

# Social Cognitive Correlates of Attitudes Toward Empirically Supported Treatments

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Many clinicians report less than favorable attitudes regarding the use of Empirically Supported Treatments (ESTs). To better understand attitudes toward ESTs we examined the relationship among social–cognitive factors, career choices, and attitudes toward ESTs. Mental health professionals completed measures assessing need for cognition (NFC), decision-making style, career interests, and attitudes toward ESTs. Participants who reported spending the majority of their time in clinical practice reported significantly less favorable attitudes toward ESTs, a more intuitive decision-making style, and lower NFC than those spending the majority of their time doing research. Higher intuition and lower NFC were associated with less favorable attitudes toward ESTs. Moderation analyses testing the hypothesis that decision-making style and NFC would moderate the effects of career status on attitudes approached significance.

*Keywords:* empirically supported treatments, need for cognition, decision-making, attitudes, dissemination

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The Patient Protection and Affordable Care Act of 2010 (ACA; *Patient Protection and Affordable Care Act, 2010*), with its emphasis on accountability, efficiency, and documentation of outcomes can be expected to change the way health care is delivered in the United States (Chor, Olin, & Hoagwood, 2014; Rozensky, 2013, 2014a). As a result, practicing psychologists today face an ever increasing demand to implement evidence based practices. Evidence based practice as defined by the American Psychological Association refers to “the integration of the best available research with clinical expertise in the context of patient characteristics, culture, and preferences” (*American Psychological Association Presidential Task Force on Evidence-Based Practice, 2006, p. 273*). Although there has been little controversy regarding some of the aspects of an evidence based practice model, there has been much concern expressed with the need to shift clinical practice toward the use of research-based or empirically supported treatments (ESTs; Chambless & Ollendick, 2001). In fact, although rigorously controlled research has identified ESTs for a wide variety of mental health disorders, the promotion and dissemination of these treatments to practicing clinicians has been minimally effective (McHugh & Barlow, 2012).

The obstacles to dissemination of ESTs are likely complex and multifaceted, including issues related to the treatments themselves and organizational factors. While research into these obstacles has been productive (e.g., Aarons, 2006), research focused on the individuals who are the target of such dissemination efforts—the clinicians on the front lines—is also imperative. There has been much chagrin expressed in the literature over the research-practice split and the role this plays in hindering the transport of lab findings to the clinic (Ollendick, 2014). Studies examining this split suggest that while many mental health professionals in academic settings view ESTs as a positive development, these same treatments are viewed less positively by clinicians (Pagoto et al., 2007). Importantly, clinician attitudes and opinions toward a treatment appear to be a primary predictor of the success of a dissemination effort (Stirman, Crits-Christoph, & DeRubeis, 2004); accordingly, a better understanding of these attitudes and opinions could go a long way toward bridging the gap between clinical research and clinical practice.

### Why Do Clinicians and Researchers View ESTs Differently? Dual Systems Theories and Their Implications for the Science-Practice Split

Dual systems theories suggest that people rely on two systems when forming attitudes or making judgments—one system is fast and intuitive with strong emotional bonds; the second is slower, analytical, and more subject to conscious judgments (Chaiken & Trope, 1999). When a person makes a judgment or forms an attitude she or he relies on both systems but the relative role of each system will vary. Moreover, research suggests that there are individual differences in the degree to which people rely on each system; people who are high in need for cognition (NFC), a personality characteristic reflecting interest in engaging in effortful thought, tend to rely more heavily on the analytical system whereas those who are more intuitive rely more heavily on the affective/intuitive system (Huskinson & Haddock, 2004).

The tendency to draw more on one system over the other may lead one to develop very different attitudes when presented with

the same information. For example, if two people buying a hybrid car find out that the extra expense of the hybrid far outweighs the cost-savings through reduced fuel consumption, they might make different judgments about the car depending on how heavily they emphasize the affective/intuitive aspects of the purchase. If someone wants to buy a hybrid because she or he associates hybrid cars with altruism and thoughtfulness, the factual information about cost savings is unlikely to change his or her feelings about the car. However, if one approaches the purchase with a focus on the more cognitive aspects associated with hybrids (e.g., hybrids use less gas), information on the lack of financial benefit could be expected to have a significant impact on one’s decision. Similarly, it can be seen how the relative usage of one system versus the other could bring about different attitudes toward ESTs. A person with a more analytical style might be affected by the data that show positive outcomes for patients participating in randomized controlled trials because this focus provides a good fit for the kind of information this person would attend to when making decisions. On the other hand, a person who emphasizes emotion and intuition may see ESTs as sterile and limiting the freedom to respond to a client’s individual characteristics based on intuitive reactions.

Interestingly, these characterizations seem to mirror extant research and theory on differences between clinical researchers and clinical practitioners. For example, whereas clinical researchers have argued for the role of research-based practice that subjects clinical interactions to the analytical processes of science, those in clinical practice have often cited a preference for clinical judgment and intuition (Addis & Krasnow, 2000; Pagoto et al., 2007). Additionally, these differing views are consistent with early theory regarding role demands and interpersonal styles in professional psychology (Gelso, 1979). Early on, Gelso argued that the roles of researcher and clinician<sup>1</sup> represent a “contradictory, perhaps mutually exclusive set of demands” (Gelso, 1979, p. 26). More specifically, he suggested that the demands of the research enterprise require one to emphasize logical and analytical processes and to approach the field with skepticism. Additionally, research requires that emotional processes take a backseat to intellectual ones both because of the need to approach the research process (e.g., data analysis and interpretation) as impartially and objectively as possible and because many parts of the researcher’s work are conducted in relative isolation. On the other hand, Gelso argued that clinicians must be particularly able to tolerate intense intimacy and whereas researchers must be skeptics, clinicians must trust their own intuition or risk projecting a lack of confidence and hope to the patients with whom they work. We would argue that these differences are differences in degree rather than kind; that researchers and clinicians must possess all of these skills and characteristics but perhaps to varying degrees.

To summarize, theory suggests that there should be differences between clinicians and researchers on variables such as preference

<sup>1</sup> For the sake of simplicity, here we discuss the identification of oneself as a researcher or clinician as separate categories. It is important, however, to acknowledge that, as with many constructs in psychology, these roles likely exist on a continuum. We also suggest that identification as a researcher or as a clinician is distinct from degree or identification as a scientist-practitioner, with the former referring to activities undertaken in one’s professional role while the latter refers to an approach to one’s work regardless of the specific tasks being performed.

for or reliance on analytical versus intuitive decision-making. More important, if such variations were supported, dual systems theories suggest this could have important implications for the formation of attitudes that may be relevant to the ways that different mental health professionals view ESTs. Unfortunately, however, there has been relatively little direct examination into whether these hypothesized differences do in fact exist. However, the one study we are aware of that partially examined such a hypothesis, did find support. In this study, [Leong, Zachar, Conant, and Tolliver \(2007\)](#) found that NFC was related to students' interest in a research career in psychology but not with their interests in a career in clinical practice.

### The Current Study

Theory suggests that there may be differences between clinicians and researchers on social-cognitive variables and these differences should be related to attitudes toward ESTs. However, very little research has been done to test the extent to which these differences exist. The results of [Leong and colleagues](#), described above, are partially supportive ([Leong et al., 2007](#)). However, in addition to lack of replication of this study, there are two shortcomings to prior research. First, [Leong et al. \(2007\)](#) neglected to examine reliance on intuition, an important construct according to dual process theories ([Petty, Brinol, Loersch, & McCaslin, 2009](#)). Second, although the implication is that differences between clinicians and researchers should be associated with attitudes, to our knowledge, this hypothesis has never been directly tested.

Therefore, one goal of the current study was to replicate [Leong et al.'s \(2007\)](#) findings regarding the relationship between NFC and practice and research interests in a sample of mental health professionals and to extend these findings by examining the relationship between intuition and career choices and interests (i.e., practice vs. research). This provides an important next step in this literature, linking theory on differences in mental health professionals' career choice with relevant theory in the area of attitude and persuasion. Moreover, examining these constructs in a professional sample as opposed to a student sample allows for the examination of whether these characteristics are related to actual behavior (career choice) as opposed to behavioral intention.

A second goal was to examine the relationship between the relevant characteristics implicated by theory and attitudes toward ESTs. More specifically, we hypothesized that an intuitive decision-making style would be related to less positive attitudes toward ESTs whereas NFC would be related to more positive attitudes toward ESTs. Taken together, this would mean that those with more interest in research should have more favorable attitudes toward ESTs when compared to those with more of an interest in clinical practice and, further, the relationship between career choice and EST attitudes should be moderated by NFC and intuition such that mental health professionals with primarily clinically oriented careers should only have less positive attitudes toward ESTs when they evidence relatively lower levels of NFC and greater preference for an intuitive decision-making style.

## Method

### Participants and Procedures

Data were collected through the PsychData online survey program over the course of 9 months. Participants were contacted through listservs of several professional organizations: The Association for Psychological Science; American Psychological Association—Divisions 12 (Clinical), 17 (Counseling Psychology), 45 (Culture, Ethnicity and Race), and 53 (Clinical Child and Adolescent Psychology); the Association for Behavioral and Cognitive Therapies, and the State Psychological Associations for Ohio and Texas. These groups were chosen in an attempt to obtain a diversity of perspectives in the field and because they allowed posting of research studies to their listservs or provided lists of email addresses of their members.

The sample consisted of 434 mental health professionals from the United States. Approximately half of the sample (51.8%) was female. Participants' mean age was 45.6 years ( $SD = 12.9$ ; range = 26 to 78 years). The majority of participants had earned a PhD (86.2%), followed by a PsyD (8.3%) and a master's degree (5.5%) and the mean for how long participants had been licensed was 11.2 years ( $SD = 11.8$ ; range = 0 to 50 years). Finally, in regards to primary professional activities, 39.6% ( $n = 172$ ) reported they spent most of their time doing clinical work, 27.2% ( $n = 118$ ) reported they spent most of their time doing research, and 33.2% ( $n = 144$ ) reported other activities (teaching, administration, or consulting).

Although it is impossible to calculate the exact response rate and representativeness of the sample given that membership in the organizations contacted overlaps and demographic data for listserv members are not readily available, the sample does represent a widespread group of professionals in terms of professional activities and demographics. Moreover, the current sample is very similar to large national samples surveyed in other published reports of clinician attitudes (e.g., [Addis & Krasnow, 2000](#)) in terms of age, sex, and terminal degree.<sup>2</sup>

### Measures

**Demographics form.** Participants completed a basic demographic form reporting on personal characteristics and education and professional activities.

**Need for Cognition Scale (NFC; [Cacioppo & Petty, 1982](#)).** The NFC was used to measure the participants' inclination to engage in and enjoy effortful cognitive activities. The NFC consists of 18 items ("I really enjoy a task that involves coming up with new solutions to problems"), each rated on a 5-point response scale according to how accurate the item describes the participant (1 = *extremely uncharacteristic* to 5 = *extremely characteristic*). Possible scores range from 18 to 90, with higher scores indicating a higher NFC. The NFC has been found to have good internal

<sup>2</sup> For example, in their national survey, [Addis and Krasnow \(2000\)](#) reported on a sample of 891 psychologists: 48% were female, the mean age of their sample was 49.33 years; 84% had earned a PhD and 9% a PsyD.

consistency, test–retest reliability, and construct validity (Cacioppo & Petty, 1982). Cronbach's  $\alpha$  in the present study was .84.

**General Decision Making Style Questionnaire (GDMS; Scott & Bruce, 1995).** The intuitive subscale of the GDMS was used to assess preference for intuitive decision-making. This subscale consists of 5 items (“When I make a decision, I trust my inner feelings and reactions”) rated on a 5-point response scale (1 = *strongly disagree* to 5 = *strongly agree*). Possible scores range from 5 to 25, with higher scores indicating a more intuitive decision-making style. The GDMS subscales have been found to have good internal consistency and construct validity (Scott & Bruce, 1995). In the present study,  $\alpha$  was .81.

**Scientist-Practitioner Inventory (SPI; Leong & Zachar, 1991).** Although participants provided information on their primary work activity (e.g., research or clinical) there is often overlap between different professional roles and variability within a role; therefore, the SPI was used as a dimensional measure of the professional orientation. The SPI consists of 42 items that assess interests within a psychology career; 21 items assess interest in scientific activities (“Designing an experiment to study a psychological process”) and 21 items assess interest in clinical practice (“Conducting a psychotherapy session with an individual client”). Each item is rated on a 5-point scale according to how interested the participant is in the activity described (1 = *low interest* to 5 = *very high interest*). Possible scores for each scale range from 21 to 105, with higher scores indicating greater interest. The SPI scales have been found to have good internal consistency and construct validity (Leong & Zacker, 1991). The  $\alpha$  for the scientist scale in the present study was .95 and the  $\alpha$  for the practitioner scale was .89.

**Attitudes toward Empirically Supported Treatments Questionnaire.** The ESTQ is a 45-item (e.g., “ESTs are not useful because therapy is an art not a science”) self-report measure designed to assess attitudes toward ESTs. Items were derived from (a) a content analysis of a series of qualitative interviews conducted with clinicians on their views of ESTs (Motley, Zaleski, Hovey, & Seligman, 2006); and (b) a review of the available literature on the professional debate surrounding ESTs. Total scores for the ESTQ and an existing measure of therapist attitudes and behavioral intent have been found to be significantly but moderately correlated ( $r = .52, p < .001$ ) providing evidence of concurrent validity for the ESTQ while at the same time suggesting that ESTQ may provide unique information (Seligman, Hovey, et al., 2014). Each item is scored on 6-point scale (1 = *strongly disagree* to 6 = *strongly agree*); thus possible scores range from 45 to 270, with higher scores indicating a more positive attitude toward ESTs. The Cronbach's  $\alpha$  in the present study was .96, indicating excellent internal consistency.

## Results

### Preliminary Analyses and Data Analytic Plan

Several participants were missing data on one or more scale items. Analyses revealed, however, that data were missing completely at random. Therefore, missing data were imputed using SPSS 20. First, item level data were imputed separately within each instrument for participants who had not fully completed a measure but who had completed over 50% of items. Maximum

likelihood estimation using the expectation maximization algorithm was used (Schafer & Graham, 2002). Second, using the same estimation approach, scale scores were imputed for participants who had scores missing for at least one measure but who had at least two measures completed. This resulted in a sample of 382 participants with complete data. Demographic data for this sample are presented in Table 1.

The full sample of 382 participants was included in all dimensional analyses. This approach allowed us to capture variations that exist in the interests and activities of mental health professionals; however, we also deemed it important to examine whether findings from dimensional analyses would be replicated with a behavioral, categorical dependent variable; type of career (i.e., clinician or researcher). Thus, categorical analyses were meant to be more of an “extreme” groups analysis—capturing distinct groups who identified most clearly as either a researcher or clinician. However, given that such a distinction is not able to capture the true variability inherent in this construct (e.g., researchers who focus on clinical trials and work daily with clients or clinicians who routinely use single-case design methods to monitor and guide treatment) we present dimensional analyses as well.

For categorical analyses we included only participants who identified as primarily research focused or primarily clinically focused. A total of 155 participants reported engaging in a primarily clinical career and 107 participants reported they were engaged in a primarily research career. These 262 participants were included in categorical analyses. Whether a participant was identified as a clinician or researcher was based on their report of how they spend the majority of their professional time; this was not based on degree or type of training program completed. However, not unexpectedly, career choice was associated with degree type  $\chi^2(4) = 25.31, p < .001$ ; 29.03% of participants who identified as clinically focused possessed a degree other than a PhD, this figure was only 4.67% for research focused respondents. Ad-

Table 1  
Demographic Characteristics of Sample With Complete Data on Key Study Variables ( $n = 382$ )

|                               | <i>N</i> | %         |
|-------------------------------|----------|-----------|
| Sex                           |          |           |
| Female                        | 200      | 52.4      |
| Male                          | 182      | 47.6      |
| Degree                        |          |           |
| PhD                           | 323      | 84.6      |
| PsyD                          | 31       | 8.1       |
| MA                            | 15       | 3.9       |
| MS                            | 5        | 1.3       |
| Other                         | 8        | 2.1       |
| Primary professional activity |          |           |
| Clinical                      | 155      | 40.6      |
| Research                      | 107      | 28.0      |
| Teaching                      | 71       | 18.6      |
| Consulting                    | 17       | 4.5       |
| Administration                | 16       | 4.2       |
| Combined/split                | 16       | 4.2       |
|                               | Mean     | <i>SD</i> |
| Age                           | 45.2     | 12.7      |
| Years licensed <sup>a</sup>   | 10.9     | 11.5      |

<sup>a</sup> Seven participants did not provide data on this variable ( $n = 375$ ).



ditionally, clinicians were slightly older than researchers,  $t(253) = 2.44, p < .02$ ;  $M_{\text{clinical}} = 46.17, SD_{\text{clinical}} = 14.12$ ;  $M_{\text{research}} = 42.30, SD_{\text{research}} = 11.39$  but there were no sex differences between the groups,  $\chi^2(1) = 0.63, p > .05$ .

### Relationships Between Need for Cognition, Decision-Making Style, and Career

Table 2 shows the descriptive statistics for the complete sample along with correlations among study measures; Table 3 presents descriptive statistics by group as well as tests of group difference. Correlations presented in Table 2 were largely consistent with hypotheses—intuitive decision making was positively related to interest in clinical practice and negatively correlated with interest in a research-focused career. Although NFC was significantly and positively correlated with both interest in clinical practice and with research, the relationship between NFC and interest in a research-focused career ( $r = .43$ ) was significantly larger than the relationship between NFC and interest in clinical practice ( $r = .24$ ;  $z = 6.75, p < .0001$ ). Consistent with hypotheses, results in Table 3 reveal that those engaged in research careers reported significantly higher NFC ( $p = .002$ ) and those engaged primarily in clinical work reported significantly heavier reliance on intuitive decision-making ( $p = .007$ ).

### Relationships With Attitudes Toward ESTs

Table 2 shows a small but significant inverse relationship between interest in clinical practice and attitudes toward ESTs; suggesting that those mental health professionals expressing more interest in clinical activities held less positive attitudes toward ESTs. Of interest, however, was the larger inverse correlation between preference for intuitive decision-making and attitudes toward ESTs. Interest in a research-oriented career was significantly and positively related to attitudes toward ESTs as was NFC, suggesting that mental health professionals with more interest in research activities and those with higher NFC reported more favorable attitudes toward ESTs.

Consistent with dimensional analyses and study hypotheses, results presented in Table 3 show that professionals engaged in clinical careers reported significantly less favorable attitudes toward ESTs than those engaged in research careers. Also, of note, the estimated effect size for differences between clinicians and researchers in EST attitudes was large (Cohen, 1992).

To test the hypothesis that level of intuition and NFC would moderate the effects of career on attitudes toward ESTs, EST attitudes was regressed on intuitive decision-making, NFC, career (dummy coded), and all two-way and the three-way interactions. The resulting model accounted for 24%<sup>3</sup> of the variance in EST attitudes,  $F(7, 254) = 11.21, p < .001$ . Moreover, the hypothesized Career  $\times$  Intuition  $\times$  NFC interaction approached significance,  $t(254) = 1.95, p = .053$ . As can be seen in Figure 1, EST attitudes were similar for clinicians lower in NFC, regardless of their level of intuition; however, clinicians who were relatively high in NFC reported more positive attitudes toward ESTs when reporting lower levels of intuition. An analysis of the differences in slopes was significant,  $t(254) = 3.87, p < .001$ .

### Discussion

Dual systems theories suggest that people rely on two systems when making judgments and forming attitudes, there are individual differences in the degree to which people rely on each system, and that these differences can have important implications for attitude formation and attitude change (e.g., Haddock, Maio, Arnold, & Huskinson, 2008). Early theory (Gelso, 1979) as well as the literature on clinicians' concerns regarding the use of ESTs (Addis & Krasnow, 2000) suggests the research-practice split on the use of ESTs may be driven, in part, by differences in the use of one system versus another. Our findings are consistent with this position in that they suggest that there are important differences between mental health professionals who engage in or who prefer research careers and mental health professionals who engage in or prefer clinical careers. Moreover, we found that these predicted variations are related to attitudes toward ESTs. As expected, relative to researchers, clinicians reported a more intuitive decision-making style and lower NFC. Greater use of intuition was related to less favorable attitudes toward ESTs whereas greater NFC was related to more favorable attitudes. These findings are consistent with surveys of clinicians who report that they rely on their clinical intuition more than research and that their dissatisfaction with ESTs or manualized treatments stems in part from the belief that these treatments deemphasize clinical intuition and autonomy (Addis & Krasnow, 2000; Pagoto et al., 2007).

Consistent with past research (e.g., Stewart, Chambless, & Baron, 2012), practicing clinicians reported less favorable attitudes toward ESTs than those in a research career. Although it has been well documented that clinicians have less favorable attitudes toward ESTs than researchers, to our knowledge, previous studies have not examined the social-cognitive correlates of these attitudes in an attempt to understand these differences. Our findings suggest that NFC and decision-making style might help us to better understand the differences between clinicians' and researchers' attitudes toward ESTs. More specifically, we found that NFC and intuitive decision-making moderated the relationship between career and attitudes toward ESTs. Clinicians who reported high NFC and lower use of intuition had attitudes that almost exactly mirrored those of researchers. However, clinicians who reported relying more heavily on intuition reported less favorable attitudes toward ESTs regardless of their level of NFC. Further, clinicians who reported low NFC reported relatively less positive attitudes toward ESTs regardless of how much they rely on intuition. Taken together, the effects of NFC, intuitive decision-making style, career choice, and their interactions predicted approximately 24% of the variance in the attitudes toward ESTs. Several theories of dissemination suggest that new innovations may be more readily accepted by a group when opinion leaders become early adopters. Our findings suggest that opinion leaders high in NFC with a less

<sup>3</sup> Previous research (Aarons, 2004; Addis & Krasnow, 2000) has shown that clinicians that have been in practice longer have more negative attitudes toward ESTs. Consistent with these findings years licensed was significantly correlated with attitudes toward ESTs in our sample,  $r = -0.24, p < .001$ ; therefore, the regression analysis was also conducted controlling for years licensed. Findings were similar and the  $R^2$  for the model including years licensed was .27.

Table 2  
Correlations, Means, and SDs for Overall Sample ( $n = 382$ )

|                           | Intuitive decision making | Need for cognition | Interest in science | Interest in practice | EST attitudes |
|---------------------------|---------------------------|--------------------|---------------------|----------------------|---------------|
| Intuitive decision making | —                         | -.03               | -.18**              | .17**                | -.33**        |
| Need for cognition        |                           | —                  | .43**               | .24**                | .17**         |
| Interest in science       |                           |                    | —                   | .02                  | .39**         |
| Interest in practice      |                           |                    |                     | —                    | -.11*         |
| Mean                      | 16.10                     | 74.77              | 68.57               | 69.99                | 205.10        |
| SD                        | 3.37                      | 8.21               | 17.01               | 12.66                | 35.27         |

\*  $p < .05$ . \*\*  $p < .01$ .

intuitive decision-making style would be good candidates for early training in an EST.

Having a better understanding about the needs and preferences of clinicians and the correlates of their attitudes toward ESTs may aid in current efforts to more effectively move treatments from the lab to practice. More specifically, research suggests that different types of persuasive appeals will be effective depending on the characteristics of the target of the appeal (Haddock et al., 2008). Several studies have shown appeals focused on emotion or appeals that are experiential in nature are more effective than cognitive appeals when an attitude is more affectively based (Edwards & von Hippel, 1995). As such, tailoring appeals to clinicians about ESTs in this way may promote higher rates of implementation. As evidence for the potential of affectively based dissemination efforts, Stewart and Chambless (2010) found that when practicing psychologists were given information about ESTs that included either statistical data alone or clinical case studies in addition to statistical data, the addition of the case study material resulted in significantly more favorable attitudes. It may be that the idiographic information provided in the cases allows for an emotional experience and connection with the treatment that is not provided by statistical data alone. Additionally, at least one experimental study has found support for this hypothesis. Specifically, students' interest in clinical practice was related to more favorable attitudes toward a fictional treatment when participants received an affectively based persuasive appeal but not when they received a cognitively based appeal (Seligman, Geers, et al., 2014).

### Limitations and Future Directions

One limitation of the current study was our use of online data collection methods and the limitations this method poses for assessing response rate. However, online data collection has become more accepted and is commonplace for studies assessing professional issues in psychology. Moreover, the sociodemographics of

our sample was similar to national surveys of psychologists (e.g., Addis & Krasnow, 2000).

A second possible limitation is that we did not collect data on participants' theoretical orientation. Collecting this information may have been fruitful as some studies (Chambers, Tazeau, & Rozensky, 1993) have found a relationship between scientific and theoretical orientations in clinical psychology doctoral students, with behaviorally oriented students reporting more of a scientific orientation than psychodynamic or humanistic students. Perhaps related to this finding, we did find that more clinically focused participants were less likely to hold a PhD and to be slightly older; thus, the type of training models participants were exposed to and the time since they received their degrees could help account for our findings. On the other hand, given that students are not randomly assigned to training programs, it is plausible that preexisting differences between the two groups played a role in the type of training program ultimately completed, or even that these groups start training with differences that become more pronounced as they are exposed to different training models. This is an important avenue for future research as understanding how and to what extent graduate training can effect attitudes toward ESTs can have important implications for how we structure or even accredit graduate programs.

The age of our sample could mean that some participants were not trained in ESTs during their graduate and internship programs which could have influenced our findings. It may be tempting to assume that this means that students coming out of today's programs will look very different, although this is an empirical question that should be explored, several studies have found that current students continue to get very little and sometimes no training in ESTs, suggesting that those entering the field tomorrow may not be significantly different in this regard from those well into their careers (Hays et al., 2002; Hicks, Shahidullah, Carlson, & Palejwala, 2014; Karekla, Lundgren, & Forsyth, 2004).

Table 3  
Means, SDs (by Group), and Tests of Group Differences With Effect Sizes for Key Study Variables

| Variable                  | Clinical ( $n = 155$ ) | Research ( $n = 107$ ) | $t$  | $p$   | $d$ |
|---------------------------|------------------------|------------------------|------|-------|-----|
| Intuitive decision-making | 16.8 (3.0)             | 15.7 (3.57)            | 2.70 | .007  | .33 |
| Need for cognition        | 73.5 (8.1)             | 76.6 (7.5)             | 3.12 | .002  | .40 |
| EST attitudes             | 193.7 (34.1)           | 219.4 (30.8)           | 6.35 | .0001 | .79 |

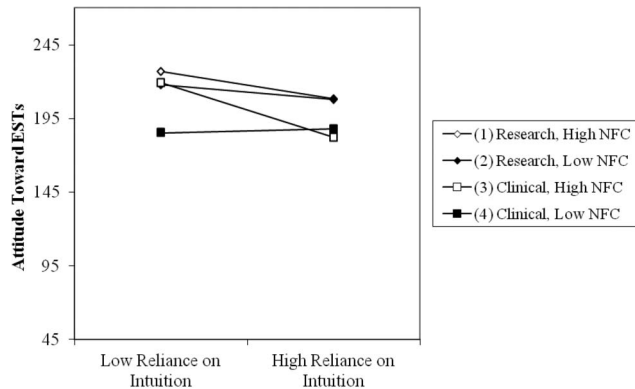


Figure 1. Relationship between attitudes toward empirically supported treatments (ESTs) and career choice, intuitive decision-making and need for cognition (NFC). Note. Continuous variables are plotted at  $\pm 1$  SD from the mean.

Given the constructs under consideration, the current study necessarily used a correlational design and as such we cannot draw causal conclusions nor make definitive statements on the direction of the observed relationships. However, our findings regarding the direction and nature of the relationships between the variables examined are consistent with extant theory. It is likely though that there exists a more complex and dynamic interplay of these constructs than we could capture with a single data collection. For example, it may be true that those higher in NFC are drawn to research careers and those with a more intuitive style are drawn to clinical practice but that these differences become more pronounced over time as a result of environmental contingencies. Longitudinal examinations of these relationships could provide a fuller picture of how and why differences come to exist between research oriented and clinically oriented mental health professionals and how these differences impact attitudes and behavior.

Although psychologists represent only a small portion of the professionals working in mental health settings, we chose to focus on this group for the first examination of these hypotheses. Most psychology programs provide training in both research and practice so an ample number of psychologists could be expected to be involved in clinical and research activities, allowing us to avoid a situation in which profession and career-choice might be highly related and the potential confounds that could arise from such a situation. Although this strategy may result in greater confidence that group differences were not because of different perspectives on mental health, limiting our sample in this way may also call into question the generalizability of results. It should be noted, however, that professional discipline has not been found to relate to attitudes toward evidence based treatments (Aarons, 2004; Aarons, Cafri, Lugo, & Sawitzky, 2012); therefore, our sample likely reflected the variety of attitudes toward ESTs observed in many health care settings.

## Implications

Although the current findings may have implications for dissemination efforts broadly defined, the most promising application is likely at the level of graduate training. Dissemination efforts

aimed at practicing clinicians have to overcome obstacles specific to attitudes toward ESTs as well as logistical barriers—almost every study of perceived barriers to training in ESTs has identified low resources (time, money) as a barrier. Graduate students, on the other hand, are in a position in which their entire focus is on training and the development of their professional roles and identity. Matching training experiences to student preferences by coupling affective information, particularly experiential learning (e.g., standardized patients), with scientific literacy has the potential for far-reaching attitude change that could affect the quality of care delivered by the next generation of mental health professionals. Alternatively, it may be advisable for training programs to start increasing the scope of their admissions evaluation process to include characteristics such as NFC and decision-making style given that characteristics such as NFC are seen as dispositional or chronic differences (Petty et al., 2009) and graduate programs are facing increasing demands to produce scientifically informed students who adhere to evidence based practices (Rozenksy, 2014a).

Although, our findings have clear implications for those researchers who wish to disseminate their treatments, the most important implications are for those psychologists in clinical practice. As the ACA is implemented there will be increasing pressure on practicing psychologists to demonstrate both the quality and efficiency of their interventions (Rozenksy, 2014b). It is anticipated that reimbursement will become increasingly linked to verifiable outcomes rather than time in session (Nordal, 2012). Additionally, the demands of the ACA will likely move many psychologists from specialized mental health practices toward primary care settings in which there will be a great demand for brief interventions and for psychologists to work as part of an interdisciplinary team (Nordal, 2012; Rozenksy, 2014b). Having a working knowledge of the ESTs that serve as the foundation for EBP will give psychologists access to the most efficient treatments with demonstrated efficacy and a common language with which to communicate with other health professionals who routinely use clinical trials to inform their practice. Therefore, while it is clearly important for practicing psychologists to seek out training in ESTs, our findings suggest that not all of these trainings are going to be equally effective. Clinicians who prefer an intuitive decision-making style and/or who are lower in NFC should look for training opportunities that include an experiential component (e.g., role plays). They should also make sure to leave any training with case examples that make clear the implications for an individual receiving the treatment as this more affectively laden information is more likely a better match for those with a more intuitive decision-making style. Those psychologists in administrative roles who need to make decisions about how to move their organization toward a more evidence-based practice model should focus early training efforts on opinion leaders who rely less heavily on intuition and evidence higher NFC, as these individuals should be more likely to respond favorably and influence those around them.

In closing, the movement toward the integration of clinical science and clinical practice has done much to advance the field; however, there is much that remains to be done (Hollon et al., 2014). Although research suggests that there are effective treatments that are not being widely used, studies also suggest that researchers need to have a better idea of the obstacles faced in clinical practice to design research studies that could address the problems clinicians face in everyday practice (Beutler, Williams,



Wakefield, & Entwistle, 1995; Nelson, Steele, & Mize, 2006). Understanding the differences between clinical researchers and clinical practitioners should help not only in tailoring dissemination efforts to clinicians but bridging the gap between researchers and clinicians also has the potential to allow for communication in the other direction—from the clinic to the lab—so that the studies with the most relevance for clinicians are being conducted (Goldfried et al., 2014). Together, making clear the relevance of current research and using clinical experiences to make the research base more relevant, the true integration of science and practice can be achieved.

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### Correction to Ready and Veague (2014)

In the article “Training in Psychological Assessment: Current Practices of Clinical Psychology Programs” by Rebecca E. Ready and Heather Barnett Veague (*Professional Psychology: Research and Practice*, 2014, Vol. 45, No. 4, pp. 278–282. <http://dx.doi.org/10.1037/a0037439>), there was an error in the third sentence of the **Procedures** section. The sentence should have been set as follows: “The anonymous online survey assessed program characteristics (e.g., training model, internship match rates), changes in assessment training over the last decade, assessment faculty, required assessment courses and course content, instruments, and practicum hours.”

<http://dx.doi.org/10.1037/pro0000085>