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2013

# Is Openness to Using Empirically Supported Treatments Related to Organizational Culture and Climate?

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### Recommended Citation

Patterson Silver Wolf (Adelw unegv Waya), David A. PhD; Dulmus, Catherine N. PhD; and Maguin, Eugene PhD, "Is Openness to Using Empirically Supported Treatments Related to Organizational Culture and Climate?" (2013). *Brown School Faculty Publications*. 9.

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## Is Openness to Using Empirically Supported Treatments Related to Organizational Culture and Climate?

### **Abstract**

An established literature indicates that organizational factors such as culture and climate can impede the implementation of empirically supported treatments (ESTs) in real world practice. What remains unclear is whether certain worker attitudes create barriers to implementing ESTs and how these attitudes might impact the working culture and climate within an organization. The overall purpose of this study is to investigate workers' openness towards implementing a new EST and whether the workers' openness scores relate to their workplace culture and climate scores. Participants in this study (N=1273) worked in a total of 55 different programs in a large child and family services organization. Participants completed an organizational culture and climates survey and a survey measuring their attitudes toward ESTs. Results indicate that work groups that measure themselves as being more open to using ESTs rated their organizational cultures as being significantly more proficient and significantly less resistant to change. Further, they rated their organizational climates as being significantly more functional and less stressed. Work groups with open attitudes towards using ESTs create a culture and climate that also foster using ESTs. With ESTs becoming the gold standard for professional social work practices, it is important to have accessible pathways to EST implementation.

**Key Words:** Worker Openness, empirically supported treatments, culture and climate, Hillside Family of Agencies

## **Introduction**

While social work and other community health-care organizations have put forth efforts to incorporate empirically supported treatments (ESTs) into practice (Aarons & Sawitzky, 2006; Abrahamson, 2001; Brooks, Patterson & McKiernan, 2012; Burns, 2003; Essock et al., 2003; Glisson, 2002; Patterson & Dulmus, 2012; Patterson & McKiernan, 2010; Ringeisen & Hoagwood, 2002), the limited implementation successes within these organizations are well-documented (Hoagwood et al., 2001; Weisz & Jensen, 1999). Recent literature suggests that both organizational and individual worker-level factors affect decisions on whether or not ESTs are implemented effectively and fully within health care agencies (Aaron, 2005; Glisson & Hemmelgarn, 1998; Glisson & James, 2002; Hemmelgarn et al., 2001; Patterson et al., 2013). Hemmelgarn and colleagues (2006) reported that the social context of an organization (e.g., culture and climate) can influence what types of ESTs will be selected and how effectively those interventions will be put into regular practice. Just as the organization's social context can impede EST implementation, studies are beginning to examine worker-level factors capable of blocking EST implementation. For instance, emerging literature indicates that a worker's years of work experience (see, Aarons, 2004; Pignotti & Thyer, 2009), educational attainment (see, Aarons, 2004; Osborne et al., 1998; Stahmer & Aarons, 2009), and educational discipline (see, Aarons, 2004; Stahmer & Aarons, 2009) shape the worker's attitudes toward using ESTs. Furthermore, whether a student has completed an internship (see, Aarons, 2004; Garland, 2003; Patterson, et al., 2012) also affects the worker's attitudes toward ESTs.

The mental health field can learn from manufacturing corporations' studies during organizational and system-level changes resulting from reengineering or new technology introduction. Similar to mental health organizations' struggles to implement new ESTs, business

and manufacturing industries have fallen short of successful best practice implementation efforts (see, Beer & Nohria, 2000; Clegg & Walsh, 2004). Rather than continuing to focus specifically on barriers to implementation at the organizational level, the manufacturing field has begun to shift its attention to individual-level worker issues. The developing perception is that failure in organizational change (e.g., inability to alter routine worker behaviors) is less related to macro systems than to employees' anxiety, uncertainty, and ambiguity about a changing organization (Bordia et al., 2004; Coch & French, 1948). In manufacturing organizations, these feelings indicate that workers will be unwilling to support the introduction of any new practices (Applebaum & Batt, 1993; Judson, 1991), regardless of how beneficial the new practices are to their employer or its customers. Workers within the mental health field may also experience these same feelings when faced with using new ESTs.

### **Mental Health Worker's Openness to Change**

Health and mental health literature suggests that a worker's openness towards EST implementation is associated with greater receptiveness to modifications in organizational services (Anderson & West, 1998, Garvin, 1993). Intellectual and behavioral flexibility are a key factor in an individual's personality (Digman, 1990). When new technologies are first introduced into a system, the adopter's openness to change is the most important factor for successful assimilation (Applegate 1991; Hage & Dewar, 1973; Nadler & Tushman, 1980).

Aarons (2004) has developed a quick measure of workers' attitudes toward implementing ESTs, which has been used to investigate how workers' attitudes are related to a set of individual differences (Aarons, 2004; Aarons & Sawitzky, 2006; Aarons, Glisson, Hoagwood, Kelleher, Landsverk, & Cafri, 2010; Patterson et al., 2012; Stahmer & Aarons, 2009). According to Aarons (2004), workers' attitudes toward ESTs can be reliably measured and vary in relation

to individual differences. Aarons (2004) identified four factors as influential in service providers' attitudes towards the acceptance and use of ESTs: 1) openness to implementing new interventions (Openness); 2) the intuitive appeal of the new intervention (Appeal); 3) willingness to using required interventions (Requirements); and 4) conflict between clinical experience and research results (Divergence).

The current mental health literature lacks an understanding of the connection between workers' openness to using new ESTs and its relationship with the organization's overall working environment (e.g., culture and climate). As stated earlier, multiple studies indicate that an organization's culture and climate can impede a worker's attempts to implement ESTs (Aaron, 2005; Glisson & Hemmelgarn, 1998; Glisson & James, 2002; Hemmelgarn et al., 2001; Hemmelgarn et al., 2006). If a worker has an open attitude towards trying a new EST, this receptivity may enable the worker to overcome the obstructing forces of bad cultures and climates. If this is the case, implementing ESTs could be accomplished more smoothly.

### **Purpose of Study**

The present study examines the relationships between dimensions of program-level culture and climate, worker-level openness, and whether an EST has been implemented. Two questions concern the bivariate relationship: a) openness on the part of workers and program-level culture and climate and b) EST utilization and culture and climate. The final question concerns the joint effect of openness and EST utilization on culture and climate. It is hypothesized that workers who have an open attitude toward using ESTs will also work in good cultures and climates. A worker's openness to using ESTs within a perceived good culture and climate, removes well-established barriers and creates clear pathways to implementing EST in real world settings.

## **Method**

### **Setting**

The setting for this study was Hillside Family of Agencies (HFA), the largest child and family human service agency in Western and Central New York State (NYS). HFA has helped children and their families for more than 170 years and presently employs more than 2,200 staff within six affiliate organizations, located in 40 sites across 30 New York counties and in Prince George's County, Maryland. Affiliates of this \$140+ million network provide services to children from birth to age 26 for more than 9,000 families each year. HFA provides 120 services in six major categories, including child welfare, mental health, juvenile justice, education, youth development, and developmental disabilities/mental health. HFA holds NYS licenses with the Office of Children and Family Services, the Office of Mental Health, the Office for People with Developmental Disabilities, and the Department of Health and the State Education Department and is accredited by the Council on Accreditation (M. Cristalli, personal communication, March 18, 2010).

### **Study Sample**

Participants in this study worked in a total of 55 different programs across the four direct service affiliates. A senior HFA manager defined the 55 programs according to the program's service function and supervisory structure. Several programs with fewer than five workers were excluded because they did not meet the Organizational Social Context's measurement scoring criterion of at least five workers per organizational unit. All workers in a program were supervised by the same supervisor and were housed in the same location. Each program provided a single type of service (e.g., residential, outpatient, day treatment, etc.). Across HFA, two types

of programs predominated: community based ( $n = 17$ , 31%) and residential ( $n = 18$ , 33%). The remaining program types included day treatment ( $n = 5$ , 9%), foster care and residential-based schools ( $n = 4$ , 7% for each), medical ( $n = 3$ , 5%), service integration ( $n = 2$ , 4%), and adoption and outpatient ( $n = 1$ , 2% for each).

All participants in this study were “front-line” employees (i.e., those employees with direct service contact with the children and families this agency served). Given this criterion, participants represented a number of different work roles in the agency, including but not limited to: direct care workers in residential settings, therapists, and mentors. The participation rate for this study was 82%, yielding a total sample of 1,273 participants from a total of 1,552 child and family service providers.

The number of participants per program ranged from 5 to 84 (Median = 15,  $M = 23$ ,  $SD = 18$ ). Approximately 42% of respondents worked in residential programs; 23% worked in community-based programs; 12% worked in day treatment programs; and 11% worked in residential-based school programs. The remaining respondents worked in four much smaller services. Aggregate data on the demographic characteristics of the population of HFA front-line employees were not obtained from HFA Human Relations. Thus, the extent to which participating employees differed from all study-eligible employees could not be determined.

The final sample of participants had a mean age of 35 years ( $SD = 11$ ; range: 19-73); 59% were female, and 74% self-identified as white, 17% as African American and 5% or less for any other category (multiple categories were allowed). At the time of this survey’s administration, participants had worked in the human service field for an average of 9.6 years ( $SD = 8.5$ ; range: 0-50) and at their current agency for an average of 5 years ( $SD = 5.62$ ; range: 0-36). Seventeen percent had completed high school, 17% had earned an associate degree, 38%

had received their bachelor's degree, 27% had obtained their master's degree, and 1% had earned a doctoral degree. Education was the predominant discipline in which these degrees were earned (23%), followed by social work (18%), psychology (16%), nursing (4%), and medicine (0.4%). The category of "other" made up for the bulk of the distribution (39%); however, we were not able to determine the contributing disciplines. Although the majority of participants (75%) were in service provider positions only, 12% also had supervisory responsibilities, 2% also had managerial responsibilities, and 10% reported "Other" positions.

As might be expected, the median values of participant demographics and backgrounds presented a wide range across the 55 programs. Median age ranged between 25 and 52; years of experience ranged between 3 and 25; and years in the present position ranged between 1 and 18. The percentages of participants with different educational levels or majors also had very wide ranges. The minimum percentage was zero across both the education levels and major educational categories listed above. The maximum educational level percentages were 54% for high school graduate, 55% for an associate degree, 100% for both a bachelor and a master's degree, and 33% for a doctoral degree. The maximum educational major percentages were 70% for education, 83% for social work, 100% for nursing, 24% for medicine, 67% for psychology, and 100% for other majors.

## **Measures**

### ***Evidence-Based Practice Attitude Scale***

The Evidence-Based Practice Attitude Scale (EBPAS; Aarons, 2004) consists of 15 items that assess four dimensions of attitudes towards adoption of evidence based practices. A five-point response format (0 = *not at all*, 1 = *to a slight extent*, 2 = *to a moderate extent*, 3 = *to a great extent*, and 4 = *to a very great extent*) is used for each item. Scale scores were computed as



the mean of items comprising the scale. The four scales are as follows. Requirements are a three-item scale that assesses the likelihood that the worker would adopt a new EST if it were required. Appeal is a four-item scale that measures the likelihood the worker would adopt a new EST if colleagues were happy with it or it was intuitively appealing, made sense and could be used correctly. Openness is a four-item scale that assesses the worker's "openness" to trying or actually adopting new interventions. Divergence is a four-item scale that assesses the worker's assessment of the clinical value of research-based interventions versus clinical experience. A higher score indicates "more" of the scale name, except for Divergence, where a higher score indicates valuing clinical experience and knowledge over research-derived knowledge. In addition, a total (mean) score was computed for the 15 items in the measure. Internal consistency reliability values for these data were Requirements (.90), Openness (.81), Appeal (.81), Divergence (.60), and total (.82), which are similar to previously reported values (e.g., Aarons, 2004; Aarons et al., 2010). Of the 1,273 participants who completed the ten minute survey, 13 chose not to complete the EBPAS at all. Thus, usable data were available for 1,260 participants.

### ***Organizational Social Context***

The Organizational Social Context Measurement Model (OSC) is a measurement system guided by a model of social context that consists of constructs at both the organizational (structure and culture) and individual (work attitudes and behavior) level. These constructs include individual and shared perceptions (climate), which are believed to mediate the organization's impact on the individual (Glisson, 2002; Glisson et al., 2008). The OSC measurement tool contains 105 items that form four domains: 16 first-order factors and 7 second-order factors that have been confirmed in a national sample of 100 mental health service organizations with approximately 1,200 clinicians. The self-administered Likert scale survey

takes approximately twenty minutes to complete and is presented on a scannable bubble sheet booklet.

The OSC is a measure of a program's culture and climate as reported by its workers; thus, scores are computed for the program as a whole and not for its individual workers. The scores reported are T scores, the computation of which is based on Glisson et al.'s (2008) sample of agencies. The three factors that comprise an organization's culture are Proficiency (.94), Rigidity (.81), and Resistance (.81.) (Glisson et al., 2008). Proficient cultures will place the health and well-being of clients first and workers will be proficient and will work to meet the unique needs of individual clients, using the most recent available knowledge (e.g., "Members of my organizational unit are expected to be responsive to the needs of each client" and "Members of my organizational unit are expected to have up-to-date knowledge"). Rigid cultures allow workers a small amount of discretion and flexibility in their activities, with the majority of controls coming from strict bureaucratic rules and regulations (e.g., "I have to ask a supervisor or coordinator before I do almost anything" and "The same steps must be followed in processing every piece of work"). Resistant cultures are described as workers showing little interest in changes or new ways of providing services. Workers in Resistant cultures will suppress any proposals to change (e.g., "Members of my organizational unit are expected to not make waves" and "Members of my organizational unit are expected to be critical").

The factors for organizational climate are Engagement (.78), Functionality (.90), and Stress (.94) (Glisson et al., 2008). In engaged climates, workers perceive that they can accomplish worthwhile activities and stay personally involved in their work while remaining concerned about their clients (e.g., "I feel I treat some of the clients I serve as impersonal objects"— (reverse-coded), "I have accomplished many worthwhile things in this job").

Workers in Functional climates receive support from their coworkers and have a well-defined understanding of how they fit into the organizational work unit (e.g., “This agency provides numerous opportunities to advance if you work for it” and “My job responsibilities are clearly defined”). Stressful climates are ones in which workers are emotionally exhausted and overwhelmed as the result of their work; they feel that they are unable to accomplish the necessary tasks at hand (e.g., “I feel like I am at the end of my rope” and “The amount of work I have to do keeps me from doing a good job”).

### **Evidence Supported Treatment Utilization**

In conjunction with program managers, a senior HFA manager provided descriptive data for the 55 programs. Each program was described in terms of its type of service, whether it used ESTs, the names of the ESTs used, and its funding sources. Although this agency identified the interventions as evidence-based practices (EBPs), this is inconsistent with the original model of EBP, which is a process for individual clinicians to come to decisions with clients about what interventions to offer (see Thyer and Myers, 2011, for a review of the distinctions between the empirically supported treatment model, which lists specific interventions, and EBP, which does not). Of the 55 total programs, 27 programs reported using one or more specific ESTs. This was determined by senior and program managers’ agreement that a specific program was utilizing an EST. The researchers did not evaluate whether the programs that indicated they offered an EST were, in fact, qualified as being ESTs or did so with adequate levels of fidelity to the protocol.

### **Data Collection Procedure**

Upon IRB approval, the two measures were administered to participants in paper and pencil format. Data collection began in 2009 and occurred in groups, with no agency administration present. Each group was read instructions assuring subjects that their responses

were anonymous and data would only be reported back to the organization in aggregated form. All subjects were volunteers, signed informed consent, and received no compensation.

## **Results**

The results to be presented pertain to a single, large human services agency with programs that serve multiple client populations. While we might wish to generalize these results to the population of all human service agencies, it would be incorrect to do so, since agencies were not randomly selected. Nearly all programs providing services and 82% of the workers providing services participated. We propose that these results should be regarded as values for comparison against which comparable analyses may be compared. In the presentation of the results, we emphasize a descriptive approach based on the unstandardized values of the analyzed relationships and, where possible, the corresponding standardized values and effect sizes. While we report 95% confidence intervals and p values, readers should recall that the sampling basis of these numbers is generated by a single agency.

The data have a two-level structure since service providers are nested within workgroups; thus, we used a multilevel analysis model, as implemented in Mplus 6.12 (Muthén and Muthén, 1998-2010). Culture and climate scale scores and EST utilization were program (level 2) variables and the EBPAS Openness scale score was a worker (level 1) variable. Cluster size ranged from 3 to 84 with a mean of 23 and a median of 14. The total sample descriptive statistics for Openness were  $M = 2.76$ ,  $SD = 0.71$ , skewness = -0.22 and kurtosis = -0.15. (Parenthetically, the mean Openness score reported here is numerically the same as that reported by Aarons, Glisson, Hoagwood, Kelleher, Landsverk, & Cafri [2010]). A boxplot chart for Openness shows two points, both retained, outside the lower hinge.

Insert Table 1 about here

Program level distributional statistics demonstrate considerable variability, a reflection, in part, of the small cluster sizes. Boxplots of the Openness program means and the culture and climate scale scores show that the values for all scales lay within the hinges, except for Engagement, which had two scores; both Engagement scores retained above the upper hinge. The skewness values for the culture and climate scales and program mean score for Openness ranged between -0.47 (Proficiency) and 0.38 (Engagement) and kurtosis values ranged between -0.38 (Rigidity) and 1.13 (Stress). Thus, the within group means were approximately normally distributed and with no large outliers for each EBPAS variable. Table 1 presents the maximum likelihood estimates of the level 2 means and variances of EST utilization, Openness, and the culture and climate scales.

Looking first at the culture and climate scale T score means, which are computed on the basis of Glisson et al.'s (2008) sample of agencies, the data show that the average program reported elevated levels of Rigidity and Resistance and a depressed level of Engagement, all indicative of less than optimal functioning, but an elevated level of Functionality. Like the program means, the variances differ considerably across the six scales. Programs vary relatively widely on Resistance and Functionality but much less on Proficiency, as the ratio of the variance of both Resistance and Functionality is about 2.5 times that of Proficiency. The program level variance for Openness is 0.030 and the ICC is .059, indicating a small amount of variability for the mean Openness score across programs, with the large majority of the variability being between workers within programs.

Table 1 also shows the correlations between EST utilization, Openness, and the culture and climate scales. Adopting the Cohen (1988) magnitude characterizations for correlations reveals "medium" size relationships between current use of an EST and culture and climate. EST

use is associated with increased Rigidity, Resistance, and Stress and with decreased Proficiency, Engagement, and Functionality. In short, EST utilization is perceived as having an adverse impact on all dimensions of both culture and climate. Although EST use is also associated with increased program level Openness, the effect size is “small.” However, increased program level Openness is associated with decreased Rigidity, Resistance, and Stress and with increased Proficiency, Engagement, and Functionality. The correlation magnitudes are mostly in the small and small-medium range. That acknowledged, Openness is perceived as having a beneficial impact on all dimensions of both culture and climate.

Insert Table 2 about here

To assess the unique effects of EST use and program level Openness on the dimensions of culture and climate, these two variables were regressed, in turn, on each culture and climate dimension. Table 2 reports the results. The effect sizes ( $f^2: R^2/[1-R^2]$ ) vary across the medium to large range, from 0.168 (Engagement) to 0.770 (Proficiency) with all but two (Engagement and Resistance) falling in the large (0.35+) range. Since the correlation between Openness and EST use is positive, the directional pattern of the results recapitulates the pattern seen for the correlations. That is, EST use negatively affects “positive” dimensions and positively affects “negative” dimensions. Openness displays the converse pattern. Thus, the combined effect of EST use and program level Openness is that EST use worsens a program’s culture and climate, but greater openness improves it.

### **Discussion**

The overall purpose of this study was to investigate the bivariate and multivariate relationships of both openness and EST use to program culture and climate dimensions. The results showed that openness had medium size correlations with each culture and climate

dimension. In addition, the average Openness score was higher for programs using ESTs. Across the regression analyses, EST use was related significantly to each culture and climate dimension, while openness was related significantly to certain dimensions (Proficiency, Resistance, Functionality, and Stress) but not others (Rigidity and Engagement). EST use predicted less favorable scores while Openness predicted more favorable scores. The hypothesis that workers who have an open attitude toward using ESTs will also have good cultures and climates is found to be supported.

This study contains several important limitations. The most important is that these data were not the result of sampling agencies, programs and workers and, therefore, cannot be generalized back to a population of agencies. These results are simply a basis against which to compare other studies using the same methodology. Because the participants and programs are from a single agency, it is possible, and perhaps likely, that the responses are more homogenous, thus decreasing variability, than would be expected in a sample of agencies. Comparing the total sample Openness SD (0.71) against that reported in previous studies by Aarons and colleagues (Aarons, 2004; et al, 2007; et al., 2010) does show that those studies reported an Openness standard deviation about four to six percent larger than this study. Lastly, these results cannot be taken to imply a causal ordering. The programs using ESTs had implemented their use prior to this survey. There is non-random turnover among a program's workers and their replacements are certainly selected for the program's requirements. While we analyzed openness as a predictor of culture and climate, we acknowledge that certain culture and climate dimensions may also affect both individual-level and program-level openness over time.

ESTs are becoming the gold standard for professional client care, so identifying any factors that might impede their implementation is crucial. An established literature indicates that

an organization's culture and climate erect barriers when workers try to implement ESTs (Aaron, 2005; Glisson & Hemmelgarn, 1998; Glisson & James, 2002; Hemmelgarn et al., 2001; Hemmelgarn et al., 2006; Patterson et al., 2012). Any efforts to overcome these barriers would be important in the movement toward widespread EST adoption.

According to Glisson et al. (2008), proficient cultures will place the health and well-being of clients first and workers will be proficient, working to meet the unique needs of individual clients, using the most recent, available knowledge. Organizations with a proficient workforce are primed for both adopting ESTs and conducting evidence-based practice (EBP) protocols. The original model of EBP, which is a process for individual clinicians to make decisions with clients about what interventions to offer, differs distinctly from implementing ESTs. Thyer & Myers (2011) reviewed the distinctions between the EST model, which lists specific tested interventions that can be implemented, and EBP, which does not. Regardless of whether or not an organization offers ESTs or the EBP model, a proficient worker is ideal for offering either model.

In resistant cultures, workers show little interest in changes or new ways of providing services. Workers in resistant cultures will suppress any openings to change (Glisson et al., 2008). A resistant workforce would be the least ideal for implementing ESTs. Unsurprisingly, the group that rates itself as being less open to changing their clinical practices would also have a culture rated as showing little interest in providing new services. During a research-based treatment efficacy study, which offers two or more interventions, this group (e.g., less open and more resistant to changing current clinical practice) would make a good treatment-as-usual provider. However, expecting this group to move beyond a treatment-as-usual condition would be challenging.



Workers in Functional climates receive support from their coworkers and have a well-defined understanding of how they fit into the organizational work unit (Glisson et al., 2008). A functional workforce has established support systems in place and provides clear communication between workers. Workers who feel safe to try new practices at work are open to trying more of these new practices and the risks that might proceed (Edmondson et al., 2001). An open, functional team is needed when workers are asked to change their current ways of practice, which is expected during attempts to implement ESTs and/or follow the model of EBP.

According to Glisson et al. (2008), stressful climates are ones in which workers are emotionally exhausted and overwhelmed as the result of their work; they feel that they are unable to accomplish the necessary tasks at hand. Requesting an overly stressed individual or group to take on any new clinical approach may prove futile. An emotionally exhausted individual who feels he or she cannot complete the requirements of their current workload would obviously seem less open if asked to implement any new intervention. However, a low-stress environment where tasks are regularly accomplished could be open to integrating new clinical practices.

### **Conclusion and Recommendations for Future Research**

The strength of this first of a kind study is that it has indicated that work environment and the worker's open attitude toward using ESTs complement each other and have important implications on implementation science. As the field of social work continues to strive to offer the best, most up-to-date ESTs for their clients, having an open-minded work force could be a significant factor in accomplishing this goal. If the culture and climate of an organization is a barrier to implementing ESTs, the open-minded worker could be the major force behind dismantling this barrier. Investigations that offer insight into specific factors making up

organizational and worker EST adopters, would greatly benefit our field (Patterson, In-press). The present study offers a beginning step toward the complex backdrop of EST implementation. Researchers should continue to examine and consider the differences between working conditions and their workers' attitudes when trying to implement ESTs in real world practice settings. Future implementation studies might consider measuring organizational and worker attitudes controlling for these factors as barriers or pathways to widespread EST implementation. If a group of workers who were measured as having open attitudes to using ESTs have higher EST implementation rates compared to program workers with less than open attitudes, this would greatly advance our implementation science knowledge. While this study provides a small step toward understanding the relationship between open attitudes and culture and climate, it does provide some unique, new insights into pathways to EST implementation in real world social work practice settings.

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Table 1: Correlations of EST Utilization and Openness with Culture and Climate Scales and Descriptives Statistics (Level 2) for All Scales (N = 55)

	EST	Openness	Proficiency	Rigidity	Resistance	Engagement	Functionality	Stress
EST Used	1.000	0.151	-0.264	0.378	0.334	-0.297	-0.384	0.457
Openness	0.151	1.000	0.479	-0.233	-0.256	0.118	0.350	-0.230
Mean	0.491	2.757	52.347	59.445	66.137	43.716	60.149	56.466
Variance	0.250	0.030	31.449	39.458	74.531	49.601	75.911	44.863

Note. Values reported are maximum likelihood estimates. Proficiency, Rigidity, and Resistance are OSC Culture measures. Engagement, Functionality, and Stress are OSC Climate measures. Openness is the EBPAS measure. ICC for Openness is .059.



Table 2: Regression of OSC Scales on EBPAS Openness and Current Use of an EST

OSC Scale	IV	Unstd B	SE	Beta	p-value	R <sup>2</sup>	f <sup>2</sup>
Culture Dimension							
Proficiency	Openness	20.478	5.546	0.614	0.000		
	Any EST	-4.164	1.323	-0.371	0.002	.435	.770
Rigidity	Openness	-13.435	7.508	-0.351	0.074		
	Any EST	5.540	1.662	0.441	0.001	.262	.355
Resistance	Openness	-18.297	9.173	-0.341	0.046		
	Any EST	6.942	2.229	0.402	0.002	.223	.287
Climate Dimension							
Engagement	Openness	10.884	9.732	0.243	0.263		
	Any EST	-4.963	2.059	-0.352	0.016	.144	.168
Functionality	Openness	26.497	8.432	0.494	0.002		
	Any EST	-8.308	2.195	-0.477	0.000	.383	.620
Stress	Openness	-15.174	7.190	-0.362	0.035		
	Any EST	7.040	1.570	0.525	0.000	.335	.504

Note.  $f^2 = R^2/(1-R^2)$ , Cohen (1988).