

Do Eating Disorders and Chronic Facial Pain Coexist? A Preliminary Study

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ABSTRACT

Objective: Although eating disorders and chronic facial pain have been documented for many years, no studies have investigated the coexistence of these disorders. Both conditions are chronic, possess an underlying psychological component to their origin and are associated with other psychiatric comorbidities. The objective of this descriptive study was to determine the prevalence of chronic facial pain in a population of patients with eating disorders. In addition, eating disorder symptoms were investigated in a patient population with chronic facial pain.

Methods: The study group was composed of 110 patients from 2 eating disorder programs and 78 patients from a chronic facial pain treatment centre participated in the study. All patients received 2 standardized questionnaires, the Eating Attitudes Test 26 (EAT-26) and the Hapak questionnaire, to determine the presence of symptoms associated with an eating disorder or a temporomandibular disorder, respectively.

Results: Using a digital analog scale, 60.9% of those in the eating disorder population reported some form of facial pain currently or in the recent past. Only 2 patients in the chronic facial pain population scored above the threshold for significant eating disorder symptoms.

Discussion: This pilot study describes the coexistence of chronic pain in an eating disorder population. The presence of chronic pain may interfere in the treatment provided to patients with eating disorders.

MeSH Key Words: eating disorders; facial pain; temporomandibular joint disorders/etiology

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Eating disorders are a complex of illnesses that primarily affect young women and are occurring with increasing frequency. Anorexia nervosa (AN) is characterized by self-imposed starvation; a body weight of at least 15% below that expected; a distorted perception of body shape, weight and size; and the absence of at least 3 consecutive menstrual cycles in postmenarcheal females.¹ Bulimia nervosa (BN) is characterized by binge eating and recurrent inappropriate compensatory behaviours (vomiting, misuse of laxatives, diuretics, enemas or other medications, fasting or excessive exercise), which occur, on average,

at least twice a week for 3 months.² The etiology of AN and BN is thought to be multifactorial³ with biologic, psychological and sociologic factors contributing to the determinants of these disorders. Eating disorders are associated with serious medical and psychological complications.⁴ They are also common: the prevalence of AN is 0.5% to 1% and that of BN is 5%.⁵ Both AN and BN are associated with high rates of medical and psychiatric comorbidity.

It is commonly believed that many patients presenting with AN also complain of chronic musculoligamentous pain. Chronic facial pain,

Table 1 Characteristics of the study populations

	Eating disorder population	Chronic facial pain population
No. of patients	110	78
Mean age (years)	23.21 ± 4.6	34.04 ± 13.5
Age range (years)	11–44	13–60
Mean weight (kg)	48.64 ± 14.9	
Mean height (cm)	162.79 ± 7.0	
No. of patients below healthy weight for age and height ¹⁵	86	

Table 2 Assessment of facial pain in the eating disorder population

No. (%) of patients with pain now or in recent past	67 of 110 (60.9)
No. (%) of patients reporting pain who are in pain at time of survey	45 of 67 (67.1)
No. (%) of patients currently in pain with moderate to severe pain (DPS ≥ 4)	30 of 45 (66.7)
No. (%) of patients in the study population with moderate to severe pain	30 of 110 (27.3)

DPS = digital pain scale

especially temporomandibular disorders (TMD), is often exacerbated by jaw movements. The pain is frequently associated with the muscles used in mastication or with the temporomandibular joint(s) or both.⁶ The symptoms are usually chronic and, in some cases, can last more than 6 months. The exact cause of these conditions is not understood; however, a number of factors, including mechanical, neurophysiological and psychological ones, play a role in “predisposing, initiating or perpetuating” the facial pain condition.⁷

Notably, as many as 14% of patients presenting with signs and symptoms of a TMD may also have symptoms of a psychiatric illness — energy loss, weight loss, concentration changes, sleep disturbance and feelings of depression.⁸

Although a few studies^{9,10} have looked at the prevalence of facial pain in the eating disorder population, none has specifically focused on the prevalence of eating disorders in a population with chronic facial pain. The multifactorial nature of facial pain in general, and TMD in particular, has been demonstrated.¹¹ For each eating disorder, a number of psychological and social factors are thought to be involved in the initiation and perpetuation of symptoms. Thus, an association between these 2 entities is conceivable, given that both are often characterized by food aversions.^{12,13}

The objectives of this study were twofold: to determine the prevalence of patients with chronic facial pain who have concomitant eating disorders and to determine the prevalence of adolescents and young adults with eating disorders followed in a tertiary care centre who suffer from symptoms of chronic facial pain. The reason

for investigating the coexistence of these entities was primarily to reevaluate the treatment for each population. We hypothesized that should both disorders exist in a patient, the need for treatment in a “multidisciplinary” setting would take on greater significance.

Methods

Patient Population

Patients were recruited from 3 clinical populations: those with chronic facial pain, adolescents with eating disorders and adults with eating disorders. Patients 12–65 years of age were consecutively recruited from the Wasser Facial Pain Unit at Mount Sinai Hospital, Toronto, Ontario, if they met the following criteria: they presented with a complaint of facial pain lasting for at least 6 months; the pain could be associated with the temporomandibular joint or the muscles of mastication; the condition was associated with either an inability to eat or an alteration in normal eating habits. Patients were excluded from the study if they also had another chronic medical illness.

The second patient population consisted of adolescents between 12 and 17 years of age who met the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)*¹⁴ criteria for AN, BN or an eating disorder not otherwise specified (EDNOS). They were recruited consecutively from the Eating Disorder Program at The Hospital for Sick Children, Toronto, Ontario. The diagnosis for each patient was based on a clinical evaluation by the Eating Disorder Team and confirmed in a semi-

structured diagnostic interview administered by a trained research assistant.

Finally, adults 18–65 years of age diagnosed with an eating disorder based on DSM-IV¹⁴ criteria who presented to the Program for Eating Disorders at The Toronto General Hospital, Toronto, Ontario, were asked to participate in the study. These patients were attending the inpatient eating disorders program at the time of recruitment. Diagnoses were established by semi-structured interviews performed by trained research staff. The data from the 2 eating disorder populations were pooled for ease of presentation.

The study was approved by the Research Ethics Board at The Hospital for Sick Children and the University of Toronto Human Subjects Review Committee, and written informed consent was obtained from each patient. Patients less than 16 years of age provided informed assent along with parental written informed consent.

Patients were excluded from the study if their chronic facial pain was accompanied by a degenerative joint condition (i.e., rheumatoid arthritis or osteoarthritis in the temporomandibular joint) or if the onset of the pain was associated with a physical trauma (e.g., blow to face or motor vehicle accident). In addition, all patients with a metabolic or neoplastic disorder were excluded.

In all, 190 female patients were invited to participate in the study between June 1998 and July 2000; 2 patients (1 adolescent and 1 adult) refused to participate. Interviews were conducted with the 110 patients (mean age 23.21 ± 4.6 years) in the eating disorder group; their clinical characteristics are outlined in Table 1. In addition, 78 female patients (mean age 34.04 ± 13.5 years) in the chronic facial pain group were interviewed (Table 1).

Measures

All patients received 2 standardized self-administered questionnaires: the Eating Attitudes Test 26 (EAT-26)¹⁶ and the Hapak questionnaire.¹⁷ EAT-26 is a valid and reliable tool used to identify those with eating disorder symptoms. This questionnaire correlates reasonably well with the presence of an active eating disturbance¹⁸ and has been shown to correlate well with clinical and psychological parameters in tested cases. It is not a diagnostic instrument.

The Hapak questionnaire is a 21-item survey accompanied by a digital pain scale (DPS) used to differentiate musculoligamentous and dental-related pain from neurologically based craniofacial pain. Its primary use is in the triage of facial pain patients for assessment of pain complaint etiology. It may also be used to assess the presence or absence of craniofacial pain through its accompanying DPS. The Hapak questionnaire has been validated in a chronic facial pain population and was standardized against clinical assessment. The sensitivity and specificity of this questionnaire were 78.7% and 81.5%,

respectively, in determining the prevalence of musculoligamentous pain in an adult population.¹⁷

Given the nature of the population in this study (both adolescent and adult), the language of the Hapak questionnaire was adjusted to a Grade 3 reading and comprehension level for the adolescent patients.

All patients enrolled in the study received both the EAT-26 and the Hapak questionnaire.

Analysis

Both the Hapak questionnaire and the EAT-26 were scored based on pre-established methods.^{17,18}

The EAT-26 survey used raw scores to determine the presence or absence of eating disorder symptoms in all populations. A total raw score of less than 20 is considered to be below the threshold for significant eating disorder symptoms.¹⁸

The presence or absence of pain was best noted on the DPS of the Hapak questionnaire. The scale ranges from 0 indicating “no pain” to 10 indicating “worst imaginable pain possible.” A score greater than 0 was considered to be positive for the presence of pain. The DPS results were used to differentiate the severity of the condition. Moderate to severe facial pain was based on a DPS score of 4 or higher. Answers to the Hapak questionnaire assisted in “categorizing” pain as musculoligamentous, dentoalveolar or neurologic. The Hapak questionnaire also defined primary pain location.

A Mann-Whitney rank sum test was used to compare EAT-26 scores for those in pain against those not in pain. The Pearson correlation coefficient was used to assess the relation between the EAT-26 score and the DPS score for each population.

Results

Eating Disorder Population

Of the 110 patients in the eating disorder group who were interviewed using the Hapak questionnaire, 60.9% indicated that they had some type of facial pain currently or in the recent past (Table 2). Sixty-seven per cent of those in pain suffered from moderate to severe facial pain. A number of pain locations, symptoms and source(s) were noted: 40 (88.9%) complaints of pain were associated with either the temporomandibular joint or the facial region, 3 were migraine-related and 2 were “tooth-related.”

EAT-26 scores were found to be higher in patients who had rated their facial pain high compared with those who had reported no facial pain (42.69 vs. 27.91, $p < 0.05$ [Table 3]).

The DPS score for the worst pain imaginable was found to correlate with the EAT-26 score (Pearson correlation = 0.43, $p < 0.01$).

Table 3 Comparison of EAT-26 scores of patients with and without pain in the eating disorder population

Pain patient in Eating Disorder Clinic	42.69 ± 16.4
Non-pain patient in Eating Disorder Clinic	27.91 ± 22.5

Note: Mann-Whitney rank sum test indicates significant difference between populations ($p < 0.05$).

Chronic Facial Pain Population

All 78 patients screened using the Hapak questionnaire and the EAT-26 questionnaire registered some form of facial pain complaint. Sixty-six patients reported pain associated with the temporomandibular joint or the muscles of mastication or both. Using the Hapak questionnaire, 4 patients were identified as having migraine-like symptoms and 8 were noted to have some form of atypical facial neuralgia. Only 2 of the 78 patients had elevated EAT-26 scores suggestive of significant eating pathology. According to the Hapak questionnaire, the pain of both these patients was primarily musculoligamentous.

Discussion

This preliminary study provides evidence of the coexistence, among eating disorder patients, of symptoms associated with chronic facial pain. This is the first study suggesting such a relationship. We found that a high percentage of patients presenting to an eating disorders program also suffered from moderate to severe facial pain and these patients had not been previously diagnosed with or recognized to suffer from this facial pain. In addition, those in the eating disorder population who were suffering from facial pain symptoms had higher EAT-26 scores. There did not appear to be a reciprocal relationship in the facial pain population with respect to the presence of eating disorders; only a small percentage (2.6%) of the pain patients scored positively on the EAT-26 questionnaire.

Few studies have investigated the prevalence of eating disorders in patients presenting with a TMD or chronic facial pain. Belfer and Kaban⁹ noted that a mixed pediatric and adult population with symptoms of a TMD also showed signs of psychiatric illness. Of note, 35% of the pediatric patients had some form of undiagnosed psychopathological disorder compared with only 6% of the adult group. Pillemer and others¹⁰ also reported that younger people (7 to 17 years old) with musculoligamentous pain had a primary psychiatric disorder that initially presented as symptoms associated with facial pain. Interestingly, AN was among the psychiatric diagnoses.

Psychological issues are known to contribute to the development of both chronic pain and eating disorders.

Pain is strongly associated with depression and anxiety disorders and these factors can amplify the patient's distress.¹⁹ The incidence of major depression in patients with AN and BN has also been noted. Kennedy and others²⁰ showed that 43% of 198 female patients with AN or BN met the criteria for major depressive disorder. These factors were thought to have practical implications in the treatment of these populations. The comorbid occurrence of TMD, eating disorders and depression may complicate and perpetuate the entire symptom complex. In addition, TMD pain may impair dietary intake to the point where patients with eating disorders are further compromised.²¹

List and colleagues²² studied the prevalence of TMD in an adolescent population drawn from those registered as patients in a Swedish public dental clinic. They noted that chronic pain in a population of 12–18 year olds tended to be more prevalent in females. However, only 23% of the females surveyed noted pain “at least once a week or more often in the face, jaws, temporomandibular joint or temples.” The prevalence of the signs and symptoms of TMD varies depending on the adolescent population studied. For example, a group from Brazil examining high school and university students noted that 34.8% had mild TMD symptoms and fewer than 6% had moderate to severe symptoms requiring treatment.²³ On the other hand, a Chinese survey of 3,105 children and adolescents randomly selected from a public dental clinic found that 17.9% of children (3–19 years old) had symptoms associated with a TMD.²⁴ This is markedly fewer than the 53.1% of adolescents with eating disorders in our study who noted symptoms associated with chronic facial pain.

Locker and Slade²⁵ investigated the prevalence of symptoms of TMD in a general population. A random telephone survey suggested that 6.9% of 327 females questioned had symptoms of “pain in the temporomandibular joint region with jaw opening”; 7.7% noted pain while chewing and 9.5% described pain in front of the ear. This is in marked contrast to both the adolescent and adult eating disorder populations in this study, who demonstrated a significantly higher prevalence of pain symptoms.

This study describes a high percentage of patients presenting to an eating disorders program who also suffered from moderate to severe facial pain, highlighting the coexistence of these conditions in this population. Furthermore, this study underscores the importance of health care providers inquiring about the presence of facial pain in patients with eating disorders. Facial pain could have a negative influence on the treatment of the eating disorder. However, this comorbidity requires further exploration. Replication of these findings is needed to understand the nature of the coexistence of these conditions. Ideally, a clinical examination should be included in future studies of this association. Ultimately, treating patients with chronic facial pain may

have implications for the treatment of people suffering from eating disorders. ❖

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