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Changing Employers' Implicit Attitudes About the Competence of People Who are Blind

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Abstract

Introduction: Long-held societal beliefs about the incompetence and dependence of people who are blind are thought to contribute to their low employment rates. This experimental study examined the impact of a meeting between a vocational rehabilitation (VR) professional and a hiring manager on these beliefs, or implicit attitudes, about the competence of people who are blind.

Method: Participants were 57 hiring managers working for a financial services company in the South who participated in a one-hour meeting with a VR professional. Two VR professionals, one sighted and one blind, conducted the meetings, utilizing one of two approaches, resulting in 4 (group) x 3 (time) experimental design. Implicit attitudes were measured with the IAT-BVI at pretest, posttest, and a 4-month follow-up and data were analyzed using repeated-measures ANOVA.

Results: IAT-BVI scores decreased significantly following the meeting, though the size of the change was small. Type of approach and the interaction between approach and the VR professional's vision status were not significantly associated with IAT-BVI change. Although vision status was not significantly associated with IAT-BVI change, follow-up analyses documented that participants who met with the blind VR professional had a significant decrease in IAT-BVI scores.

Discussion: Hiring managers' implicit attitudes significantly improved following a meeting with a VR professional, providing evidence that a brief interaction can decrease employers' implicit bias regarding the competence of blind people. In addition, hiring managers who met with the blind VR professional showed significant improvement in their implicit attitudes after the meeting, with a medium-to-large effect.

Implications for practice: VR professionals should communicate with employers as much as possible about the work capabilities of individuals who are blind to help improve their implicit attitudes, and be aware that incorporating exposure to a competent blind person may result in a greater impact.

Changing Employers' Implicit Attitudes About the Competence of People who are Blind

Long-standing societal attitudes exist about the dependence and incompetence of people who are blind (Allen & Bellstedt, 1996; Fiske, Cuddy, Glick, & Xu, 2002; Koestler, 2004; Monbeck, 1975). Recent research supports that some members of our society still believe blind people are dependent and that vision loss is associated with loss of independence (Papadaki & Tzvetkova-Arsova, 2013; Scott, Bressler, Ffolkes, Wittenborn, & Jorkasky, 2016). Given that attitudes about dependence of blind people exist in our society in general, we may assume that many employers who make decisions about hiring people also possess these attitudes.

Competence to perform a job requires a certain measure of independence. Employers may not think specifically in terms of independence when considering whether a person would be a good employee, but rather competence, and a perception of being dependent would predictably have a negative impact on attitudes about competence as well. Attitudes are considered important because they are linked to intent and ensuing behavior (Eagly & Chaiken, 2007; Fishbein & Ajzen, 1975). A considerable amount of research has documented the belief (among people who are blind and professionals in blindness rehabilitation) that negative employer attitudes adversely impact employment opportunities for blind people (Coffey, Coufopoulos, & Kinghorn, 2014; Crudden & McBroom, 1999; Kirchner, Johnson, & Harkins, 1997; McDonnall, Crudden, & Zhou, 2013; Salomone & Paige, 1984).

Despite the widely held belief that employers possess negative attitudes towards people who are blind, it is not considered socially acceptable to exhibit prejudice towards this group (Crandall, Eshleman, & O'Brien, 2002; Graziano, Bruce, Sheese, & Tobin, 2007). This finding, in addition to laws that prohibit discrimination in hiring, makes it unlikely that employers will express overt negative attitudes towards blind people, even if they hold these beliefs. It is also

possible that societal attitudes have resulted in employers' having implicit bias, or unconscious negative attitudes, towards blind people with regard to their competence. Because employers may hesitate to express negative attitudes or may hold unconscious negative attitudes about the competence of blind people, it is important to evaluate their implicit attitudes towards this population. A previous study that assessed the implicit attitudes of a sample of 343 employers documented that employers do have strongly negative implicit attitudes towards the competence of blind people (McDonnall & Antonelli, 2018). Improving these implicit attitudes is important to increase employment opportunities for blind people. That brings about the question: Can implicit attitudes be changed?

Implicit Attitudes and Their Measurement

Implicit attitudes are associations between a thing or concept and an evaluation (positive or negative, good or bad) that occur at the subconscious level. Implicit bias occurs when a person is not neutral in terms of their association between a concept and an evaluation – for example, when a person associates older age with negative. Implicit attitudes often do not coincide with explicit attitudes (those that we are consciously aware of and can self-report) (Greenwald, Poehlman, Uhlmann, & Banaji, 2009; Nosek, 2007). Because we are not consciously aware of implicit attitudes, their measurement does not require direct thought. The measure most commonly used to assess implicit attitudes is the Implicit Association Test (IAT; Greenwald, Nosek, & Banaji, 2003). The IAT is performed on a computer and measures response time to determine the relative strength with which a concept is associated with an evaluation. The basic premise of the IAT is that the more closely a person associates a concept with an evaluation of that concept, the more quickly and accurately the person will be able to match the concept with that evaluation during the IAT task. Responses to the IAT are considered to be automatic, or

unconscious, as they happen without intention and are not believed to be under the individual's control (Greenwald & Banaji, 1995). The IAT has been used to measure associations for many different concepts and has extensive evidence for validity and reliability (Nosek, Greenwald, & Banaji, 2007; Nosek & Smyth, 2007). To measure implicit attitudes about the competence of people who are blind, the IAT-BVI was created (McDonnall & Antonelli, 2018).

Research on Changing Implicit Attitudes

Much research has examined the ability to change attitudes, including implicit attitudes. A recent study utilized a multivariate network meta-analysis to synthesize the results of 492 experimental studies that had a goal of changing implicit attitudes (Forscher et al., 2019). This study documented that implicit attitudes can be changed across many different topics, concepts, and populations, although the effect sizes of these changes are often weak. The ability of an experiment to change implicit attitudes varied by type of procedural approach used, with procedures that focused on associations, exhausted mental resources, or induced goals having greater effects. The authors noted that short-term changes in implicit bias were not necessarily associated with long-term changes, although research in this area is limited with only 6.6% of the 492 studies being longitudinal (defined by the researchers as an implicit measure administered after a delay longer than one experimental session). In a series of studies that included repeated measurements of implicit attitudes, nine interventions that reduced implicit bias about race immediately did not have any impact hours to days later (Lai et al., 2016). Other researchers found evidence for a lasting reduction in implicit racial bias based on a short intervention (Devine, Forscher, Austin, & Cox, 2012), although in a larger replication study these results were not reproduced (Forscher, Mitamura, Dix, Cox, & Devine, 2017). Given that Forscher et al. (2019) found limited evidence for a lasting effect of implicit attitude change, it is not surprising

that they did not find evidence for a causal relationship between change in implicit attitudes and behavior change, although this relationship is well documented in observational studies (Greenwald et al., 2009).

Notably, none of the 492 studies reviewed for the meta-analysis evaluated changing implicit attitudes associated with employment of people with disabilities. Only one reviewed study focused on changing attitudes towards people with disabilities; this study documented a positive change in implicit attitudes after viewing a video about Paralympic athletes (Ferrara, Burns, & Mills, 2015). One other study, published after the meta-analysis was conducted, found that watching videos about people with disabilities *negatively* impacted implicit attitudes towards people with disabilities (Lu, Webber, Romero, & Chirino, 2018).

Working with Businesses to Change Employers' Attitudes

Direct communication between vocational rehabilitation (VR) professionals and employers is one avenue to address negative employer attitudes. Contact between the professional and employer provides the opportunity for advocacy and education about employing people with disabilities. Different approaches to these meetings have been recommended for consumers who are blind, including an educational approach and the dual customer approach (DCA) (McDonnall et al., 2013). Using the DCA for meetings with employers is a popular approach that has been widely encouraged for VR professionals (Anderson et al., 2006; Luecking, 2008; Wehman, 2017; West-Evans & Butler, 2016). When utilizing the DCA, VR professionals view employers as a customer, learning about the needs of the business and trying to meet those needs with their services, with a focus on forming long-term relationships (Anderson et al., 2006; Fry, 1997). This approach has been widely touted by VR professionals as being effective, yet little research has been conducted to evaluate its usefulness in terms of

improving employment opportunities or changing employer attitudes. Despite the popularity of the DCA, VR professionals who work with consumers who are blind were most likely to recommend an educational approach for meeting with employers (McDonnall et al., 2013). Employers generally do not know about the accommodations available to people who are blind or how they could successfully perform basic job tasks (McDonnall & Crudden, 2018; McDonnall, O'Mally, & Crudden, 2014). For this reason, providing education to employers about how people who are blind can be successful on the job may be an effective approach, and more relevant for this particular population than the DCA.

A common approach taken to changing attitudes towards people with disabilities has been facilitating contact with a person with a disability, supported by the intergroup contact hypothesis (Allport, 1954). This theory indicates that interpersonal contact between members of the majority and minority groups is one of the most effective ways to reduce prejudice towards the minority group, and the theory's efficacy was documented by a meta-analysis of 515 studies (Pettigrew & Tropp, 2006). Because blindness is a low prevalence condition and less than half of the population with blindness is working (U.S. Census Bureau, 2019), employers are not likely to have encountered a blind professional at work. For this reason, contact with a blind professional may be especially valuable to improve employer attitudes towards people who are blind, and was an approach that was recommended by VR professionals (McDonnall et al., 2013).

Purpose of Study

This study's purpose was to examine whether a meeting between a VR professional and an employer can positively influence implicit attitudes about the competence of people who are blind and whether different approaches to the meeting or the vision status of the VR professional would impact the results. Four research questions were investigated.

1. Does participation in a meeting with a VR professional improve employers' implicit attitudes about the competence of people who are blind?
2. Does type of approach used for a meeting with an employer result in different effects on implicit attitudes?
3. Does meeting with a VR professional who is blind compared to meeting with a VR professional who is sighted result in greater improvements in implicit attitudes?
4. Does approach used for the employer meeting and vision status of the VR professional interact to influence implicit attitude change?

Method

Participant Characteristics & Sampling Procedure

The study was approved by the authors' university Institutional Review Board for the protection of human subjects and informed consent was obtained from participants. We partnered with a large financial services company in the southeastern U.S. to access a sample of hiring managers. Criteria for company participation was having multiple jobs that could feasibly be filled by a blind person, being located in a metropolitan area, and having the required number of employees in hiring positions willing to participate in the study. A representative of the company's human resources management (HRM) department assisted with identifying company employees eligible to participate. Criteria for employee participation was being a manager with hiring authority or an HRM staff member who was involved in hiring, hereafter referred to as hiring managers, and not having previously hired a person who was blind.

The HRM representative shared information about the study, provided by the authors, to prospective participants. This information included a description of the study procedures and example survey questions. The participants were not made aware of the study research questions

or hypotheses. The target sample size was at least 44, and the HRM representative identified 65 eligible hiring managers who were interested in participating in the study.

The final sample after data cleaning and attrition (described in the Participant Flow section below) included 57 participants. Two-thirds of the sample was female (67%), with 81% White/Caucasian and 19% Black/African American. The most common age ranges of participants were between 55 to 64 (35%), 45 to 54 (32%), and 35 to 44 (28%); 4% were age 25 to 34, and 2% were age 65 to 74. Participants indicated education levels of 4-year college degree (54%), graduate-level degree (23%), some college but no degree (18%), and high school diploma (5%).

Outcome Measure

The IAT-BVI was created to assess implicit attitudes regarding the competence of blind people. The authors partnered with Project Implicit, the nonprofit organization founded by the creators of the IAT, to develop the measure. Project Implicit provided guidance with test design, including the selection of representative stimuli for the concept of vision status (blind or sighted) and competence. The IAT-BVI stimuli include four each of images depicting *blind* and *sighted* individuals engaged in standing or walking, in casual or business attire, and four each of positive and negative words related to competence, such as *productive* and *inefficient*. The IAT-BVI is completed online, with a learning trial at the beginning of the measure. Words and pictures are displayed individually in the center of the screen, and participants are asked to categorize the word or picture as rapidly and accurately as possible using an assigned keystroke. A total of 60 test trials of each pairing of *blind/competent*—*sighted/incompetent* and its opposite are included, in addition to 48 training trials. Project Implicit programmed the IAT-BVI and hosted the measure on their website and calculated participant scores. IATs are scored by calculating a *D*

score from the participant's reaction times; this *D* score ranges from -2 to 2, with positive values indicating a stronger negative bias regarding the competence of blind people.

Data Collection

Participants completed the IAT-BVI along with other measures that were collected as part of a larger study involving this intervention; see McDonnall and Antonelli (2019) for details. Participants completed the IAT-BVI online as a pretest measure within the week before their scheduled meeting with the VR professional. All of the intervention meetings were scheduled at the partner company's facility and were completed within a 5-day period. Following their meeting with the VR professional, participants completed their posttest IAT-BVI. Most participants completed their posttests within a few days of their meeting, with a range of 1 to 14 days. Participants completed the follow-up test of the IAT-BVI approximately four months after their meetings.

Research Design

This study included four experimental conditions based on two 2-level factors: *meeting approach* (educational or DCA) and *vision status of VR professional* (blind or sighted), for a 4 (group) x 3 (time points) experimental design. Participants were randomly assigned to one of the four resulting conditions: Education/Blind, DCA/Blind, Education/Sighted, DCA/Sighted.

Intervention Description

The individual meetings were conducted by two recently retired VR professionals who had extensive experience working with employers. One VR professional was a sighted Hispanic female and the other was a blind White male. The VR professionals collaborated to create scripts for the two approaches to be utilized for the meetings. The VR professionals recorded practice meetings using the scripts and used these to refine and edit the scripts into a final version for the

intervention meetings. The educational approach script included a brief inquiry about the hiring manager's company and position, then focused on providing information for the remainder of the meeting. Information provided included facts about blindness and low vision, how people who are blind could perform job tasks, and concerns employers might have such as disability law, social interaction with a person who is blind, and how other employees might react to having a coworker who is blind. The DCA script focused on asking questions to find out more about the hiring manager's company and positions they hired for, as well as hiring needs and concerns, and other information intended to begin building a relationship with the employer as a future customer of VR services. VR professionals were instructed to allow hiring managers to ask questions and answer them to allow for a natural progression of the conversation while keeping to the script as much as possible.

Participants were randomly assigned to meeting times by the HRM representative, who was naïve to the meeting condition (vision status and meeting approach) for each time slot. The two VR professionals alternated the approach used at each meeting. The VR professionals were asked to note any deviations from the intended script or relevant factors associated with each meeting. Two deviations were noted: one participant was not able to meet for the full hour, and one participant had extensive knowledge of how blind employees can function on the job.

Data Analysis

Data were analyzed with SAS 9.4 software using repeated measures analysis of variance and post-hoc tests to examine any relevant simple effects. Due to evidence that implicit attitude change in intervention studies tends to be small (Forscher et al., 2019) and this being the first study on this topic, an alpha level of .10 was used to determine significant change. Eta squared was used as an effect size measure.

Results

Participant Flow

Sixty-five hiring managers at the partner company were recruited to participate in the study. One hiring manager served as an alternate, in the event that another hiring manager could not participate in the study at the last minute. The other 64 participants were randomly assigned to each of the four conditions, with the following number in each condition: 15 in Education/Blind, 17 in DCA/Blind, 16 in the Education/Sighted, and 15 in DCA/Sighted. Although all 64 hiring managers participated in the intervention, one could only meet for 30 minutes and therefore did not complete the rest of the study. The remaining 63 participants completed the posttest, and 60 of those completed the 4-month follow-up. IAT data for two participants were not available and one participant was removed due to extensive knowledge about blind people as employees, obtained through a previous close working relationship with a blind coworker, resulting in a final sample of 57 participants. The final number of participants in each condition was: 12 in Education/Blind, 16 in DCA/Blind, 15 in the Education/Sighted, and 14 in DCA/Sighted.

Statistical Results

Means and standard deviations for each condition and for the overall sample are provided in Table 1. Participants in the DCA approach condition had higher IAT scores ($F(1, 53) = 3.57, p = .06, \text{partial } \eta^2 = .06$), with differences exhibited at pretest and follow-up. The overall time effect for our study was significant ($F(2, 106) = 2.71, p = .07, \text{partial } \eta^2 = .05$), indicating that IAT scores decreased significantly over time following the intervention. Compared to pretest, differences were slightly larger at the 4-month follow-up ($F(1, 53) = 4.19, p = .046, \text{partial } \eta^2 = .07$) than the posttest ($F(1, 53) = 3.35, p = .07, \text{partial } \eta^2 = .06$), indicating that the average effect

of the intervention across conditions did not diminish over time.

Neither the type of approach used for the meeting nor the vision status of the VR professional were significantly associated with IAT scores over time ($F(2, 106) = 1.89, p = .16$, partial $\eta^2 = .03$ and $F(2, 106) = 1.07, p = .35$, partial $\eta^2 = .02$, respectively). Likewise, approach used for the meeting and vision status of the VR professional did not interact to impact IAT scores ($F(2, 106) = 0.40, p = .67$, partial $\eta^2 = .01$).

Because participants who met with a blind VR professional appeared to have greater reductions in IAT scores, as illustrated by their means (see Table 1), we conducted a simple effects analysis for both groups. We found that participants who met with a blind VR professional had a significant decrease in IAT scores over time ($F(2, 54) = 3.14, p = .05$, partial $\eta^2 = .10$) while participants who met with a sighted professional did not exhibit a significant decrease in IAT scores ($F(2, 56) = 0.65, p = .53$, partial $\eta^2 = .02$).

Discussion

Long-held societal beliefs about the incompetence and dependence of people who are blind are thought to contribute to their low employment rates. Because people are often reluctant to explicitly express negative perceptions about people who are blind or may not even be aware of them, it is valuable to measure their implicit attitudes. Investigating whether employers' implicit bias about the competence of blind people can be improved is an important aspect of addressing the employment challenges of this population. VR professionals often meet with employers to promote hiring of their consumers, and therefore this study was conducted to examine whether a single meeting between a VR professional and a hiring manager could improve implicit attitudes about the competence of people who are blind. Further, it examined whether different approaches to the meeting or the vision status of the VR professional had an

impact on changing implicit attitudes.

Our results indicate that hiring managers' implicit attitudes significantly improved following a one-hour one-on-one meeting with a VR professional, providing evidence that a brief interaction can decrease the implicit bias held by employers about the competence of blind people. This change was retained four months after the initial meeting, which is uncommon in implicit attitude change research (Forscher et al., 2019). However, it is important to acknowledge that the size of the effect was relatively small, which is common in implicit attitude change research (Forscher et al., 2019). The average IAT-BVI score at pretest for our study sample was 0.80 (SD = 0.34), indicating a strong implicit bias about the competence of people who are blind. This pretest score was comparable to a larger national sample of employers who had an average IAT-BVI score of 0.76 (SD = 0.40) (McDonnall & Antonelli, 2018). At follow-up in the present study, the hiring managers' average score was 0.68 (SD = 0.38), which still falls within the strong implicit bias range.

We examined the effectiveness of two prevalent approaches to a first meeting between an employer and VR professional, to determine whether the type of approach used for the meeting resulted in different effects on implicit attitudes. There were no differences in changes to implicit attitudes based on approach used, indicating that either the DCA or an educational approach can be effective. Our test for an interaction of the two factors of our study had similar results, in that there were no differences in changes in implicit attitudes based on the interaction of approach used and vision status of the VR professional.

We also examined whether meeting with a VR professional who was blind would lead to greater improvements in implicit bias, as suggested by the contact hypothesis (Allport, 1954). Our results demonstrated some support for this possibility. Hiring managers who met with the

VR professional who was blind showed significant improvement in their implicit attitudes after the meeting, with an effect of a medium-to-large size, while those who met with the VR professional who was sighted did not exhibit significant change in implicit attitudes. Although this result should not be considered conclusive since the overall effect of vision status by time was not significant, this finding warrants further investigation and may be worthwhile to apply in practice. Positive contact with a professional who is blind may be influential in helping to improve employers' implicit bias. While vision status of the VR professional is not a factor that can be changed, this finding could be applied through other opportunities for an employer to have a positive interaction with a competent blind person.

Our findings were consistent with other research on the ability to change implicit attitudes, in that statistically significant changes can be made, but effect sizes for these improvements are often weak (Forscher et al., 2019). Although evidence for the possibility of longitudinal change for implicit bias has been mixed (Devine et al., 2012; Forscher et al., 2019, 2017; Lai et al., 2016), this study demonstrated evidence of a lasting improvement in implicit attitudes even after a four-month interval. This finding is especially noteworthy as evidence for longitudinal, or long-term, change to implicit attitudes, due to the relatively long duration of this study. Forscher and colleagues (Forscher et al., 2019) defined longitudinal as a study that involved repeated testing after a delay greater than the length of one experimental session. By their definition, both the posttest and the follow-up of this study were longitudinal. The improvement maintained after 4 months in this study shows promise for longitudinal change of implicit attitudes, and this possibility should be examined further in future studies.

It is important to recognize that implicit attitudes may be more difficult to alter than explicit attitudes (Jost, Banaji, & Nosek, 2004). Findings from an associated study of this

intervention presented in an earlier article documented a large improvement in explicit attitudes of these same hiring managers (McDonnall & Antonelli, 2019), but the present study documented only a small improvement in implicit attitudes. Implicit associations are often picked up not just by our experiences but also by the culture in which we live, and we have limited cognitive control over these implicit associations, despite new information obtained about the capabilities of people who are blind. In a national study of employers who took the IAT-BVI, only specific knowledge of how blind people perform various work tasks and exposure to a blind employee whose performance was rated as above average were associated with more positive implicit attitudes (McDonnall & Antonelli, 2018). These two factors indicate more extensive experience with or knowledge about blind employees than could be provided in a brief meeting. That implicit attitudes may be more resistant to change is a reason to encourage ongoing contact and relationships with employers to provide the opportunity to increase knowledge and develop and strengthen more positive attitudes over time.

Limitations

The limitations of this study are important to bear in mind. First, the sample for our study includes hiring managers all from a single employer. While this consistency for company culture may be a benefit to group homogeneity to examine changes, it may limit the possibility of generalization to the larger population. Another potential limitation is that the VR professionals implementing the intervention were of different genders, in addition to different vision statuses. While no research exists to suggest that the gender of the person implementing this intervention would be relevant, it could possibly have an impact. In addition, other factors not included in the study could potentially have impacted the intervention's effectiveness (such as personal characteristics of the hiring managers), although random assignment should mitigate these

factors. Another limitation of the study is that power for statistical analysis was low for group comparisons, particularly to find a significant interaction effect of approach by vision status. Finally, although the intention of this study was to examine whether implicit bias could be improved with only a single meeting with a VR professional, this aspect may be considered a limitation to external validity. In practice, this initial meeting would ideally be just the first of many the VR professional would have in an effort to build an ongoing relationship with that employer. Given the nature of the study, we were only able to assess change after one meeting, which may not accurately reflect the impact of these types of meetings in practice.

Implications for Practice

These study results indicate several implications for current practice of VR professionals who work with individuals who are blind or have low vision. First, VR professionals should communicate with employers as much as possible about the work capabilities of these individuals to help improve attitudes, both explicit and implicit. These results indicate that it is possible for even one brief meeting to have a positive, lasting effect. Taking every opportunity to communicate with employers is therefore important. Second, having exposure to a competent blind person may positively influence employers' implicit attitudes. This was one technique recommended by VR professionals in a study examining their suggestions on encouraging employers to consider hiring someone with blindness or low vision (McDonnall et al., 2013). This exposure could be accomplished in multiple ways, such as (a) a blind professional conducting the meeting with the employer, (b) a team of a sighted and a blind professional conducting the meeting, (c) having the employer tour a job site or agency where a person who is blind performs a job similar to those at the employer's company, or (d) a trial work experience of a blind consumer at the employer's company. Other opportunities and options to facilitate this

positive exposure are worth exploration. Finally, given that one short meeting had lasting, albeit small, effects, more follow-up by the VR professional may result in even greater positive improvements over time. Establishing an ongoing relationship with an employer allows for continued reinforcement of positive concepts regarding the professional competence of people who are blind, and this may be beneficial to increasing the impact on their implicit attitudes.

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Table 1

IAT-BVI Means and Standard Deviations by Group

Group	N	Pretest	Posttest	Follow-up
All	57	0.80 (0.34)	0.69 (0.32)	0.68 (0.38)
Dual customer approach	30	0.89 (0.32)	0.69 (0.36)	0.76 (0.33)
Educational approach	27	0.69 (0.34)	0.70 (0.29)	0.59 (0.41)
Blind VR professional	28	0.81 (0.32)	0.61 (0.33)	0.66 (0.36)
Sighted VR professional	29	0.79 (0.36)	0.77 (0.30)	0.71 (0.40)