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Classifying symptom change in eating disorders: clinical significance metrics for the Change in Eating Disorder Symptoms Scale

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ABSTRACT

The purpose of this study was to determine clinically significant change criteria and change trajectories for the Change in Eating Disorder Symptoms Scale (CHEDS). Participants included non-eating disordered ($n = 95$) and eating disordered ($n = 58$) samples. The clinical sample was undergoing enhanced cognitive-behavior therapy (CBT-E) for eating disorders. Reliable change indices (RCI), cutscores, and change trajectories were calculated. CHEDS total score RCI was 12 points while the cutscore between eating disordered and non-eating disordered groups was 65. Trajectory models for benchmarking were successfully derived based on initial scores. The change indices and trajectories permit session-by-session analyses and benchmarking of change. These empirically-calibrated indices of patient change and progress allow for empirically-guided treatment decision-making.

1. Introduction

A comprehensive measure that can be used on a session-by-session basis with empirically-validated change indices to gauge treatment progress does not currently exist for use with eating disorders. Moreover, recovery from eating disorders is not well-defined in the literature as noted by Jarman and Walsh (1999) who state that there is "an absence of an agreed upon definition of the term *recovered* within the eating disorder literature…[and that clinicians] often make implicit assumptions of the definition and meaning of recovery" (pg. 775).

The current assessment of change in eating disorder research is primarily categorical, based on whether or not a diagnostic threshold is reached for a disorder (Keel, Mitchell, Miller, Davis, & Crow, 1999). Thus, recovery is defined and determined by patients moving from meeting to not meeting established diagnostic criteria for an eating disorder. Recovery of adolescents suffering from anorexia, for example, has been advocated to include meeting psychological thresholds (e.g., diagnostic measure scores within a standard deviation of the mean) as well as weight thresholds (e.g., achieving 85% of ideal body weight; Couturier & Lock, 2006). The utilization of a diagnostic criterion as an indicator of change is beneficial as it provides a clear-cut distinction between those who do and do not meet criteria for an eating disorder and can provide a categorical determination of treatment outcome in patients. However, categorical diagnostic information is more problematic for the assessment of ongoing change during treatment with individual clients. Also problematic for current diagnostic instruments for eating disorders is the EDNOS diagnosis found in the DSM-IV-TR (APA, 2000). Given the vagueness of the criteria used for diagnosing EDNOS, few if any current diagnostic measures even classify EDNOS despite it being the most common of all eating disorder classifications. The difficulty of operationalizing the EDNOS diagnostic category by current categorical diagnostic measures suggests the potential utility of measures using a more dimensional, rather than categorical, approach for assessing eating disorder symptoms (Mintz, O'Halloran, Mulbolland, & Schneider, 1997; Vetrone, Cuzzolaro, Antonozzi, & Garfinkel, 2006; Crow, Agras, Halmi, Mitchell, & Kraemer, 2002).

Futhermore, existing diagnostic measures used to assess treatment outcome are based upon the diagnostic criteria stated in the Diagnostic and Statistical Manual for Mental Disorders (DSM; American Psychiatric Association, 2000) or the International Classification of Disease (ICD; Medical Management Institute, 2008). These instruments by design classify individuals into mutually exclusive categories of specific types of eating disorder (e.g., AN, BN, EDNOS) and thus provide limited information about the severity of the eating disorder or the specific symptoms displaying elevations. Additionally, the diagnostic measures that are interview-based while enabling more standardized symptom definition are ill suited for assessing change *during* the course of treatment (Sysko, Walsh, & Fairburn, 2005; Rizvi, Peterson, Crow, & Agras, 2000; Rosen, Vara, Wednt, & Leitenberg, 1990; Clinton & Norring, 1999; Gharderi & Scott, 2002; Guest, 2000; Kutlesic, Williamson, Gleaves, Barbin, & Murphy-Eberenz, 1998). The interview format categorically

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assesses symptoms of eating disorders in long time intervals (such as 28-day intervals), which prevents clinicians from tracking symptoms on a weekly or session-by-session basis (Binford, Le Grange, & Jellar, 2005). Furthermore, they are time and labor intensive, requiring approximately 40–60 min to administer by an interviewer who is specifically trained, and thus are not feasible to administer on a frequent basis during treatment.

Self-report eating disorder assessment instruments, such as the Eating Disorder Inventory (EDI; Cumella, 2006), Eating Disorder Evaluation Questionnaire (EDE-Q; Sysko et al., 2005), Eating Disorder Diagnostic Scale (EDDS; Stice, Telch, & Rizvi, 2000), and Questionnaire for Eating Disorder Diagnosis (Q-EDD; Mintz et al., 1997), are more easily administered than interview-based diagnostic measures and typically have high construct validity and convergent validity with interview format diagnostic measures (Espelage et al., 2003; Gharderi & Scott, 2002). However, these measures are also not designed as treatment tracking measures as they are primarily constructed to allow for categorical classification and typically include long time intervals (e.g., 28 day) that are keyed to diagnostic criteria. Current diagnostic measures also lack psychometric indices for interpreting change scores, which limits their use in tracking eating disorder symptom change on a frequent, ongoing basis or in determining if individuals are exhibiting clinically significant change or approaching recovery.

Unidimensional measures, measures which assess a specific dimension of eating disorders singly, have also been used to assess change in eating disorder symptomatology during treatment but are, by design, limited to a single or very few symptom domains. These include measures such as the Beliefs About Appearance Scale (BAAS; Spangler & Stice, 2001); Body Checking Questionnaire (BCQ; Calugi & Grave, 2006), Body Parts Satisfaction Scale (BPSC; Petrie, Tripp, & Harvey, 2002), Goldfarb Fear of Fat Scale (GFFS; Goldfarb, Dykens, & Gerrard, 1985), and Three-Factor Eating Questionnaire (TFEQ; Stunkard & Messick, 1985). Given the limited scope of such measures, adequately assessing change in eating disorder symptomatology would require administering a number of such measures simultaneously, requiring a significant time commitment that would be unwieldy on a session-by-session basis. Additionally, few criteria have been developed to establish clinically significant change on such measures. A lack of psychometric change indices for these measures results in limited ability to judge whether or not significant change is occurring.

1.1. Assessment of symptom change in eating disorders

Weekly assessment of patient progress, accompanied by the use of clinical significance markers to aid in the calibration of treatment decisions, has been advocated by several researchers (e.g., Jacobson & Truax, 1991; Howard, Moras, Brill, Martinovich, & Lutz, 1996; Lutz, Martinovich, & Howard, 1999; Lueger et al., 2001; Lutz, Rafaeli, Howard, & Martinovich, 2002). Howard et al. (1996), suggests that patient-focused methods should be used to determine change based on dosage and phase models, which include weekly assessment of the change process, patient profiling, and ongoing evaluation of progress.

A dimensional measure of the main features of the eating disorder spectrum circumvents the problems of diagnostic categorization of individuals, since all persons suffering from eating disorder spectrum disorders can be tracked during treatment and evaluated on the level of severity of major dimensions of eating disorder symptomatology. Additionally, the leading treatment for bulimia nervosa has also been "reformulated so that rather than being a treatment for bulimia nervosa in particular, it is now a treatment for eating disorder psychopathology whatever the DSM-IV diagnosis" (Fairburn et al., 2009), further supporting a transdiagnostic, dimensional approach to eating disorders (Murphy, Straebler, & Fairburn, 2010). Having specific change indices for the major dimensions of eating disorder symptoms would allow for relevant and meaningful symptom tracking to assess intervention effectiveness during the course of treatment and inform treatment planning.

There are currently two published measures which are designed for use on a session-by-session basis to assess eating disorder symptom change in patients, namely the Multiaxial Assessment of Eating Disorders Symptoms (MAEDS; Anderson, Williamson, Duchmann, Gleaves, & Barbin, 1999; Martin, Williamson, & Thaw, 2000) and Short Evaluation of Eating Disorders (SEED; Bauer, Winn, Schmidt, & Kordy, 2005). The MAEDS and SEED are brief and can be used on a session-by-session basis. However, both of these measures are not comprehensive in their assessment of eating disorder symptoms and do not assess the entire spectrum of eating disorders (cf. Spangler, 2010). The MAEDS, for example, does not include relevant eating disorder symptoms such as body checking while including factors that are similar in factor content, such as restrictive eating and food avoidance. The MAEDS also includes factors not directly relevant to eating disorders, such as depression, which accounts for 11.1% of the variance of the MAEDS (Anderson et al., 1999). The SEED contains only six items assessing body mass index, fear of gaining weight, opinions about one's body, frequency of binge eating and compensatory behaviors, and menstrual status. The SEED is able to reliably discriminate between eating disordered and non-eating disordered groups as well as being sensitive to change (Bauer et al., 2005). A limitation of the SEED is that it only measures a few eating disorder related symptoms and includes items with an atypical operationalization of body image (i.e., body image on the SEED is rated in terms of muscularity and femininity/masculinity). The construct validity of the SEED has been questioned as it only correlated between .25 and .40 with the EDI for BN and AN patients, respectively (Bauer et al., 2005). One of the foremost limits of both of these existing brief, multidimensional symptom instruments is the lack of empirically supported psychometric indices of change. Without empirically derived change indices for eating disorder tracking instruments, there are no evidence-based change criteria to apply to allow for a reliable, empirically based interpretation of change.

The Change in Eating Disorder Symptoms Scale (CHEDS; Spangler, 2010) is a tracking and outcome measure of eating disorder symptomatology with breadth, brevity, and high reliability and construct validity. The content domains for the CHEDS were derived utilizing eating disorder diagnostic measures, DSM-IV diagnostic criteria, existing measures related to eating disorder symptomatology, clinical experience, and the theoretical literature regarding the primary dimensions of eating disorder symptoms. The CHEDS is designed to be a transdiagnostic eating disorder symptom measure and consists of seven subscales indicative of the primary dimensions of eating disorder symptomology. Intercorrelations among these seven factors were in the low to moderate ranges indicating that the subscales are distinct. The CHEDS also has good discriminant validity, being able to discriminate between eating disordered and non-eating disordered groups. Although there is strong support for the factor structure, reliability, and validity of the CHEDS, it lacks change indices such as empirically-derived reliable change indices, cutscores, and benchmarked trajectories to allow for the determination of clinically significant change during treatment and to provide an index of recovery.

Clinical significance is determined by first defining what it means for a patient to be recovered, or how much a patient has to change to be considered as moving from a dysfunctional category to a functional category (Jacobson & Truax, 1991; Wise, 2004). In some cases, these standards are set as changing one, two, or three standard deviations on a measure (Jacobson, Follette, & Revenstorf, 1984). The reliable change index (RCI) and normative cutscores are psychometric indices that are useful for comparing an individual's score on a measure to a respective population. Critics of clinical significance indices emphasize that for a patient to exhibit true change, they must exhibit both a significant change in their symptom scores and also change from a dysfunctional to functional population (Wise, 2004). Thus, an RCI and cutscore must be used in conjunction to identify patients who are considered recovered