Excessive oral parafuctional movement habit reversal

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Self-Reporting of Excessive Oral Parafuctional Movement with Proposal of Future Intervention

Oral parafunctional activities refer to excessive uses of mouth, tongue and jaw, including continuous chewing, biting objects, leaning on the hand, teeth grinding and jaw clenching (Winocur, Litter, Adams & Gavish, 2006). Their prevalence and association with signs and physiological and psychological symptoms of dysfunction have been reported, such as facial muscle pain, headache, and feeling stress (Lobbezoo, Van Der Glas, Van Der Bilt, Buchner & Bosman, 1996; Rodríguez, Miralles, Gutiérrez, Santander, Fuentes, Fresno & Valenzuela, 2011; Winocur et al., 2006).

Previous research has been demonstrated the maintenance of oral parafunctional habits are resulted from temporomandibular disorders (TMD), occurred by several reasons like joint disturbances (noises, catching, and joint tension), muscular discomfort, possibly eating disorder and obsessive-compulsive disorder, and trauma (Gramling, Neblett, Grayson & Townsend, 1996; Winocur et al., 2006). However, some researchers have pointed out these factors are poorly proven as the numerous number of people has the TMD problem even though they do not have other oral habits (Cairns, 2010; Fotek, 2014).

Although not many studies has been done to find out the reasons of maintaining those habits in terms of operant conditioning (e. g. rewards or punishment), but it is assumed to happen due to stressful lifestyle, frustration, or personality traits such as being aggressive or competitive

while a subject is awake (Glaros & Burton, 2003; Lobbezoo, Van Der Zaag & Naeije, 2006). Researchers focused on treatments targeting parafunctional habits to decrease TMD pain which indicates their significant relationship with TMD (Glaros, Owais & Lausten, 2007). In other words, there is possibility of reducing the psychological stress which is the positive outcomes of maintaining oral habits, however, they are more likely to produce negative outcomes such as higher pain and symptoms of TMD by clenching and grinding teeth (Glaros et al., 2007; Peterson, Dixon, Talcott & Kelleher, 1993).

Treatment for oral habits revolves around repairing the damage to teeth and jaw, thus dental treatment such as occlusal splint or mandibular advancement device could be in use. In addition to this, given the strong association between diurnal oral parafunctional activities like bruxism and psychological factors, habit reversal treatment has been suggested to increase a patient's awareness of unwanted behaviours, develop an alternative to the habits, for example, relaxation of the masticatory muscles and succeed in reducing TMD pain (Glaros et al., 2007). Research results suggests that group of patients using either habit reversal techniques or splints both experienced a great deal of relief from pain. In fact, habit reversal treatment is the one of the effective techniques in treating several motor disorder (Azrin & Nunn, 1973; Peterson et al, 1993).

According to Glaros, Hanson and Ryen (2014), 6-week-period habit reversal treatment was administered to reduce tooth contact and muscle tension in terms of headache by DTMT, dropping their jaws slightly (D), separating their teeth slightly (T), relaxing the muscles in the jaw and face area (M), and

performing a deep breathing activity (D). Thirty-seven participants with TMD were selected between ages of 18 to 65 and completed the questionnaire to diagnose headache and TMD in the first phase. For the next phase, only 23 participants those who had headache from the phase 1 enrolled the treatment. They were given information about headache, facial pain, the role of oral behaviours in headache, and effect of tooth contact during the treatment session, then practiced DTMD treatment every two hours with a pager signal, and whenever they detected the tooth contact or facial muscle tensions.

Although results from application of treatment in the phase 2 interpreted participants reported less pain and disability but the headache symptom did not change for 6 week trials. However, they showed a significant reduction of intensity of parafuctional habits after the treatment, but the period should be longer to reveal more powerful effects as they did not find a strong relationship between oral habits and headache.

Habit reversal treatment was delivered to eliminate the motor behaviours, and negative though reversal method was given as the instructions to remove stress factors (Gramling et al., 1996). 17 qualified participants were recruited through the local newspaper advertisement, who reported TMD, with a symptoms such as mandibular joint sound, locked jaw and tenderness in the jaw. However, only the data collected from nine patients were analysed as they attended at least five sessions to be completers the whole therapy process.

Before the treatment, treatment expectations and satisfaction from participants were measured to find out the relationship with outcomes such as decrease in frequency or intensity of oral behaviours. To get those descriptive information, participants filled out the facial pain diary four times in a day. Also, they answered to the questionnaires about the eleven different oral behaviours with ten-point scale, from " never" performed to " almost always", and about the psychological distress with State-Trait Anxiety Inventory (STAI).

Treatment conducted over a 24-week period, and three treatment groups of 5 to 6 people met weekly for seven consecutive weeks in 90-minute sessions. During the sessions, participants kept record an oral habit self-monitoring form to increase awareness of their own oral habits, thereby making habit reversal possible. They also continued and recorded practices for deep breathing and facial exercises practice throughout the whole sessions, which interrupt and reverse their oral behaviours.

As the result of this study, Gramling et al. (1996) pointed out that habit reversal treatment strategy may be an effective intervention for many persons suffering from facial pain as participants shown significant decrease of rating pain by the end of treatment, which is consistent with diary data, however, the frequency and intensity of oral habit did not illustrate notable decrease.

Peterson et al. (1993) investigated only 3 patients with variety of ages and gender traits who carried habit reversal treatment for 6 week, 1 hour sessions per week. This case study showed different results by individuals,

but generally concluded the habit reversal could help reducing pain and increasing maximum opening for some TMD patients, and possibly more helpful for muscle-related problem than joint-related problem. Also, those who have been remaining oral habits for long time, it is more difficult to change such behaviours.

The aim of current research project, self-reporting from one subject, is to understand the oral behaviours and reduce the frequency and possibility of TMD. By analysing the potential cause and background history of behaviours, subject could understand the significance of reducing parafunctions in terms of physical and mental health.

Method

Participant

Y is a 25 year old female international student at University of Queensland, currently working in a travel agency who recently found out her excessive oral parafunctional activities with 14-month duration and feel anxiety of temporomandibular disorders.

Operational Definition

Oral parafunctional activities referred to making excessive movement of mouth and jaw including clenching jaw or grinding teeth while awake, and possibly combined with biting lips and presence of joint sounds. These behaviours were scored when (a) repeatedly occurred in a daytime, (b) whether subject is alone or not, (c) presented one or multiple behaviours at the same time. For example, grinding teeth while sleeping and making a

single movement in lower jaw were not scored, while clenching teeth for 5 seconds and biting lips after jaw clicking are scored. In addition to this, simply opening mouth while talking and eating, or touching the temporomandibular joint could not be scored.

Behavioural Recording Technique

Self-monitoring method was chosen for this research, because subject was able to collect data when she was alone, or with other people. Also, such behaviours are often not easily to be observed by someone else. For the records, whenever subject noticed the oral parafunctional activities, she made notes on mobile device or paper with specific description of occasion, for the 14 consecutive days. However, accuracy of recording could be contaminated as it is very likely make errors while counting if behaviours occurred unconsciously. Also, Peterson et al. (1993) noted self-monitoring could affects the frequency of habits, by reducing teeth clenching and grinding.

Results

The general pattern from results of current project are shown in the Figure 1. Over the 14 days of monitoring period, the mean of frequency of oral habits occurred in a day is 12. 29. The highest number reported during the period is 45, which is from the Day 13 while the lowest point is from Day 8.

The possible reasons for these consequences have a strong relationship with the performance generated anxiety related to subject's academic works on the reported dates. The Day 13 was the due date for the assignment graded

higher percentage, it is assumed that the participant had a great level of anxiety. Also, she was awake for long time to complete the assignment, therefore, an excessive repetition appeared because a number of oral parafunctional activities was counted while subject awake.

However, on the 8th day, none of oral habits was presented as the participant enjoyed the relaxation from the assignment and took a resting at home with the presence of intimate person. The reduction of anxiety was likely to stabilise her mental status, in contrast to other days of monitoring.

According to the similarity in frequency between Day 6 to Day 11, subject maintained everyday routines such as going to university and working. The circumstances that she presented those habits were generally on the bus for commuting and doing task without interaction to others. It could possibly mean the absence of attachment to relatives made her isolated and generated slightly stressful situation. On the other hands, when the participants concentrated on non-stressed activity such as mobile game, she did not show many parafunctional habits.

This participant who has an oral habits with excessive movement of teeth and jaw, illustrated that those behaviours has been stimulated by different reasons. Awareness of her asymmetric jaw became the trigger of habits when she was young. In addition to this, Changes in her circumstances in work place or university and being alone are significant factors as they generate stress, and currently the level of anxiety of failing academic achievement accelerated the frequency of behaviours. Consequences of behaviours can be short term and long term, such as immediate feeling fear

or pain, reduction of stress, and significant health disorder related to temporomandibular joint and tooth. These consequences are reinforcers or punishers which increase or decrease the behaviours.

Discussion

Current research project were developed to understand the oral behaviours and reduce them which could cause unwanted consequences. The general findings from this study are when the participant has a higher degree of negative emotional states such as anxiety of academic achievement, receiving work related complaints, or being alone feeling lonesome. These results of current research partially supported the previous research in terms of the relationship between oral parafunctional behaviours and stressful routines (Glaros & Burton, 2003; Lobbezoo, Van Der Zaag & Naeije, 2006).

In fact, SORCK analysis found out significant positive reinforcers of behaviours in this study are related to structures of jaw. In other words, the misbelief that moving mandibular joint can balance the asymmetric jaw leads the repetition of behaviour in pursuit of better physical appearance. Subject has mentioned the prominent jaw was her physical complex once, and when she heard the joint making sound after movement, she started the excessive movement habits.

As discussed previously, habit reversal treatment has been proved as the effective method of reducing the parafuntional activities by many reserchers (Glaros et al., 2007; Gramling et al., 1996; Peterson et al., 1993). However, it is actually difficult to change the shape of jaw with the behavioural therapy that administered by previous researchers. To change her excessive

behavioural patterns, the most important aspect of treatment should consider the belief of positive reinforcers. Therefore, habit reversal treatment can be adapted in slightly different way for future intervention.

Among the habit reversal treatment, participant need to complete the State-Trait Anxiety Inventory (STAI) to find out the psychological distress which is the main factor of oral habits. About the obsession of physical attractiveness, Self-Esteem Scale (SES) required to be answered to indicate participant's feeling towards self-descriptive statements, as well as the scale of pain around mandibular area.

During the 2 week treatment period, participant will carry out the practice of 60-minutes DTMD treatment, dropping their jaws slightly (D), separating their teeth slightly (T), relaxing the muscles in the jaw and face area (M), and performing a deep breathing activity (D), while watching the mirror image of self. After the practice, participant gives verbal compliment to self, with written demonstration of how she proud of herself.

The purpose of this intervention is to dismiss the misbelief of jaw movement, and develop new positive reinforcers with new oral habits. Earning self-esteem with attendance of treatment sessions will be a great positive reinforcer to the habit reversal activities (DTMD) which take the place of the oral parafunctional habits. Participant will record the frequencies of oral parafunctional habits every day during the treatment, and rate the pain from 0 to 10, and self-esteem scale after the whole process was completed.

It is expected to participant would decrease the frequency of oral habits and show correlation with more points for self-esteem and less level of anxiety if

this intervention is successful. Compliment to self will be the negative reinforcer in relation to the oral parafuntional habits, which will be declined, thus the rating of pain is assumed to be dropped in the later stage. However, it is uncertain the behavioural therapy related to self-esteem has the actual impact on its development. Also, one of the drawbacks for this intervention is designed for one person, thus it can be more effective if another patient engage during the treatment sessions, and give compliment to one another.

Similarly, the results from the current self-monitoring has a limited aspect in terms of duration. Participant could suffer some health issues such as flu and extending the duration of monitoring will help to observe more reliable data. Also, the method of self-reporting has the definite limitation that reporting could be underestimated when participant delivers the behaviour unconsciously, and when the subject is too aware of monitoring " self" before she commits the behaviours, like Day 8 shown in current research results. These limitation needs to be covered to get more reliable data and better performance of further treatment.