for the BSI. Patients from both groups also completed the SUAPS, described above, which assessed social and mental health service need and use, both lifetime and current. These data were all collected at admission or within 10 days of the injury or surgical extraction.

Even within the same socioeconomic urban setting, the injured and third molar samples differed in significant ways. The third molar group was composed of significantly more women (25.2% vs. 12.1%), tended to be younger (55.5% in the 18 to 29 age group vs. 38.8%), and was less likely to report any alcohol use (32.8 % vs. 17.3% abstinent) or any drug use (71.4% vs. 51.1% no use). Thus, even within an identical environmental context, in comparison to those having an elective third molar extraction, individuals suffering a facial injury tended to be male, to be slightly older, and evidence current use of alcohol or drugs. However, the samples did not differ on marital status (less than 20% in each sample were married), ethnicity (over 60% were African American in both groups), education (over 60% had at least graduated from high school in both groups), or employment (over 60% were unemployed in both groups). In a follow-up study of similar patients (n=98) with mandibular fractures and a comparison group of third molar patients (n=103), Atchison and colleagues (26) noted that the facial injury patients also reported less perceived social support and smaller social networks.

Differences in psychological and social variables in these two samples were then examined after adjusting statistically for pre-existing differences in the sociodemographic composition

of the two groups. Ten days post-injury, the injured group showed significantly more depression, anxiety, hostility, and phobic anxiety on the BSI, as well as significantly more current and lifetime mental health and social service need. The higher rates of anxiety and depression in the injury group compared to the third molar cohort is striking given that the extraction group was comprised of more women than the injury group. Female gender is typically associated with greater self-reported rates of depression (27) and most anxiety disorders (28), and thus we might have expected a greater preponderance of these symptoms in the comparison group. However, there were no differences in obsessive-compulsive symptoms or current or life time social service use between the two groups. These results suggest that, even in an economically disadvantaged, ethnically diverse population, individuals at risk for severe orofacial injury exhibit identifiable psychological characteristics.

Clinical Implications

There is a remarkable consistency in the findings of the studies reviewed here on factors associated with sustaining a severe orofacial injury such as a mandibular fracture and presenting for treatment at a large urban hospital. Injured patients were typically unemployed, socially disadvantaged, ethnic minority males from their mid twenties to their mid 30s. They had likely been exposed to prior traumatic events, though they typically did not currently have PTSD from these events at the time of the orofacial injury. Most of the orofacial injuries resulted from assaults and alcohol or substance use was often involved. Injured subjects evidenced greater levels of substance and/or alcohol use, less perceived social support and smaller social networks, as well as higher rates of depression, anxiety and hostility, compared to epidemiological data or local comparison groups. Orofacial injury patients tended to have high rates of lifetime and current social and mental health needs, and were often open in the early recovery phase to considering participation in a positive behavior change program, in spite of past low levels of social service use.

Given the high rates of unrecognized, untreated psychosocial problems in patients presenting with orofacial injury, using the acute care visits as an opportunity to screen for psychosocial problems will likely increase detection of patients with behavioral disorders and high-risk behaviors that precipitated the injury and could interfere with a comprehensive recovery. There is evidence that psychosocial screening of trauma patients followed by referral to mental health services for those identified with psychosocial dysfunction may result in improved outcome. Inasmuch as the acute injury is often the only contact the patients, who are otherwise healthy young adults, have with the healthcare system, the hospital encounter provides opportunities to identify problems such as alcohol abuse that would otherwise be missed and lead to subsequent reinjury. Because a significant subset of facial injuries are related to alcohol and substance use (29), there is potential for incorporating brief screening and behavioral interventions into the care of these patients.

It is important to note that this chapter has not addressed the often negative psychological and social *long-term outcomes* of incurring an orofacial injury. As elaborated on in other chapters, physical scarring and psychological wounds may develop over time, and even become chronic (10). It is very likely that these negative sequelae are going to be even more prevalent in persons who already are experiencing difficulties with substance use, anxiety, depression, hostility, small social networks, limited social support and financial resources, and unmet social service need when they are injured. These results point to the importance of also ascertaining the lifestyle variables associated with sustaining orofacial injuries. While medical treatment may repair the broken bones, many of these patients continue to be at risk for re-injury or poor psychological outcomes because they may lack the social and personal resources required to make the sustained positive behavior changes. A model of comprehensive intervention built on the principles of collaborative care, wherein practitioners from multiple disciplines work

together to develop and implement an integrated treatment plan to address the concurrent social and psychological needs of orofacial injury patients appears imperative (30). In addition to providing surgical care, the team must be able address social needs (homelessness, joblessness) and psychological needs (PTSD, depression, anxiety, and substance use). Innovative cost-effective programs which can integrate medical and psychological care are especially necessary. Interventions such as motivational interviewing, a brief form of counseling designed to help individuals garner personal resources to promote positive behavior change, which can be offered to patients within days of their facial injury (31), may be especially important in improving long-term outcomes. However, this collaborative care paradigm requires addressing several clinician, patient and environmental factors including attitudinal and procedural barriers to implementing and sustaining psychosocial screening within orofacial injury care: inadequate provider knowledge about mental and behavioral issues and mental health treatment resources in the community; short supply of mental health services and providers; fragmented mental health service systems; and the stigma surrounding mental illness. Training surgeons about behavioral issues, providing easily assessable guides for rapid screening of psychosocial problems, and developing collaborative relationships with mental health professionals and social workers are important first steps toward integrating mental health services into the care of facial injury patients.

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