

Preliminary Validation and Reliability Assessment
of a 10-Item Tacting of Function Scale

Introduction

Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 2012) is defined in part by its focus on reducing psychological inflexibility, which involves excesses in responses under the control of internal experiences (e.g., cognitive fusion, experiential avoidance) concurrent with deficits in responses that are effective and approach chosen values. These functional excesses and deficits have been identified in depressive and anxiety disorders (Kashdan & Rottenberg, 2010), substance abuse (Luoma, Drake, Kohlenberg, & Hayes, 2011), self-harm (Chapman, Specht, & Cellucci, 2005) and pain-related disability (McCracken & Morley, 2014). Interventions such as ACT aim to reduce behavior that functions to reduce unwanted inner experiences, when such behaviors lead to long-term costs. Simultaneously, ACT interventions aim to increase behavior under the control of verbally specified, long-term consequences of action (In ACT terms, these are called values).

To effectively change psychologically inflexible behavior, ACT clients learn to respond to their internal experiences functionally instead of based on their form, and to respond to their moment-to-moment experience in values-consistent ways. ACT interventions accomplish this by reducing behavior under the stimulus control of arbitrarily applicable derived relational responding (termed cognitive defusion in the ACT model) and increasing behavior under direct contingency control and related verbal processes (tracking, values). For example, clients learn to respond to internal experiences based on whether their response facilitates valued living, as opposed to trying to change their internal experiences (Hayes et al., 2011). ACT interventions are thus directed at increasing the ability to experience unwanted thoughts, emotions, and other internal experiences without needless efforts to control or avoid them, as well as the ability to choose valued behavior in the presence of these experiences.

Before clients can engage in such responses to their internal experiences, however, the capacity to label and discriminate the functions of one's behavior seems necessary. Clients who fail to recognize avoidant behavior as "avoidant" may fail to apply relevant skills learned in ACT or may use them in non-functional ways – for example, using the "leaves on a stream" exercise to make unwanted thoughts go away instead of simply observing them (Hayes et al., 2011). Conversely, clients who can discriminate among "avoidant" and "valued" behavior may be more effective at choosing psychologically flexible responses, due to an increased ability to label and respond to behavior under the control of arbitrary applicable derived relations. Similarly, client who appropriately labels the function of their behavior may more easily contact direct contingencies of behavior and values. The importance of the clients' ability to identify the function of their responses (e.g., avoidant behaviors, valued behaviors) is discussed in therapy manuals (e.g., Hayes et al., 2011) and advanced therapy textbooks (e.g., Westrup, 2014). However, the capacity to identify the ongoing functions of behavior has received little attention in research to-date.

The process of identifying the functions of behavior may be more specifically described as the behavior of tacting function. Briefly, tacting (Skinner, 1957) can be understood as verbal behavior that is controlled by an antecedent (e.g., seeing a ball and applying the label "ball"), which is at first established via specific social reinforcement (e.g., praise for saying "ball") but later maintained by generalized social responses (e.g., saying "ball" elicits a non-specific response from a listener, e.g., attention). By this definition, tacting function refers specifically to the act of labeling the function (e.g., "avoidance") of one's behavior based on the perceived contingencies of the behavior (e.g., the reduction of an unpleasant state). Within ACT, there may

be a focus on tacting certain functions and contingencies, such as internal states (e.g., thoughts, feelings, intentions) and values alignment (e.g., moving towards an important person/quality).

Deficits in tacting function appear to parallel problems characterized by psychological inflexibility. For instance, excess avoidant behavior may be sustained by a failure to tact the function of behavioral avoidance as it occurs. This is borne out in evidence on the perceived functions of worry in generalized anxiety disorder (Borkovec & Roemer, 1995) and rumination in depressive disorders (Papageorgiou & Wells, 2004). Individuals may perceive worry and rumination as problem solving or emotion regulation strategies, yet fail to tact their functional antecedents and consequences. Furthermore, common interventions in ACT appear to build a repertoire for tacting function. For instance, clients in ACT may learn to tact their avoidant behavior as “digging,” which is a metaphorical label for the futile process of trying to escape emotional experiences over which one has little control (Hayes et al., 2011). Relatedly, the ACT Matrix is a perspective used to help clients discriminate among functions of their behavior using the terms “towards” to describe actions directed towards values and “away” to describe actions directed at avoiding unwanted internal events (Polk, Schoendorff, Webster, & Olaz, 2016).

Altogether, tacting function appears to be implicated in both psychologically inflexible behavior and in its remediation. However, only one published study appears to have examined tacting function specifically (Levin, Pierce & Schoendorff, 2017). This study tested a smartphone app in which participants interested in improving health behaviors intermittently rated whether their behavior was focused on moving “away” from unwanted experiences or “towards” values. Results indicated an increase in participant rated “towards” behavior over a two-week period as well as some improvements in health behavior relative to a waitlist control condition. Further research on tacting function is needed to clarify the role of this potentially

fundamental process within mental health problems and their treatment from a contextual perspective.

Developing a self-report measure of tacting function, particularly avoidant and valued functions, may help support further research on this potentially foundational process of change in ACT. Although self-report is inherently an abstraction from the actual behavior of tacting function, this kind of measure could offer preliminary information on the importance of perceived skill in noticing and labeling certain behavioral functions within ACT. If a self-report proxy for the behavior of tacting function offers a reliable and valid assessment, then this process can begin to be investigated as a potentially relevant facet of mental health problems. Similarly, a measure of tacting function could be used to determine if perceived deficits or proficiency in this skill incrementally explain outcomes beyond extant process measures of psychological inflexibility. If this is the case, then functional interventions such as ACT may benefit from focusing research and clinical interventions more specifically on tacting function as a relevant deficit in problems characterized by psychological inflexibility.

Based on these considerations, the present study developed a self-report measure of tacting function and assessed its internal consistency and validity in a sample of undergraduate students. This research sought to determine whether an internally consistent, single-factor measure of tacting function could be developed with adequate construct validity, concurrent and discriminant validity, and incremental validity. Tacting skill was assessed in the context of behavior in the service of avoiding unwanted thoughts and feelings as well as behavior in the service of personal values or goals. These functions were chosen because of their relevance to psychological inflexibility and the intervention targets of ACT (Hayes et al., 2011). Factor analytic techniques (i.e., parallel analysis) were used to select a subset of internally consistent

items based on a larger pool, to form a measure of tacting of function. Construct validity of the measure was assessed through a content analysis of the selected items, which examined whether tacting of multiple functions of behavior were explained by the shared underlying skill (i.e., the common factor). The concurrent and discriminant validity of the measure were assessed based on correlational analyses with theoretically proximal and distal variables that were measured along with the tacting of function items. Incremental validity was evaluated based on whether the measure of tacting function could explain variance in mental health symptoms and functional impairment beyond a commonly used measure of psychological inflexibility (the Acceptance and Action Questionnaire-II; Bond et al., 2011).

Method

Participants and Procedures

Participants included 427 undergraduate students who were 18 years of age or older attending a mid-size university in the Mountain West region of the US. The majority of the sample identified as Female (57.6% Female; 42.2% Male; 0.2% Nonbinary), with a mean age of 21.46 ($SD = 7.08$ years). Most of the sample identified their race as White/Caucasian (92.1%), with 2.1% Native American/Alaska Native, 1.9% Black/African American, 1.9% Asian, 0.7% Native Hawaiian/Pacific Islander, and 1.2% identifying “Other” race. In addition, 3.7% identified a Latinx ethnicity. Over half of the sample were in their first year at the university (56.9%), with 26.2% in their second year, 15.9% in their third to fifth year, and 0.9% in graduate studies.

Participants consented to the study through a web-based study participation system and received course credit for their participation. After completing informed consent for the study, participants completed demographic questions, measures of symptomatology and functioning,

and 46 items assessing tacting of function. All study procedures were approved by the university's institutional review board.

Measures

Counseling Center Assessment of Psychological Symptoms (CCAPS-34; CCMH, 2012). The CCAPS Depression and General Anxiety subscales were used to assess symptomatology and impairment in functioning. Items are rated on a 5-point scale ranging from 1 = *not at all like me* to 5 = *extremely like me*, with higher scores reflecting greater symptoms and impairment. The CCAPS-34 shows good convergent and predictive validity relative to other measures of emotional distress (e.g., the Beck Depression Inventory; Beck, Steer, & Carbin, 1988) in college students. Both CCAPS subscales showed good internal consistency, with $\alpha = 0.876$ for Depression and $\alpha = 0.847$ for General Anxiety.

Social Adjustment Scale – Self-Report (SAS-SR; Weisman & Bothwell, 1976). The SAS-SR Student and Social subscales were used to assess social functioning as well as academic functioning as focal domains for college students. Items of the SAS-SR are rated based on levels of perceived impairment on five and six-point scales, with higher scores indicating greater impairment. Scores on the SAS-SR converge with informant reports of functioning and can differentiate among symptomatic and recovering clients with depression (Weissman & Bothwell, 1976). The reliabilities of the Social and Student subscales were adequate, with $\alpha = 0.700$ and $\alpha = 0.706$, respectively.

Acceptance and Action Questionnaire – II (AAQ-II; Bond et al., 2011). The AAQ-II was used to measure psychological inflexibility, particularly as pertains to the tendency to respond to unwanted emotions and thoughts in rigid and avoidant ways (Ciarrochi, Bilich, & Godsel, 2010). For the seven-item version, items are rated on a 7-point scale ranging from 1 =

never true to 7 = *always true*, with higher scores indicating greater inflexibility. The AAQ-II is associated with measures of depression, anxiety, and overall health (Bond et al., 2011). The AAQ-II showed strong internal consistency, with $\alpha = 0.920$.

Valuing Questionnaire (VQ; Smout, M., Davies, Burns, & Christie, 2014). The VQ was selected to assess perceived valued living (Smout et al., 2014). Valued living involves acting according to values, which are freely chosen, verbally derived consequences of action that render actions intrinsically rewarding. The VQ includes two subscales that assess perceived Obstruction and Progress in living according to one's values. The VQ shows adequate internal consistency and convergence with related measures such as satisfaction with life, personal wellbeing, psychological inflexibility, and distress in undergraduate samples (Smout et al., 2014). Items on the Valuing Questionnaire are rated on a 7-point scale ranging from 0 = *not at all true* to 7 = *completely true*, during the past week. Both VQ subscales had good internal consistency, with $\alpha = 0.820$ for Obstruction and $\alpha = 0.846$ for Progress.

Tacting of Function Items. Items were generated through an iterative process among the study authors. The final pool of 46 items was selected capture both deficits and proficiency in tacting of behavior with avoidant or values directed functions. Items were rated on a scale ranging from 1 = *never true* to 7 = *always true* over the past two weeks. Items assessed tacting of excesses and deficits through both positively-worded and negatively-worded statements. For example, a positively worded item assessing tacting of deficits in values directed behavior was "I am aware of when my actions fall short of my intentions." Alternatively, a negatively worded item assessing tacting of excesses in avoidant behavior was "It is hard to say whether or not my choices are based on reducing feelings of anxiety or fear."

Analyses

Preliminary Operations. The analyses were performed using IBM SPSS, Version 25 (IBM Corp., 2016). Descriptive statistics and frequency histograms were used to assess the univariate distributional properties of the study variables. The factorability of the correlation matrix was assessed through bivariate correlations among all study variables and Bartlett's test of sphericity.

Missing Data. Missing data were handled using estimation maximization (EM) algorithm in SPSS. Briefly, EM consists of two recursive steps. The first step involves estimating conditional values for the missing cells of the data based on the parameters of the observed mean and variance-covariance matrices. The second step involves estimating a new variance-covariance matrix and set of regression coefficients to predict missing values, based on the conditional values from the first step, and then using these coefficients to estimate a new set of conditional values for the missing cells. This process repeats until the differences between subsequent variance-covariance matrices estimated during sequential EM steps are minimized below a certain criterion. The estimated variance-covariance matrix from the final step of the EM process then replaces the observed variance-covariance matrix in computing subsequent parameters (Enders, 2001). This approach outperforms mean or regression-based imputation, and performs roughly equivalent to full-information maximum likelihood and multiple imputation approaches under low to moderate rates of missing data (Enders, 2001).

Parallel Analysis (PA). PA was used to empirically identify the number of dimensions (i.e., factors) to be extracted based on the variance-covariance matrix of the 46 TOF items. The raw data was used to generate parallel datasets of 46 random variables with variances and distributional properties (e.g., skewness) identical to the items in the raw data (Hayten, Allen, & Scarpello, 2004). Principal axis factoring is then performed on each of the simulated datasets of

random variables and the results are aggregated to generate an expected distribution of the number of factors extracted and of their eigenvalues. This expected distribution is then compared with the observed number of factors extracted and their eigenvalues in the raw dataset to determine the adequate number of factors to be interpreted. PA is among the most accurate methods for identifying the number of factors to retain, based on its ability to identify the number of factors underlying simulated data (Hayten et al., 2004). It also makes fewer assumptions than other methods, and retains the original distributional properties of the observed dataset. This analysis was performed in SPSS, Version 25 (IBM Corp, 2016).

Item Selection. Items selection proceeded based on the results of the PA. Assuming results indicated the expected single factor solution, items loading at 0.60 or higher on the first factor extracted (i.e., the factor with the largest eigenvalue) would be retained for further interpretation. Items loading highly on other factors extracted would be excluded on the basis that they reflected more specific content or method effects that did not comprise tacting of function. The items selected for interpretation would then be sorted into avoidant and values-directed functions based on their contents. Within each content domains, the strongest loading items would be retained for inclusion in the final scale.

Correlational Analyses. Concurrent and discriminant validity of the measure was examined through bivariate correlations between the measure of tacting of function and scores on the AAQ-II, CCAPS-34, SAS-SR, and VQ subscales, as well as demographic variables. These correlations were used to assess the extent to which the measure was related to proximal ACT process variables (e.g., psychological inflexibility and valued living), psychosocial functioning, mental health symptoms, and theoretically unrelated demographics. The largest correlations were expected between the measure of tacting of function and the measures of ACT

processes and psychosocial functioning. Somewhat smaller, yet significant correlations were expected between the measure and symptom variables. No statistically significant correlations were expected between the measure of tacting of function and distal demographic variables.

Regression Analyses. Regression analyses were used to assess the unique contribution of the measure of tacting of function to variance in the CCAPS-34 SAS-SR, and VQ subscales, independent of the variance explained by the AAQ-II, as well as the unique capacity of the AAQ-II to explain variance in the CCAPS-34, SAS-SR, and VQ subscales, independent of the measure of tacting of function. These analyses assessed the extent to which the measure of tacting of function reflected a skill that was independent of, but related to the constellation of behaviors involved in psychological inflexibility. The skill of tacting the functions of behavior was expected to be partially independent of what functions of behavior are most commonly observed in a person's experience, and to explain unique variance in valued living, functioning, and symptom measures independent of psychological inflexibility. However, deficits in tacting function were also expected to contribute to more frequent behavior with the functions characteristic of psychological inflexibility, thus resulting in overlapping contributions of the measure of tacting function and inflexibility as measured by the AAQ-II. Therefore, it was expected that the combination of these measures would improve explanatory power relative to either measure alone.

Results

Descriptive Findings

No significant skewness, outliers, or missingness (i.e., missing at > 5.0%) were noted in the tacting of function items or other study variables. The tacting of function items showed strong evidence for factorability. Correlations among the items ranged from .05 to .83, with an

average correlation of 0.33, $SD = 0.10$. Bartlett's test of sphericity indicated significant redundancy among the items in the correlation matrix, as compared with an identity matrix where items are orthogonal, with $\chi^2 = 10136.79$, $df = 1035$, $p < .001$.

Parallel Analysis

The Parallel Analysis identified the first six factors as exceeding the expected (average) eigenvalues associated with 100 simulated datasets of 46 identical random variables. As such, these factors were interpreted as reflecting relevant sources of variance that explained covariances among the items. The eigenvalue of the first factor extracted was substantially higher than the remaining eigenvalues; this factor explained 33.28% of the variance across the 46 items. The contents of items loading onto this factor were consistent with an interpretation of tacting of function as reflecting a general skill involving noticing a wide range of functions of behavior. For example, the strongest loading items included those asking about behavior that approaches values as well as those asking about behavior that involves avoiding unwanted thoughts and feelings. As such, this factor was interpreted as reflecting the primary ability of tacting of function and was used to evaluate the relevance of the items to this skill.

The eigenvalues associated with the remaining factors were interpreted to identify content or method specific effects that explained variance in subsets of items. The second factor explained 6.45% of the variance in the items and was interpreted as reflecting behavior intended to avoid or suppress unwanted internal experiences (i.e., experiential avoidance). Example items loading strongly onto this factor "I am aware of when I avoid places or situations because of the unpleasant emotions they bring" or "I notice when strong emotions are largely the reason for what I do." The third factor explained 4.17% of the variance across items and was interpreted as reflecting clarity in values, with items such as "if asked, I could say what is important to me in a

given situation (e.g., at work, with family, at school)” loading most strongly onto this factor. The fourth, fifth, and sixth factors explained less than 2.00% of the variance across the 46 items and were interpreted as reflecting specific effects associated with items asking about relationships (factor 4), items asking about valued action (factor 5), and items asking about a person’s ability to state the functions of their behavior if asked (factor 6). Altogether, the contents of these additional factors appeared to reflect behaviors that were independent of tacting of function, therefore items loading strongly onto these factors were not included in the scale.

Item Selection

18 items were identified for inclusion in the single-factor scale, based on the magnitude of loadings onto the first extracted factor (i.e., items loading above .60 onto this factor were selected). These items and their loadings onto the primary factor are presented in Table 1. As displayed, 9 of the items assess tacting the function of behavior that approaches or fails to approach values, and 9 of the items assess tacting the function of behavior that mostly responds to one’s internal or emotional state.

The five strongest-loading items in each of the two content domains were retained for inclusion in the final measure, and are presented in bold in Table 1. The Cronbach’s alpha reliability statistic for these items was $\alpha = 0.88$, indicating strong internal consistency across items. The 10 items were then summed into a Tacting of Function scale (TOF) and the resulting TOF scores were normally distributed with $M = 42.64$ and $SD = 8.91$.

Correlational Analysis

Bivariate correlations were used to assess the magnitude of association between TOF and variables at a range of theoretical proximities to the skill of tacting the functions of behavior. TOF was moderately correlated with psychological inflexibility ($r = -.39, p < .001$), obstruction

in valued living ($r = -.37, p < .001$), and progress in valued living ($r = .48, p < .001$). TOF was moderately associated with impairment in social functioning ($r = -.33, p < .001$) and academic functioning ($r = -.34, p < .001$). TOF showed moderately strong correlations with depressive symptoms ($r = -.38, p < .001$) and anxious symptoms ($r = -.32, p < .001$). TOF showed no statistically significant association with age ($r = .06, p = .217$) or underrepresented (non-White) race ($r = -.05, p = .354$), but showed a small, positive association with self-identified female gender ($r = .11, p = .022$). These results were mostly congruent with the expected pattern of correlations, with higher TOF predicting greater psychological flexibility, greater social/academic functioning, and fewer mental health symptoms. The only exception was that the relations between TOF and symptom variables were of a similar magnitude to the relations between TOF and ACT process variables, where larger correlations were anticipated with the ACT process measures.

Regression Analysis

The results of the hierarchical regression analyses are presented in Table 2. As displayed in this table, both TOF and the AAQ-II significantly explained variance in the functioning, process, and mental health variables when entered into the regression alone. TOF also statistically significantly explained variance in psychological inflexibility (as measured by the AAQ-II). When TOF and the AAQ-II were entered together, TOF significantly explained variance in depression, academic and social functioning, and progress and obstruction in valued living beyond that explained by the AAQ-II. However, TOF did not explain additional variance in anxiety beyond that explained by the AAQ-II, and the AAQ-II tended to explain a greater portion of independent variance in the functioning, process, and mental health variables. The one

exception to this pattern was that TOF explained more variance in progress in valued living than the AAQ-II.

Altogether, these results suggest that TOF is distinct from psychological inflexibility, such that it explained unique variance in psychosocial functioning, valued living, and symptoms. The findings also indicate that the AAQ-II overlaps with TOF as a predictor, such that in one case (anxious symptoms) variance explained by the AAQ-II largely overlapped with that accounted for by TOF. Notably, TOF was the strongest explanatory variable for progress in valued living, consistent with an interpretation that TOF assesses one's ability to notice (i.e., tact) the contingencies of one's behavior (Table 2).

Discussion

The present study examined the preliminary psychometric properties of a measure of tacting function, which is the ability to label or "tact" the contingencies governing one's behavior. This measure was developed as a single-factor scale that assessed proficiency in noticing and labeling (i.e., tacting) behavior with various functions. It was expected that the measure of tacting function would be internally consistent and include tacting of behavior with the function of moving towards values as well as tacting of behavior that responds primarily to one's inner experiences. Similarly, the measure was expected to demonstrate concurrent, discriminant, and incremental validity in explaining variance in related process, functioning, and symptom measures. The purpose of the measure was to serve as a self-report proxy for the actual behavioral skill of tacting the functions of behavior, and to offer an assessment of the potential importance of this skill in the context of ACT and mental health concerns.

The psychometric findings suggested a single factor explained the majority of variance in the original pool of items. This factor was interpreted as reflecting the general skill of noticing

and labeling the functions of behavior, independent of the specific contingencies involved. 18 items showed the strongest associations with this factor and the weakest associations with content or method specific sources of variance. These 18 items included 9 items that asked about tacting behavior that approaches or fails to move towards values and 9 items that asked about tacting behavior that involves efforts to approach or avoid internal states (i.e., experiential avoidance). The 9 items in each content domain were further reduced to 5 items with the strongest loadings onto the primary factor. The resulting 10 items showed strong internal consistency and were therefore summed into a common tacting of function (TOF) scale.

Based on the correlational analyses, individuals who are more psychologically inflexible appear to have greater deficits in TOF. This finding is consistent with the literature reviewed suggesting inaccurate perceptions of the contingencies of behavior in problems characterized by psychological inflexibility (e.g., Borkovec & Roemer, 1995). This result is also theoretically congruent with the notion of psychologically inflexible behavior as involving rigid responses to unwanted thoughts and emotions, to the detriment of other aspects of one's life (Hayes et al., 2011). Specifically, if a person's behavior is dominated by avoidant responses to these internal experiences, their awareness of the contingencies around this behavior and its function may be limited. Conversely, their ability to tact values-directed or appetitive behavior may be limited due to restricted engagement in actions that approach values or other rewarding outcomes.

The correlational analyses also suggested moderate associations between TOF and measures of valued living, functional impairment, and mental health symptoms. Individuals who more fluently notice and label the functions of their behavior may be more capable of contacting valued or appetitive contingencies, thus increasing the ability to progress in valued domains and reducing impairment in valued living due to obstacles. Similarly, students who are more fluent at

tacting function may be more capable of responding to the various social and academic contingencies in college; for example, tacting the function of procrastination as “avoiding anxiety” introduces a new contingency that may support an alternative behavior with the function of “approaching success.” While TOF was expected to show smaller correlations with the measures of depressive and anxious symptoms, the correlational results point to a potential role of deficits in TOF in these problem areas. Specifically, deficits in TOF may contribute to problematic (i.e., avoidant) responses to unwanted cognitive or emotional experiences that exacerbate depressive and anxious symptoms.

TOF was uncorrelated with two of the three demographic items. Unexpectedly, a small but statistically significant correlation was observed between TOF and (binary-coded) gender, with participants who identified as female endorsing greater TOF ability. This finding aligns with literature pointing to greater emotional fluency (McClure, 2000) and complexity of emotional knowledge (Ciarrochi, Hynes, & Crittenden, 2005) among women. Through contextual and gendered socialization processes, women may have greater skill in appropriately tacting their emotional experience, as well as tacting the relations between their actions and emotional experiences. Previous research also suggests lower emotional intelligence among men as compared with women (Martins, Ramalho, & Morin, 2010), and points to a protective role of emotional intelligence among men in relation to impulsive and risky behavior (Brackett, Mayer, & Warner, 2002). It is possible that greater emotional intelligence facilitates tacting the relation between one’s actions and internal states, which may inhibit more impulsive responses to distress. Further research on TOF may clarify to what extent this effect was due to differences in item functioning or a meaningful gender difference linked to observable behavior.

The regression analyses suggested TOF and the AAQ-II explained related as well as independent components of variance in the measures of valued living, functional impairment, and mental health symptoms. The ability to notice and label (i.e., tact) the functions of behavior (as measured by TOF) is likely related to the predominant functions observed in psychological inflexibility (as measured by the AAQ-II), and both may explain common variance in target measures. However, the skill of tacting function could explain independent variability in valued living, social and academic functioning, and depressive symptoms that is not explained by people's inflexibility. For example, a failure to tact the functions of one's actions may result in problems in adjusting or changing psychologically inflexible behavior, which may produce decrements in valued living and exacerbate depressive symptoms. This appeared to be the case for all target measures except anxious symptoms, where the AAQ-II appeared to uniquely explain variance but not TOF. These findings suggest that TOF assesses a unique skill that is not explained by ACT's core process, and may account for outcomes independent of these measures.

Although TOF did explain a unique portion of variance in most target measures, the AAQ-II nevertheless explained larger portions of unique variance in five out of the six measures. Psychological inflexibility may be a more proximal predictor of sustained distress, psychosocial problems, and impaired valued living, whereas deficits in tacting of function may sustain inflexible responses to one's experience that result in these problems. In addition, the measures with which the AAQ-II shared the most variance were measures of distress or dysfunction, whereas TOF explained greater variance in the one measure of adaptive behavior, the VQ Progress subscale. This points to a possible shared method effect for scales assessing deficits in adaptive behavior and psychological distress, as compared with scales assessing the presence of psychological skills and positive adaptation. These questions may be clarified through further

research on the predictive ability of TOF compared with extant measures, in relation to a wider range of outcomes and in clinical populations.

Altogether, the results of the present study lend initial support for the internal consistency as well as concurrent, discriminant, and incremental validity of TOF in relation to measures of ACT processes, psychosocial functioning, and symptom measures. They also lend preliminary support for tacting function as an important skill within ACT and other therapies targeting psychological inflexibility that is not assessed by extant process measures such as the AAQ-II. Altogether, tacting of function seems worthy of further investigation as a contributing factor in the development of mental health problems and as a skill developed in ACT and related therapies within the purview of contextual behavioral science.

Measurement of the ability to tact the functions of behavior may have several pertinent clinical applications. Tacting of function may affect the client's ability to respond effectively to their internal experiences, as well as the client's ability to recognize when behavior with a problematic function is occurring. For instance, a client with social anxiety who does not tact safety behavior as covert avoidance may be less effective in changing such behavior, as compared with a client who tacts this behavior as "avoidance" or who tacts the arbitrarily derived (i.e., language-based) contingencies of the behavior. Thus, it may be important to assess the relation between tacting function and progress in ACT and CBS informed interventions. Relatedly, a self-report proxy for tacting function could be used in tandem with other self-report measures of functional processes, such as psychological inflexibility, to provide a more holistic perspective on behavioral skills and deficits in the context of clinical interventions.

Further research with clinical samples is necessary before making strong assertions about the clinical utility of the measure described here. It may be important to assess the strength of

association between TOF and observed behavior indicating tacting of function. This could be accomplished through comparison of TOF scores and behavior within psychotherapy sessions or in an interview context. In addition, research with clinical samples may investigate the role of tacting function as a target skill through which other therapeutic changes may occur. Given the fundamental role of the client's ability to respond functionally to internal experiences in ACT and other interventions that target psychological inflexibility, it may be important to assess how tacting function moderates or mediates treatment outcomes. Relatedly, future research should investigate the sensitivity of the TOF items to specific intervention techniques. For instance, techniques emphasizing verbal specification of the contingencies of behavior as compared with those emphasizing experiential contact with such contingencies may differentially build fluency in tacting function, yet may not be equally clinically useful. Determining whether the TOF items are sensitive to the behavior of tacting of functions of ongoing behavior, versus the ability to verbally specify contingencies of behavior more distally, may be relevant for evaluating its clinical utility.

Several limitations are noteworthy in interpreting the results of the present study. Although tacting is not a new term, the present study is the first to attempt to measure deficits and proficiency in tacting the function of behavior through self-report. While this novelty has certain advantages, the correspondence between scores on this measure and the enacted behavior of tacting function remains unexamined. Further investigation with behavioral data is needed to evaluate whether the items of the scale accurately assess a person's capacity to verbally specify the contingencies of their behavior, and whether the scope of items sufficiently covers relevant contingencies to be tacted in a clinically meaningful way. The present scale focuses on

contingencies most relevant to ACT (e.g., values, inner experiences, etc) but does not cover the full breadth of possible behavioral contingencies that could be more broadly clinically relevant.

The findings of the present study must also be tempered by the homogeneous sample. All participants were college students and the vast majority identified as White, therefore caution should be taken in generalizing the results beyond the study sample (i.e., White college students). Relatedly, the symptomatology represented in the present sample may not correspond with the mental health symptoms in other settings, which may be more severe. Therefore, the findings of the present study are insufficient to support the use of the measure of tacting function for clinical purposes. Additional research on this measure with a more diverse sample and greater variability in mental health symptoms should be pursued before it is applied more generally.

Finally, the present study did not include confirmatory analyses on a separate sample to verify the single factor configuration, and did not include measures of certain constructs that may be pertinent for validation. Confirmatory analyses on additional samples will be needed to affirmatively demonstrate the factor configuration of the scale. Such analyses could be supplemented by an item response theory approach that examines sensitivity of the individual items to detect meaningful variations in the broader skillset. Additional process measures could have been used to further investigate the criterion validity of TOF with related constructs in contextual behavioral science, such as the Multidimensional Experiential Avoidance Questionnaire (MEAQ; Gámez et al., 2011). Similarly, the distinctions between TOF and measures of emotional intelligence (e.g., Saklofske et al., 2003) and dispositional tendencies towards behavioral activation or behavioral inhibition (e.g., Carver & White, 1994) are also worth investigating.

The present study evaluated the preliminary psychometric properties and validity of a self-report proxy for the behavior of tacting function among college students. Tacting is an under investigated behavioral skill that may be central within interventions informed by the functional lens of contextual behavioral science. The findings of this research suggest that tacting can be reliably measured and can incrementally predict incidences of functioning, ACT processes, and mental health symptoms in a college sample. Further research should consider the role of tacting function in clinical samples, in intervention studies, and using behavioral data, as this skill may influence the client's ability to respond functionally to their inner experiences and derive the full benefits of therapies such as ACT.

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