ASSESSMENT OF THE RELIABILITY AND VALIDITY OF THE MODIFIED DENTAL ANXIETY SCALE

Thamer Alkhadra BDS, M.S.
School of Public Health & CADE
Saint Louis University
Background

• Dental fear, dental anxiety, and dental phobia are three terms used frequently in the dental literature.
• Fear is considered to be a negative emotional response usually evoked by a relatively specific stimulus (Kroeger, 1987).
• Anxiety connotes a vague, apprehensive uneasiness about something.
Background

- The difference between fear and anxiety can be conceptualized as a difference in the specificity of the eliciting stimulus. Fear is a response to a specific stimulus and anxiety a response to a more general or pervasive stimulus (Geer et al., 1965)
Background

- A phobia is a fear that has ballooned out of proportion, becoming a harassing factor in a person’s daily activities
Background

• Knowledge of a patient’s anxiety before treatment can be an aid to the dentist in two ways

• He/she can become aware of what to expect from the patient, and he/she can take measures to help alleviate the anxiety of the patient (Corah, 1969)

• Given the significance of dental anxiety, investigators have invested considerable effort in studies of its prevalence and etiology
In order to facilitate this work, many have developed measures or scales for the identification of dentally anxious subjects and assessment of their levels of dental anxiety.

These measures were either biological measures or behavioral assessment scales.
Corah Dental Anxiety Scale (CDAS)

- In 1969, Norman Corah introduced the four item, self-report measure of dental anxiety now known as the Corah Dental Anxiety Scale (CDAS)

- The CDAS has been widely used in dental research

- More than 160 published papers have cited the article that introduced the scale
Corah Dental Anxiety Scale (CDAS)

• The scale contains four multiple-choice items dealing with the patient’s subjective reaction about going to the dentist, waiting in the dentist office for the procedure, and anticipating drilling and scaling
CDAS

- The scale continues to be a reliable and valid instrument twenty years after its introduction
- Patients can be assessed with a short and rapidly-scored questionnaire
- Points are assigned to each subject choice, which range from one point (not anxious) to five points (extremely anxious)
- Total scores ranged from 4 to 20. A score of 13 and above will indicate an extremely anxious individual
Reliability of CDAS

- The CDAS was given to a sample of 1,232 college students (Corah, 1988)

- The internal consistency reliability coefficient obtained from a subscale of 313 college students was shown to be 0.86, which was exceptionally high for the limited number of items
Validity of CDAS

• The original study tested the validity of the CDAS by comparing its scores with dentists’ ratings of patient anxiety (which involved categorizing the patients’ behavior in the operatory into the upper, middle, or lower third in degree of anxiety) and found them to be significantly related.

• The validity of the CDAS was further demonstrated when CDAS scores were shown to decrease in phobic patients who were treated with systematic desensitization.
CDAS

- The CDAS has been used in several studies which included adolescents in the sample, for example: Neverlien (1990), Liddell (1984), Corah (1969), Cohen (1982), Thomson (1997), and Mellor (1992).

- The CDAS has been used with other measures of dental anxiety and fear. Both Moore et al., (1993) and Locker et al., (1991), compared the CDAS to Gatchel’s 10 point Fear Survey and found they were highly correlated.
Scales that Measures Situational Anxiety in General

- The Fear Survey Schedule II (FSS-II), was developed by Akutagawa (1965), who selected 51 items that he felt covered most commonly occurring fears such as illness, meeting authority and being alone, etc.

- There was a rating scale for each fear. By adding them up, subjects have a total score that indicate how fearful they are (Geer, 1965).
Scales that Measures Situational Anxiety in General

• The Geer Fear Scale consists of 18 items about different situations or objects known to create fear, for which the subjects rate their fear reactions (for example, snakes, spiders, or dentists)

• Items are rated from 1, which indicates “not the least afraid”, to 7, which indicates, “totally terrified”

• This compares an individual’s dental phobia to his/her other phobic responses. (Berggren et al., 1984)
Scales that Measures Situational Anxiety in General

• The State-Trait Anxiety Inventory

• The Mood Adjective Check List

• The Health Locus Scale
Scales That are Specific to Dentistry

- Gatchel’s 10 point Fear Survey

- Subjects to rate their fear of dentistry on a 10 point scale, in which 1 = no fear, 5 = moderate fear, and 10 = extreme fear. Subjects scoring 8 to 10 were considered to be highly anxious about dental treatment (Gatchel, 1989)
Scales That are Specific to Dentistry

• The modified Gale questionnaire

• It consists of 25 events associated with dental treatments (extraction of tooth, waiting in the dental chair, high-speed drilling)

• Subjects are asked to select the three most fear-arousing events (Berggren et al., 1984)
Scales That are Specific to Dentistry

- Photo Anxiety Questionnaire

- It asks subjects to imagine they are to undergo dental treatment

- It consists of 10 items presenting different moments related to treatment, from “one month before treatment” to “after the treatment was finished.” The response scale is non-verbal and contains five photographs with facial expressions of anxiety (1=relaxed to 5=very anxious) (Berggren et al., 1984)
Dental Anxiety and Dental Visits

• The reason we want to measure dental anxiety is that it has a considerable impact on utilization of dental services

• Dentally anxious individuals avoid dental care as much as they can

• This is supported by different types of studies done in several different countries
Dental Anxiety and Dental Visits

• Thomson et al., (1996) using CDAS reported that dental anxiety was associated with the avoidance of regular dental care

• Locker et al., (1991) reported from their survey of 580 Canadian subjects, using CDAS, that highly anxious individuals deferred dental care more, and more frequently reported an episodic dental visiting pattern
The Modified Dental Anxiety Scale (MDAS)

- In 1995 Humphris introduced a modified version of the CDAS by adding a new item that to him was very essential to have, which was local anesthesia.

- The public indicate that the needle injection is ranked almost as highly as the drill in terms of fear and anxiety (Stouthard et al, 1987; Gale, 1972).
MDAS

- Points are assigned to each subject choice, which range from one points (not anxious) to five points (extremely anxious).

- Total scores ranged from 5 to 25. A score of 19 and above will be indication of extremely anxious individual.
MDAS

- There is no available literature to document the reliability and the validity of the MDAS.
Specific Aim

To establish the reliability and validity of the MDAS
Hypothesis

• The reliability and validity of the MDAS is similar to the reliability and validity of CDAS
Study Design

• Test-retest study to assess the reliability of the five different items of MDAS
Sample Selection

- Random Digit Dialing (RDD)
- 350 telephone numbers in the state of Missouri
- Five interviewers
- A second telephone interview will be performed 21 days from the first telephone interview
Reliability

- Internal consistency

- How well the items of the scale agreed with each other for data obtained at the same time

- Cronbach’s alpha
Reliability

- Stability over time
- Intra-class Correlation Coefficient (ICC)
Validity

- Criterion validity

- We assess the scale properties by predicting that those who ignore visiting the dentist have a higher anxiety scale and those who visit the dentist more frequently will report less anxiety.
Validity

• Construct validity

• will be assessed by correlating every individual score and the CDAS and the other domain of the same scale

• Those individuals who score high on MDAS are correlated and expected to have high score in CDAS. We want to be sure that our measure performed in accordance with theoretical expectations
Validity

• Content validity
Thank You