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## Use of a habit reversal treatment for temporomandibular pain in a minimal therapist contact format

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### Abstract

Previous research has suggested that a habit reversal treatment might be used effectively in a home-based minimal therapist contact (MTC) protocol to facilitate flexibility and increase treatment completion rates. Recent reviews of MTC interventions have found it to be generally efficacious, cost-effective, and generalizable. While MTC has been used for certain health-related disorders (e.g., headache), almost no research has evaluated the effectiveness of a MTC protocol with a population suffering from temporomandibular disorder (TMD). The current study utilized an oral habit reversal treatment in a MTC format in an attempt to reduce attrition and increase treatment flexibility. Twenty females suffering from TMD were randomly assigned to either a treatment ( $n = 10$ ) or a wait-list control ( $n = 10$ ) condition. Six individuals in each group used telephone contact while 4 used e-mail for weekly communication with the therapist. Results demonstrated that a habit reversal treatment in a MTC format led to statistically and clinically significant improvements in mean weekly pain ratings, number of pain-free days per week, and highest weekly pain ratings. Also, a significant reduction in maladaptive oral habits occurred from pre- to post-treatment and significant reductions in life stress and pain interference were observed. Results were maintained at follow-up. The implications for the use of MTC for treatment of facial pain are discussed, as

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are the implications of these findings for the role of oral habits in the etiology of TMD.  
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## 1. Introduction

Current views hold that temporomandibular disorders (TMD) are a collection of clinical symptoms associated with the muscles of mastication and related head and neck musculature and/or the temporomandibular joint (e.g., Bush & Dolwick, 1995). Population estimates of TMD-related persistent pain each year are 12%, with 25% of these individuals seeking treatment (von Korff, Dworkin, & LeResche, 1990) mostly as a result of pain-related sequelae (Dworkin et al., 1990). The impact of TMD-related pain ranges from mild discomfort to debilitating pain, such that routine oral activities (e.g., eating, speaking) can be painful, and the patients' ability to participate in and enjoy activities involving family, friends, and employment can be limited. Most dental treatments report a high success rate; however, the effects often deteriorates over time, resulting in an increased number of doctor's visits (Dworkin, 1994).

Recent research has consistently emphasized behavioral and psychosocial factors as part of a multi-factorial etiology for TMD (Dworkin, 1994, 1999; Haber, Moss, Kuczmierczyk, & Garrett, 1983; Laskin, 1969; Parker, 1990; Turk, 1996; Turk & Flor, 1999). The prevailing etiological model of TMD proposes that psychological factors (e.g., stress, anxiety, anger, depression) trigger oral habits (e.g., teeth clenching and grinding, jaw thrusting) resulting in muscle hyperactivity and subsequent facial pain (Laskin, 1969, 1995; Haber, Moss, Kuczmierczyk, & Garrett, 1983). Chronic engagement in oral habits presumably results in gradual increases in muscular tension in the masticatory musculature and serves as a behavioral bridge between stress and pain (Sturgis & Gramling, 1998).

Numerous studies have explicitly linked oral behaviors (e.g., bruxing, lip biting, nail biting, cupping the jaw in the hand) with TMD symptomatology and/or pain (Glaros, Baharloo, & Glass, 1998; Glaros & Glass, 1993; Glaros & Rao, 1977; Glaros, Tabacchi, & Glass, 1998; Haber et al., 1983; Laskin, 1969; Moss, Garrett, & Chiodo, 1982; Parker, 1990). Similarly, TMD-like pain has been induced via experimental teeth grinding in previously asymptomatic individuals (Christensen, 1979, 1981; Koyano, Kim, & Clark, 1995). Finally, individuals with TMD engage in more oral habits than those without TMD based upon self-report of trait and state oral habits, behavioral observation, and psychophysiological assessment (Gramling, Grayson, Sullivan, & Schwartz, 1997; Nicholson, Townsend, & Gramling, 2000).

The most common dental intervention for TMD-related problems is the use of an intraoral appliance (McNeil, Mohl, Rugh, & Tanaka, 1990; Bush & Dolwick, 1995), which have been reported to have high success rates (Clark, 1984; Sheikoleslam, Holmgren, & Riise, 1986). However, a number of difficulties arise with their use,

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