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It's written all over your face : examining the relationship between socioeconomic status and empathic accuracy

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It's Written All Over Your Face:

Examining the Relationship between Socioeconomic Status and Empathic Accuracy

by

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Abstract

What, exactly, is the relationship between socioeconomic status (SES) and emotional intelligence? Is it possible that emotional intelligence can explain the well-established positive relationship between SES and wellbeing? The purpose of this study was to investigate a) a potential mediational pathway between SES, emotional intelligence, and wellbeing and b) conflicting research in the relationship between SES and emotional intelligence. This study was conducted using a variety of measures of socioeconomic status and wellbeing, as well as a performance-based measure of empathic accuracy.

Introduction

Is it possible that higher socioeconomic status (SES) can cause higher emotional intelligence (EI), and therefore create a higher degree of wellbeing? Or, is it possible that lower SES *hurts* some facets of EI? Mixed research has set up a confusing question about the relationship between these two variables, and about how they interact with each other.

Emotional intelligence is an umbrella term for a variety of skills that contribute to social and interpersonal engagement (Lopes, Salovey, & Straus, 2003). EI is often defined as having four "branches": emotional awareness (recognition of feelings in oneself and others); emotional use (which emotion best helps a given cognitive activity, etc.); emotional understanding (how a "small" emotion can become large; what *emotion* a feeling is connected to); and emotional management (ability to ignite feelings in another, manage emotions in self, etc.) (Grewal & Salovey, 2006). It has been shown to help in the creation of social relationships, at work, and with holistic health (Grewal & Salovey, 2006). The ability to judge the emotions of others – often referred to as empathic accuracy – would fall under the branch of emotional awareness (Kraus, Côté, & Keltner, 2010).

There is a significant amount of research assessing the relationship between SES and wellbeing. Cherlin (2018) found that, below the 75th percentile of SES, participants had a declining rate of life satisfaction; above the 90th percentile, however, their life satisfaction increased. On a more practical level, Gallo and Matthews (2003) found that as SES increases, the mortality rate decreases – potentially because those of greater SES have better access to healthcare. Both psychologically and physiologically, the relationship between SES and wellbeing is a positive one; as SES increases, so does wellbeing.

There is quite an amount of research surrounding the relationship between emotional intelligence and wellbeing. Grewal and Salovey (2006) noted relationships between emotional intelligence and social interactions, job performance, and mental and physical health. Sánchez-Álvarez, Extramera, and Fernández-Berrocal (2016) through a meta-analysis found that those who are higher in emotional intelligence are more able to cope with stressors and have a stronger support system. Thus, emotional intelligence may act in two ways: it may both lessen the negative emotions associated with negative events, and may also encourage positive emotions throughout daily life. On the opposite end, Brackett and Mayer (2003) note that lower emotional intelligence is associated with negative events, such as increased alcohol and drug usage. Specifically related to empathic accuracy, Marsh, Kozak, and Ambady (2007) should that those who better interpreted expressions of fear (e.g., those with better empathic accuracy in regards to the emotion of fear) were more likely to behave prosocially.

Emotional intelligence and socioeconomic status are also associated, though the direction in which they are associated remains unclear. Elfenbein, Marsh, and Ambady (2002) note that participants of higher socioeconomic status score higher on emotional recognition tests. However, Kraus, Côté, and Keltner (2010) show that, through three different studies, lower-class participants (either truly lower-class or manipulated) score better on tests of empathic accuracy than their higher-class counterparts. Is it possible that those of higher SES have higher EI, that those who have received more education (a measureable form of SES; see Kraus et al., 2010, for an example)?

Why, exactly, is the relationship between emotional intelligence and SES revealing mixed data? While it is clear that the relationship between SES and wellbeing and the relationship between emotional intelligence and wellbeing are both positive, the literature pulls

both positive *and* negative data when looking at the relationship between SES and EI. To add to the confusion, there are two theoretical models that serve as explanations to both of these results.

The first of these models was established by Kraus et al. (2012) following the study by Kraus, Côte, and Keltner (2010) (described above) that first found this negative relationship between SES and EI. Kraus et al. (2012) state that this negative relationship is established through the *contextualist social cognitive tendencies* displayed by those of lower classes. That is, those of lower classes are more focused on external factors, and believe that those external factors guide their lives. They are more likely to believe that their lives are guided by social class structure and discrimination, and that their social status and situation cannot be changed based on their behavior or actions. Thus, those of lower classes tend to more aware of others, due to the fact that they believe that others are the ones that are in control of their lives (Kraus et al., 2012). Those of upper class, meanwhile, experience *solipsistic cognitive tendencies* believe that their position in society is due in larger part to internal factors (e.g., traits), and are more focused on their own, internal emotions than the emotions of others.

The second of the models, outlined in Hall, Schmid Mast, and Latu (2015), contends that those of high SES should have greater empathic accuracy (a branch of emotional intelligence that covers the perception and labeling of another's emotional state). Drawing from a meta-analysis of a variety of studies looking at this relationship, the researchers argue that, based on the organization and leadership of a community, those of high social standing (e.g., leaders – which can potentially be assumed to be of higher SES than their subordinates) must have greater empathic accuracy to be in the jobs they are in. Thus, those of higher power (SES) may be higher in empathic accuracy because of the needs of their respective group – by being stronger in empathic accuracy, they are rewarded by increased productivity within their group. Conversely,

it is possible that those who do not have the interpersonal accuracy skills could lead to lower social class and, therefore, potentially lower SES.

Given these mixed results, we were curious whether emotional intelligence could mediate the relationship between SES and wellbeing. This is an important question, because if EI does mediate the relationship, we can help those of lower SES achieve greater wellbeing through potential EI training or growth. For example, those with higher levels of emotional intelligence have been found to have stronger interactions with others, stronger secure attachments, and stronger relationships, while those with lower EI are more likely to abuse drugs and alcohol (Brackett & Mayer, 2003). If we are able to "manipulate" and teach others emotional intelligence skills, we may be able "level out" differences in wellbeing based on differences in socioeconomic status. Our hypothesis followed the majority of the research, and we posited that higher socioeconomic status would lead to greater emotional intelligence, which in turn would lead to greater wellbeing.

Method

The study was conducted in two phases, both approved by the University of Richmond Institutional Review Board (IRB). All participants provided informed consent before completing the study.

Phase I.

Phase I consisted of N = 300 MTurk workers, age 18 and above, from the United States. The participants were 47.3% female; 30.4% non-white; age M = 35.69 years, SD = 11.54; median income = $40,000-$49,999; and median education level = 4-year college degree.

Participants were recruited via Amazon's Mechanical Turk for a study on "Social Class, Emotional Intelligence, and Wellbeing." Each participant completed a battery of measures assessing demographics, SES, wellbeing, and some potential mediating or confounding variables. All participants were compensated for their time.

SES was measured through objective and subjective measures, as well as measures of resource availability and sociometric status. All alphas and correlations reported here are reported after reverse-coding and collapsing the questions for each measure, and all higher scores signal higher socioeconomic status. Objective measures included participants giving a range of their disposable income (20-point scale, ranging from "Less than $5,000" to "$175,000 or more") and reporting the terminal degrees of themselves, their mother, and their father (7-point scale, ranging from "Some School" to "Graduate or Professional Degree (Ph.D., M.D., J.D.)). Subjective measures included participants ranking themselves along an 8-point scale about their social class ("lower class" to "upper class"), and placing themselves along a "ladder" of socioeconomic status (10-point scale, ranging from "Bottom of the ladder" to "Top of the ladder"; see Adler et al., 2000). Other measures of socioeconomic status included resource availability (6 items, 3 for childhood ($\alpha = .85$) and 3 for adulthood ($\alpha = .88$), along a 7-point scale, ranging from "Strongly disagree" to "Strongly agree"; Griskevicius et al., 2011) and sociometric status (5 items along a 7-point scale, ranging from "Strongly disagree" to "Strongly agree" ($\alpha = .93$); Anderson et al., 2012).

Emotional intelligence was assessed through the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT; Mayer et al., 2001). As a proprietary research measure, the actual questions asked are unknown; however, it is a performance test, utilizing multiple-choice questions to assess all four branches of emotional intelligence.

Wellbeing was assessed through a variety of measures assessing mental and physical health. Psychological wellbeing was assessed through Ryff's Scales of Psychological Wellbeing (7-point scale, ranging from "Strongly disagree" to "Strongly agree" ($\alpha = .94$); Ryff et al., 1989) and the Center for Epidemiological Studies Depression Scale (4-point scale, ranging from "Rarely or none of the time (less than one day)" to "Most or all of the time (5-7 days)" ($\alpha = .94$); Radloff, 1977). Physical wellbeing was assessed through the Pittsburgh Quality Sleep Index (19-item index assessing sleep quality and quantity; Buysse et al., 1989) and the Illness Symptom Inventory (7-point scale assessing various illness symptoms, ranging from "Not at all" to "Very frequently" ($\alpha = .95$); Elliot & Sheldon, 1998). We did not pursue calculations for the Pittsburgh Quality Sleep Index due to a misadministration of the measure, and it was excluded from all further calculations.

Other items assessed included demographics, agency, personality, and social desirability. Overall demographics included age, state of residence, ethnicity, and gender. Agency was assessed using the Twenty Statements Test (fill-in-the-blank responses to the prompt "I am…"; Cousins, 1989). Personality was assessed with the Ten-Item Personality Inventory (7-point scale, ranging from "Strongly disagree" to "Strongly agree"; Gosling, Rentfrow, & Swann, 2013). Scores on the Ten-Item Personality Inventory were collapsed to form 5 subscales: Extraversion ($r = .464$, $p < .01$); Agreeableness ($r = .323$, $p < .01$); Conscientiousness ($r = .394$, $p < .01$); Neuroticism ($r = .462$, $p < .01$); and Openness ($r = .188$, $p < .01$). Social desirability was assessed using the Balanced Inventory of Desirable Responding-Short Form (7-point scale, ranging from "Not true" to "Very true" ($\alpha = .80$); Paulhus, 1991).

Because the MSCEIT is a proprietary research measure, this study ended up being conducted in two "phases". Phase one consisted of an Amazon Mechanical Turk/TurkPrime

study comprised of all of the non-MSCEIT measures (e.g., SES, well-being, and potential confounding or mediating variables). In this first phase, *N*=319 participants; *N*=300 was the final number, after 19 participants' data was eliminated due to failing to finish the study.

Phase II.

Participants in Phase II were invited from correct completion of Phase I. Using the strategies employed by Buchanan and Scofield (2018), participant data was assessed for number of click counts, how much time the participants had taken to complete measures, and attention check failures to attempt to eliminate "bots" from our Phase II participant pool. A CAPTCHA had been inserted in the beginning of the MTurk survey, which was a potential, immediate deterrent for any rudimentary "bots". Click count failures were assessed by looking at the average number of click counts it took participants on each page – if a participant did not have a recorded click on a page, or had an excessive number of clicks on a given page (e.g., 50 clicks on a one-question page), we gave them a fail on their click count. Timing fails were given to participants who spent a significantly fast time on a page (e.g., less than a second, or less than humanly possible). Attention checks were standard – participants were presented with a set of instructions and at the end were told to choose the "none of the above" option. If participants failed, we marked them as an attention check fail, but they were given a second chance to complete the attention check correctly. If they failed again, they were allowed to complete the first phase of the survey, but were not invited back for the second phase.

Participants who failed the attention check twice were paid for their participation in Phase I, but were not invited back for Phase II. Participants who failed the CAPTCHA were immediately ineligible for the study (and may have counted toward our 19 participants who did not complete it). Participants were failed two of the remaining three categories – timing, click

counts, or one attention checks – were paid for their participation in Phase I, but were not invited back for Phase II.

Recruitment for Phase II was comprised of invited participants from Phase I. We anticipated an *N*=150 for Phase II; only 136 of the invited Phase I participants (e.g., all of the participants who completed Phase I without being ruled exempt from Phase II) correctly completed Phase II in an anonymous way in which we could match their data to that of Phase I. These participants were 56.6% female; 17.6% non-white; age *M* = 36.26 years, *SD* = 11.71; median income = $35,000-39,999; median education = 2-year college degree.

Phase II consisted of the implementation of the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT). A performance-based proprietary research measure, the MSCEIT assesses all four branches of emotional intelligence with eight different tasks (two for each branch of EI). Sample questions for the MSCEIT can be seen in Appendix A.

Results

Descriptive statistics for the variables of interest are reported in Appendix B, Table 1, and their respective correlations are reported in Tables 2a-c, 3a-c, and 4. The results were not as expected; the pathway from SES to emotional intelligence was in the opposite direction than anticipated, and thus the plan to run mediation models was halted. Instead, we focused in on one specific branch of emotional intelligence – empathic accuracy –, which is where Kraus et al. (2012) and Hall, Schmid Mast, and Latu (2015) centered their theoretical models, and we turned to potential control variables to assess the strength and significance of the relationship between SES and EA.

Given the non-significant results of our mediations, we did not anticipate many statistically significant results of our multiple linear regressions controlling for each of the five personality traits, age, and gender. However, a good number of these regressions grew in effect size, and, in some cases, corrected to the direction that we anticipated the pathway to go in (negative). The full results are demonstrated in Tables 5a-c.

However, we did find some statistically-significant results for the relationship between conscientiousness and empathic accuracy when controlling for every SES indicator. Interestingly, conscientiousness was a significant predictor of empathic accuracy when controlling for subjective social class ($B = 0.016$, $SE = .007$, $p < .02$), childhood SES ($B = 0.015$, $SE = .007$, $p < .03$), adult SES ($B = 0.016$, $SE = .007$, $p < .03$), community ladder ($B = 0.016$, $SE = .007$, $p < .02$), US ladder ($B = 0.017$, $SE = .007$, $p < .02$), sociometric status ($B = 0.018$, $SE = .007$, $p < .01$), income ($B = 0.016$, $SE = .007$, $p < .03$), self education ($B = 0.015$, $SE = .007$, $p < .03$), and mother's education ($B = 0.015$, $SE = .007$, $p < .03$).

Discussion

Our results corroborate the findings by Kraus et al. (2010), in that the vast majority of our SES indicators were negatively related to empathic accuracy, thus implying that those of lower SES were higher in empathic accuracy, and those higher in SES were lower in empathic accuracy. Our initial mediations also confirmed (part of) our initial hypothesis, in that those of higher SES have greater wellbeing, and those who are higher in empathic accuracy also have higher wellbeing.

This supports Kraus et al.'s (2010) theory of solipsistic and contextualist cognitive tendencies. Those of lower classes have to look more outward to find success, and thus have

greater empathic accuracy abilities. Those of higher classes, meanwhile, place their success on the fact that they themselves have been successful in life, and thus don't need to look to others for future achievements.

There are a number of potentially significant limitations in our research design. The first of these is the achieved power of our research design. For example, with a sample size of 136, we were unable to achieve a power higher than .28 for any of the zero-order correlations between SES and empathic accuracy. Even though we had no significant results, the fact that controlling for certain variables strengthened the effect sizes demonstrates that there is a potentiality for there to be significant results, if only we had had a larger sample size. Another potential limitation is the fact that the perceiving emotions branch of the MSCEIT was comprised of two different measures – one assessing emotions through face, and one assessing what emotions certain inanimate objects (e.g., a landscape) were trying to portray. Finally, it is possible that certain participants may be better at determining certain emotional states than others.

Future research should look to recruit a larger participant pool to obtain higher achieved powers, and thus determine whether the growth in effect sizes is truly an indicator of increased significance. It should also determine, through use of potentially other tests of empathic accuracy that use facial features, whether the empathic accuracy results are being skewed due to the "inanimate objects" section of the Perceiving Emotions branch of the MSCEIT, which could signal the need for a new "gold standard" test of emotional intelligence and/or empathic accuracy. Finally, future researchers should attempt to test for different emotions to determine whether certain emotions (e.g., fear) create a stronger relationship between SES and the EA of that specific emotion and SES and EA in general, as that could potentially bias EA results.

Conclusion

These data signify support of Kraus et al.'s (2012) theory of solipsistic and contextualist cognitive tendencies. Although limited by a significantly low sample size (and low power), these data suggest that potential control variables could be causing the discrepancy in the literature surrounding the relationship between SES and empathic accuracy.

Future research should attempt to replicate the results of this study using a larger sample size (and, tangentially, stronger achieved power). It is also possible that the tasks involved in the MSCEIT did not accurately measure empathic accuracy abilities. The two tasks involved in measuring empathic accuracy asked participants to 1) rate the emotion of a human's facial expression and 2) rate the emotional state portrayed by inanimate objects (e.g., landscapes). Future research should attempt to score these elements separately, and see whether or not that changes the effect size of the relationship. Finally, future research should look into potential moderator variables, such as the potentiality that people might be more empathically accurate around certain people, or more empathically accurate with specific emotions.

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Appendix A: Sample MSCEIT Questions ("Example MSCEIT Questions", n.d.).

Perceiving emotions.

Indicate how much of each emotion is present in this picture.

Emotion	*Not Much*				*Very*
Happiness	**1**	**2**	**3**	**4**	**5**
Fear	**1**	**2**	**3**	**4**	**5**
Sadness	**1**	**2**	**3**	**4**	**5**
Surprise	**1**	**2**	**3**	**4**	**5**

Using emotions.

What mood(s) might be helpful to feel when meeting in-laws for the very first time?

Mood	*Not Useful*				*Useful*
Tension	**1**	**2**	**3**	**4**	**5**
Surprise	**1**	**2**	**3**	**4**	**5**
Joy	**1**	**2**	**3**	**4**	**5**

Understanding emotions.

Tom felt anxious, and became a bit stressed when he thought about all the work he needed to do. When his supervisor brought him an additional project, he felt ____. (Select the best choice.)

a) Overwhelmed
b) Depressed
c) Ashamed
d) Self Conscious
e) Jittery

Managing emotions.

Debbie just came back from vacation. She was feeling peaceful and content. How well would *each* action preserve her mood?

Action 1: She started to make a list of things at home that she needed to do.

Very Ineffective..1…..2…..3…..4…..5..Very Effective

Action 2: She began thinking about where and when she would go on her next vacation.

Very Ineffective..1…..2…..3…..4…..5..Very Effective

Action 3: She decided it was best to ignore the feeling since it wouldn't last anyway.

Very Ineffective..1…..2…..3…..4…..5..Very Effective

Appendix B: Results

Table 1 – Descriptive Statistics for Measures of SES, EI, and Wellbeing.

SES Measure	Mean (SD)	EI Measure	Mean (SD)	Wellbeing Measure	Mean (SD)
Income	11.69 - $35,000 to 39,999 (3.91)	EI Total	.49 (.07)	Illness Symptoms	1.31 (1.09)
Education (self)		Perceiving	.55 (.10)	Sleep	5.50 (3.39)
Education (mother)		Understanding	.48 (.08)	Mental Health	17.42 (12.96)
Class	4.15 - Upper working class (1.67)	Using	.54 (.08)	Psychological Wellbeing	195.19 (36.36)
US Ladder	4.76 (1.67)	Managing	.40 (.08)		
Community Ladder	4.95 (1.59)				
Childhood Resource Availability	3.75 (1.51)				
Adult Resource Availability	3.62 (1.50)				
Sociometric Status	3.93 (1.07)				

Table 2a – Correlations between Objective SES and EI.

	Income	Education (Self)	Education (Mother)
Total EI	.105	-.077	-.042
Perceiving	.009	-.118	-.036
Using	.131	-.114	-.099
Understanding	.129	.033	.003
Managing	.103	-.050	-.009

Table 2b – Correlations between Subjective SES and EI.

	Class	US Ladder	Community Ladder
Total EI	-.053	-.004	.016
Perceiving	-.107	-.075	-.025
Using	-.068	.043	.089
Understanding	.043	.028	.072
Managing	-.036	.006	-.079

Table 2c – Correlations between Other SES and EI.

	Child Resource Availability	Adult Resource Availability	Sociometric Status
Total EI	.205	.043	-.082
Perceiving	-.008	.011	-.066
Using	-.026	.040	-.070
Understanding	.046	.040	-.041
Managing	.080	.058	-.101

Table 3a – Correlations between Subjective SES and Wellbeing.

	Income	Education (Self)	Education (Mother)
Illness Symptoms	-.069	.289***	.275***
Sleep	-.166**	-.055	-.008
Mental Health	-.258***	.132*	.181**
Psychological Wellbeing	.297***	.024	-.058

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, † $p < 0.10$

Table 3b – Correlations between Objective SES and Wellbeing.

	Class	US Ladder	Community Ladder
Illness Symptoms	.141*	.322***	.324***
Sleep	-.242***	-.194**	-.151**
Mental Health	-.091	.007	.021
Psychological Wellbeing	.164**	.108†	.156**

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, † $p < 0.10$

Table 3c – Correlations between Other SES and Wellbeing.

	Child Resource Availability	Adult Resource Availability	Sociometric Status
Illness Symptoms	.247***	.154**	.304***
Sleep	-.122*	-.252***	-.122*
Mental Health	.040	-.202***	-.050
Psychological Wellbeing	.009	.327***	.279***

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, † $p < 0.10$

Table 4 – Correlations between EI and Wellbeing.

	Total EI	Perceiving	Using	Understanding	Managing
Illness Symptoms	-.117	-.096	-.093	-.146†	-.060
Sleep	.040	0.76	.015	-.014	.051
Mental Health	-.148†	-.165†	-.132	-.116	-.077
Psychological Wellbeing	.277**	.258**	.241**	.211*	.220*

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, † $p < 0.10$

Table 5a – Partial Betas between EA, Objective SES, and Control Variables.

	Income	Education (Self)	Education (Mother)
Extraversion	**-.026**	-.114	**-.038**
Openness	**.011**	-.116	-.032
Agreeableness	-.001	-.114	**-.038**
Conscientiousness	**-.029**	-.116	-.035
Neuroticism	-.003	-.115	-.035
Age	.009	-.118	-.036
Gender	**.016**	**-.119**	-.034

Bolded numbers signify a stronger effect size from the initial SES-EA regression.

Table 5b – Partial Betas between EA, Subjective SES, and Control Variables

	Class	US Ladder	Community Ladder
Extraversion	-.101	-.067	-.013
Openness	-.106	-.075	**-.040**
Agreeableness	-.107	**-.082**	**-.032**
Conscientiousness	**-.127**	**-.107**	**-.064**
Neuroticism	**-.115**	**-.087**	**-.043**
Age	-.106	-.075	-.025
Gender	-.014	-.069	-.018

Bolded numbers signify a stronger effect size from the initial SES-EA regression.

Table 5c – Partial Betas between EA, Other SES, and Control Variables

	Child Resource Availability	Adult Resource Availability	Sociometric Status
Extraversion	-.003	**-.024**	-.055
Openness	-.004	**.018**	**-.087**
Agreeableness	-.007	.009	**-.079**
Conscientiousness	**-.025**	**-.027**	**-.130**
Neuroticism	**-.013**	-.006	**-.088**
Age	-.008	.011	**-.067**
Gender	-.004	**0.21**	**-.068**

Bolded numbers signify a stronger effect size from the initial SES-EA regression.