



A meta-analysis of emotional intelligence effects on job satisfaction mediated by job resources, and a test of moderators



Chao Miao ^{a,*}, Ronald H. Humphrey ^b, Shanshan Qian ^c

^a Finance, Accounting and Management Department, Jay S. Sidhu School of Business & Leadership, Wilkes University, Wilkes-Barre, PA 18766, United States

^b Department of Leadership and Management, Lancaster University Management School, Lancaster LA1 4YX, United Kingdom

^c Department of Management, College of Business and Economics, Towson University, Towson, MD 21252, United States

ARTICLE INFO

Article history:

Received 13 January 2017

Received in revised form 8 April 2017

Accepted 15 April 2017

Available online xxxx

Keywords:

Emotional intelligence

job resources

job satisfaction

ABSTRACT

This paper examines whether job resources act as a mediator in the emotional intelligence (EI)–job satisfaction relationship, and examines possible moderators, including gender, age, tenure, and job level. We conducted a meta-analysis to explore these relationships. The meta-analysis demonstrated that: First, EI is positively related to job resources ($k = 15, N = 4151$; overall EI: $\hat{\rho} = 0.27$; ability EI: $\hat{\rho} = 0.24$; self-report EI: $\hat{\rho} = 0.27$; mixed EI: $\hat{\rho} = 0.28$). Second, job resources mediate the relationship between EI and job satisfaction. Third, the relationship between EI and job satisfaction does not differ across gender, age, and tenure, meaning that regardless of whether an employee is male or female, young or old, or having short or long tenure, they equally benefit from EI. The moderator effect of job level is only significant for self-report EI–job satisfaction and this relationship is stronger in non-managerial jobs than in managerial jobs. Yet, the moderator effect of job level is not significant for ability EI–job satisfaction and mixed EI–job satisfaction meta-analytic distributions. These results indicate that EI aids employees by helping them obtain job resources, and that both job resources and EI have practical implications in terms of employee job satisfaction.

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1. Introduction

Salovey and Mayer (1990) are widely credited with developing the first modern definition of emotional intelligence (EI), and they conceptualized EI as the ability to perceive emotions and to regulate emotions, both with regard to oneself and to others. Goleman popularized EI in his internationally best-selling books (Goleman, 1995; Goleman, Boyatzis, & McKee, 2002), and scholars began to argue that EI is essential to organizational success (Cherniss, 2001). Ashkanasy and Daus (2005) reviewed the emerging research on EI and classified the measures of EI into three types; these are stream 1 ability EI, stream 2 self-report EI, and stream 3 mixed EI measures. For simplicity's sake, we refer to them as ability EI, self-report EI, and mixed EI. Ability measures emphasize that EI is a type of intelligence, and they measure EI the way cognitive intelligence is usually measured, with objective right and wrong answers on tests. For example, Mayer and his coauthors (Mayer, Salovey, Caruso, & Sitarenios, 2003, p. 99) developed the MSCEIT V2.0, “a 141-item scale designed to measure the following four branches (specific skills) of EI: (a) perceiving emotions, (b) using emotions to facilitate thought, (c) understanding emotions, and (d) managing

emotions.” In contrast, many scholars in the self-report category regard EI as a type of trait, and they measure it with self-report items consistent with how traits are often measured. For example, Petrides and his colleagues defined EI as “a constellation of behavioral dispositions and self-perceptions concerning one's ability to recognize, process, and utilize emotion-laden information.” (Petrides, Frederickson, & Furnham, 2004, p. 278). Finally, mixed EI measures incorporate a broader range of emotion-related skills and competencies than do stream 2 self-report measures, and they conceptualize EI in broader terms. Some popular measures in this category include the Bar-On Emotional Quotient Inventory (EQ-i) (Bar-On, 2000, 2002) and the Emotional and Social Competency Inventory (Boyatzis, Brizz, & Godwin, 2011).

Researchers have found that mixed EI measures overlap with measures of other personality traits, in particular with the Big Five measures of personality, and that this may account for some of the correlations between mixed EI and outcomes such as job performance (Joseph, Jin, Newman, & O'Boyle, 2015). Petrides and his colleagues believe that trait EI encompasses the “emotion-related facets of personality” (Petrides, Pita, & Kokkinaki, 2007, p. 287). Support for this position is provided by a comprehensive meta-analysis that investigated the associations between ability and trait EI with the “general factor of personality” (van der Linden et al., 2017). The authors conclude that trait EI may be tantamount to the social effectiveness dimension of personality and to the general factor of personality (van der Linden et al., 2017).

* Corresponding author.

E-mail addresses: chao.miao@wilkes.edu (C. Miao), r.humphrey@lancaster.ac.uk (R.H. Humphrey), sqian@towson.edu (S. Qian).

Moreover, they noted that trait EI has demonstrated incremental validity over Big Five measures for a variety of outcomes. This research suggests that EI may aid employees in gaining resources, such as support from coworkers, supervisors, and subordinates, because of their greater social effectiveness.

The concept of EI has garnered enormous amounts of attention from researchers and scholars (e.g., Andrei, Siegling, Aloe, Baldaro, & Petrides, 2016; Ashkanasy & Daus, 2005; Boyatzis & Goleman, 2002; Boyatzis et al., 2011; Goleman, 1995; Mayer & Salovey, 1997; Miao, Humphrey, & Qian, 2016a, 2016b; O'Boyle, Humphrey, Pollack, Hawver, & Story, 2011; Petrides & Furnham, 2000, 2001, 2003, 2006; Petrides, 2009a, 2009b; Petrides et al., 2016; Salovey & Mayer, 1990; Walter, Cole, & Humphrey, 2011). Meta-analyses have confirmed that EI predicts a series of important outcomes. For example, two meta-analyses have found that EI is related to physical, mental, and psychosomatic health (Martins, Ramalho, & Morin, 2010; Schutte, Malouff, Thorsteinsson, Bhullar, & Rooke, 2007). To address the concerns regarding the uniqueness of EI, O'Boyle et al. (2011) meta-analysis demonstrated that EI contributed significant incremental validity and relative importance in predicting job performance in the presence of cognitive ability and Big Five personality traits. Recent meta-analyses (e.g., Andrei et al., 2016; Miao et al., 2016a, 2016b) further confirmed EI's uniqueness in predicting additional criteria beyond job performance after common covariates that are considered to overlap with EI were controlled.

Miao et al. (2016b) performed a meta-analysis on EI and work attitudes and found that EI not only predicts job satisfaction, organizational commitment, and turnover intentions, but also demonstrates incremental variance and relative importance above and beyond cognitive ability and Big Five personality traits. Likewise, using similar controls, Miao, Humphrey, and Qian (2017) found that self-report EI and mixed EI are positively related to organizational citizenship behavior and negatively correlated to counterproductive work behavior. There are a few areas that still require further exploration. First, three mediators were identified in Miao et al.'s (2016b) meta-analysis, which are: state positive affect, state negative affect, and job performance. We argue that another prominent type of mediator should be tested, which is job resources. Since emotionally savvy individuals can harness their EI to facilitate social interactions with other organizational members and to garner social support from their peers and supervisors (Byron, 2007; Kafetsios & Zampetakis, 2008), this may lead to positive perceptions of job resources that will engender job satisfaction. This potential theoretical mechanism (EI → job resources → job satisfaction) has been implied but not examined in prior studies. Hence, the investigation of this mediator could make a significant theoretical contribution to EI literature. We will integrate a job demand-resources (JD-R) model (Bakker & Demerouti, 2007; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001) with the EI literature and explore how EI relates to job resources, which in turn leads to job satisfaction. Hence, the first purpose of this meta-analysis is to test whether job resources mediate the relationship between EI and job satisfaction.

Second, Miao et al.'s (2016b) meta-analysis only analyzed one moderator, namely the emotional labor demand of jobs, whereas many other potential moderators related to subjects' demographics and job type have not yet been investigated. These moderators deserve examination because the use of EI has been theorized by some to be influenced by gender, age, tenure, and job level; as such, these potential moderators may condition the relationship between EI and job satisfaction. Thus, the second purpose of this meta-analysis is to explore how the aforementioned moderators condition the relationship between EI and job satisfaction.

2. Theory and hypotheses

2.1. Job demand-resources model and the mediating role of job resources

The JD-R model (Bakker, Demerouti, de Boer, & Schaufeli, 2003; Bakker & Demerouti, 2007; Demerouti et al., 2001) assumes that

whereas every occupation has its own specific risk factors related to job stresses, these factors can be classified into two general categories – job demands and job resources – that constitute an overarching model that may be applicable to various occupational settings, regardless of the particular resources and demands involved (Crawford, LePine, & Rich, 2010; Nahrgang, Morgeson, & Hofmann, 2011). Job demands refer to “those physical, psychological, social, or organizational aspects of the job that require sustained physical and/or psychological (cognitive and emotional) effort or skills and are therefore associated with certain physiological and/or psychological costs”, whereas job resources are defined as “those physical, psychological, social, or organizational aspects of the job that are either/or: functional in achieving work goals; reduce job demands and the associated physiological and psychological costs; stimulate personal growth, learning, and development” (Bakker & Demerouti, 2007, p. 312). According to conservation of resources (COR) theory (Hobfoll, 2001), humans are motivated to protect, maintain, and accumulate resources. Job demands cause resources to be depleted as individuals respond to demands, thus gradually draining one's energy and, over time, leading to burnout (Crawford et al., 2010). Conversely, job resources trigger a motivational process that helps individuals accomplish their goals, stimulate their personal growth/development, and reduce job demands, therefore leading to positive outcomes such as engagement and satisfaction (Crawford et al., 2010; Nahrgang et al., 2011).

We propose that EI should be positively associated with job resources, and job resources should partially mediate the relationship between EI and job satisfaction. A positive social relationship with supervisors and co-workers is one key type of job resources (Bakker & Demerouti, 2007). EI is essential to facilitate social interaction and to establish and maintain social relationships (Goleman, 1995; Lopes et al., 2004; Schutte et al., 2001). Emotionally savvy individuals are sensitive to not only their own but also to others' feelings and emotions (Johnson & Spector, 2007); accordingly, they can harness their emotion perception and regulation abilities in order to foster better social relationships with their coworkers and supervisors, which allows them to acquire job resources from their coworkers and supervisors through productive social exchanges (Wong & Law, 2002). For instance, emotionally intelligent persons can infer their coworkers' and/or supervisors' intentions from their emotional cues and thus communicate more effectively with them (Lopes et al., 2004). Interactions based on positive social exchanges allow emotionally intelligent people to accumulate job resources over time (e.g., coworkers' and/or supervisors' support, feedback, and job autonomy, etc.) because their exchange partners (e.g., coworkers and/or supervisors) may feel obligated to reciprocate all the benefits associated with their pleasurable social exchanges.

Job satisfaction is derived from not only one's feeling towards a job but also one's rational/cognitive appraisal of a job (Judge & Kammeyer-Mueller, 2012). Job satisfaction has a cognitive component, suggesting that one's job satisfaction hinges on one's beliefs or thoughts about the job (e.g., job characteristics, coworker relationship, supervisor relationship, etc.) and this belief/thought is developed from learning, reading, seeing, and hearing about the attitude object (Judge & Kammeyer-Mueller, 2012). Job resources should positively impact one's cognitive assessment of the job and enhance one's job satisfaction because they offer various physical, psychological, social, or organizational benefits to employees. Meta-analytic findings support a positive relationship between job resources and job satisfaction (Nahrgang et al., 2011). Taken together, EI helps one to acquire job resources, and the acquisition of job resources in turn positively influences one's job satisfaction, suggesting the mediating role of job resources in the relationship between EI and job satisfaction. Thus, the following hypotheses can be claimed:

Hypothesis 1. EI is positively related to job resources.

Hypothesis 2. Job resources mediate the relationship between EI and job satisfaction.

2.2. Moderators

2.2.1. Gender

Men and women may differ in their ability to use EI. Some research findings have demonstrated that females are better at using emotions, reading others' feelings from facial expressions, and perceiving non-verbal emotional cues to help them respond with more appropriate affective responses than males (Byron, 2007; Koveshnikov, Wechtler, & Dejoux, 2014; Salguero, Extremera, & Fernández-Berrocal, 2012). Females have a greater capacity than males to express emotions and to manage their emotions in order to help them deal with stress and emotional tasks (Jung & Yoon, 2014). As such, females may benefit more from using EI to enhance job satisfaction than their male counterparts (Johnson & Spector, 2007). However, other studies have found no support for the presumed female advantage in emotional competencies (Taylor & Hood, 2011). Thus, it is important to see if gender differences affect the relationship between EI and job satisfaction. Therefore, we derive the following hypothesis:

Hypothesis 3. Gender moderates the relationship between EI and job satisfaction such that the relationship is stronger in female-dominated studies.

2.2.2. Age

Some research findings have indicated that EI develops and improves with age, as a result of maturation, learning, and training (Extremera, Fernández-Berrocal, & Salovey, 2006; Mayer, Caruso, & Salovey, 1999; Mayer & Salovey, 1997). Older individuals are better at using EI to regulate their emotions to deal with negative feelings and to maintain and experience more positive feelings, and thus have higher job satisfaction (El Badawy & Magdy, 2015). Older employees are more versed at understanding others' emotions and body language, and this helps them act in ways that facilitate social relationships with others in the workplace (El Badawy & Magdy, 2015). As such, we develop the following hypothesis:

Hypothesis 4. Age moderates the relationship between EI and job satisfaction such that the relationship is stronger for older employees.

2.2.3. Tenure

We suggest that there may be two primary reasons why employees with long organizational tenure should be better at using EI to increase job satisfaction. First, employees with long organizational tenure are more socialized into their organizations relative to new employees; as such, employees with long tenure may benefit more from EI because it makes it easier and more beneficial for them to foster social relationships in order to enhance their job satisfaction (Denton & Kleiman, 2001; Kraemer & Gouthier, 2014). Second, EI develops as a consequence of learning and training (Mayer & Salovey, 1997; Mayer et al., 1999). Compared to employees with short tenure, those with long tenure should have gained more experience in how to utilize EI to regulate their feelings and foster social relationships with others in order to enhance job satisfaction. On the other hand, some research has found that EI is most useful during the early forming stages of groups because it helps members quickly understand each other (Jordan, Ashkanasy, Härtel, & Hooper, 2002). This implies that EI may be especially useful for employees with low tenure. To investigate these competing possibilities, we propose the following hypothesis:

Hypothesis 5. Tenure moderates the relationship between EI and job satisfaction such that the relationship is stronger when tenure is long.

2.2.4. Job level

The relationship between EI and job satisfaction may also vary as a function of hierarchical position level. Employees in high-level job

positions (e.g., the ones in managerial roles) have more resources at their disposal (Stahl & Caligiuri, 2005). As such, the relationship between EI and job satisfaction might be weakened for managers because they have many other alternative resources that they can deploy to enhance their job satisfaction. As a result, they may rely less on EI to enhance their job satisfaction. For instance, in light of their freedom and authority to use resources, employees in managerial positions can use problem-focused coping strategies to directly deal with job demands as a way to enhance their job satisfaction, rather than utilize emotion-focused coping strategies (e.g., use of EI) (Nahrgang et al., 2011; Stahl & Caligiuri, 2005). In contrast, employees working in low-level jobs (e.g., the ones in non-managerial positions) are limited in their control and possession of resources; as such, due to a lack of alternatives, they might depend more heavily on EI to handle job demands in order to maintain their job satisfaction (Nahrgang et al., 2011), thus strengthening the relationship between EI and job satisfaction. To test these speculations, we provide the following hypothesis:

Hypothesis 6. Job level moderates the relationship between EI and job satisfaction such that the relationship is stronger for employees in non-managerial positions.

3. Method

3.1. Literature search

We adhered to the following procedures in order to capture relevant articles. First, we did a computerized search of several electronic databases, including ABI/INFORM, EBSCO Host, Google, Google Scholar, JSTOR, ProQuest Dissertations and Theses, PsycNET, ScienceDirect, and Social Science Citation Index. Second, we also searched journals in the fields of management and psychology, including *Academy of Management Journal*, *Administrative Science Quarterly*, *Journal of Applied Psychology*, *Journal of Management*, *Journal of Management Studies*, *Journal of Occupational and Organizational Psychology*, *Journal of Organizational Behavior*, *Journal of Personality and Social Psychology*, *Journal of Vocational Behavior*, *Organization Science*, *Personnel Psychology*, and *Personality and Individual Differences*. Third, we searched pertinent management and psychology conferences, including the *Academy of Management Annual Meeting*, the *Southern Management Association Annual Meeting*, and the *Society for Industrial and Organizational Psychology Annual Conference*. We also reached out to EI scholars to request for unpublished papers, correlation matrices, and raw data.

3.2. Inclusion criteria

We used the following criteria to filter the articles we identified. First, since meta-analytic reviews are quantitative, we excluded all qualitative studies identified during the search process. Second, primary studies must provide at least one correlation coefficient between EI and job resources, so in the absence of correlation coefficients, we utilized Lipsey and Wilson's (2001) and Peterson and Brown's (2005) methods to convert relevant statistics into effect sizes. Third, we excluded the studies based on non-employee samples (e.g., student samples). Only studies that sampled real employees were included in the meta-analysis. Fourth, some studies only used proxy measures of EI, such as self-monitoring scales. Although proxy measures of EI, such as self-monitoring measure, are related to EI, they do not capture all the important elements of EI. Therefore, including these studies that used proxy measures of EI may contaminate our meta-analytic results. In line with O'Boyle et al.'s (2011) practice, we only included studies based on the scales that were explicitly designed to measure EI. After the aforementioned inclusion criteria were implemented, our search finally resulted in 15 eligible samples for the EI–job resources relationship. All references for the studies included in the EI–job resources meta-

analytic distribution are noted in the reference section. Since the part regarding moderator analyses for the EI–job satisfaction relationship is a follow-up study for Miao et al. (2016b), we not only took their codes but also coded for additional moderators, as hypothesized in the present study, based on the studies they identified.

3.3. Coding procedures

We coded three types of EI (i.e., ability EI, self-report EI, and mixed EI) based on Ashkanasy and Daus (2005). We followed the coding scheme developed by Crawford et al. (2010) to guide our coding of job resources, because their meta-analysis is the most comprehensive quantitative review of the JD–R model so far and their definition of job resources closely aligns with the theme of our paper. In line with Crawford et al.'s meta-analysis, we clustered different types of job resources (e.g., coworker support, supervisor support, and organizational support) together to form a broad category of job resources. As for gender moderator, we coded the percentage of male respondents for each study and used a median split to allocate them into male-dominated and female-dominated groups (Bae, Qian, Miao, & Fiet, 2014). We coded average tenure (in years) of subjects for each study. According to the U.S. Bureau of Labor Statistics, there is no agreed-upon standard for short versus long tenure, due to distinctions across occupations. As such, we categorized them into long versus short tenure groups by applying a median split. We coded the average age (in years) of subjects for each study and used the benchmark of 40 years old to classify studies

into young group and middle- or old-age group. A study was coded as managerial when the subjects in a study performed jobs that required them to control, supervise/oversee, and/or be in charge of others. Otherwise, it was coded as non-managerial.

3.4. Analytic methods

We performed meta-analyses based on Hunter and Schmidt (2004). In line with prior meta-analytic reviews (Garrett, Miao, Qian, & Bae, 2017; Miao, Coombs, Qian, & Sirmon, 2017; Miao, Qian, & Ma, 2017), we followed Hunter and Schmidt's (1990) approach (i.e., z-test) to test moderators. We performed meta-analytic structural equation modeling (MASEM) (Viswesvaran & Ones, 1995) to analyze the mediating role of job resources.

4. Results

4.1. Main and moderator effects

Table 1 displays the results for both main and moderator effects. We found that the relationship between overall EI and job resources is positive and significant ($\hat{\rho} = 0.27$) because the 95% confidence interval ranges from 0.24 to 0.31, which does not include zero. Similarly, each individual EI stream also positively and significantly relates to job

Table 1
Psychometric meta-analysis results

	<i>k</i>	<i>N</i>	\bar{r}_o	<i>SD_r</i>	$\hat{\rho}$	<i>SD_ρ</i>	Var _{art} %	Corrected 95% CI	Corrected 80% CR	Significant difference
EI–job resources	15	4151	0.23	0.08	0.27	0.05	68	0.24 to 0.31	0.21 to 0.33	
Ability EI–job resources	1	123	0.21	0.00	0.24	0.00	NA	0.24 to 0.24	0.24 to 0.24	
Self-report EI–job resources	11	3087	0.23	0.08	0.27	0.06	52	0.23 to 0.32	0.19 to 0.35	
Mixed EI–job resources	3	941	0.23	0.04	0.28	0.00	100	0.26 to 0.30	0.28 to 0.28	
Ability EI–job satisfaction										
Gender										
a. Male dominated	6	1056	0.06	0.12	0.07	0.11	41	−0.04 to 0.19	−0.07 to 0.21	–
b. Female dominated	6	815	0.05	0.09	0.06	0.04	87	−0.01 to 0.14	0.01 to 0.11	–
Age										
a. Young (before age of 40)	9	1587	0.06	0.09	0.07	0.06	70	0.01 to 0.14	−0.00 to 0.15	–
b. Middle- or old-age (after age of 40)	2	166	0.21	0.21	0.24	0.20	26	−0.03 to 0.50	−0.02 to 0.50	–
Job Level										
a. Managerial	3	234	0.09	0.15	0.11	0.11	58	−0.06 to 0.27	−0.03 to 0.25	–
b. Non-Managerial	9	1453	0.06	0.12	0.07	0.10	43	−0.01 to 0.16	−0.06 to 0.21	–
Self-report EI–job satisfaction										
Gender										
a. Male dominated	28	7270	0.29	0.14	0.34	0.15	18	0.29 to 0.40	0.16 to 0.53	–
b. Female dominated	28	10,811	0.28	0.09	0.32	0.09	29	0.28 to 0.35	0.21 to 0.43	–
Age										
a. Young (before age of 40)	30	7344	0.26	0.14	0.31	0.15	18	0.25 to 0.37	0.12 to 0.50	–
b. Middle- or old-age (after age of 40)	5	820	0.30	0.18	0.37	0.20	17	0.29 to 0.45	0.11 to 0.62	–
Tenure										
a. Short	9	2237	0.26	0.07	0.30	0.00	100	0.27 to 0.32	0.30 to 0.30	–
b. Long	9	2120	0.25	0.11	0.30	0.12	30	0.25 to 0.35	0.15 to 0.45	–
Job level										
a. Managerial	7	1994	0.23	0.05	0.27	0.00	100	0.25 to 0.29	0.27 to 0.27	b
b. Non-managerial	41	13,929	0.28	0.11	0.33	0.11	21	0.29 to 0.37	0.19 to 0.48	a
Mixed EI–job satisfaction										
Gender										
a. Male dominated	16	3401	0.31	0.12	0.37	0.13	25	0.32 to 0.41	0.20 to 0.53	–
b. Female dominated	16	2124	0.28	0.29	0.33	0.34	8	0.23 to 0.44	−0.10 to 0.76	–
Age										
a. Young (before age of 40)	10	1963	0.24	0.20	0.28	0.22	11	0.21 to 0.36	−0.00 to 0.57	–
b. Middle- or old-age (after age of 40)	5	479	0.20	0.18	0.23	0.17	32	0.17 to 0.30	0.02 to 0.45	–
Job level										
a. Managerial	7	1230	0.40	0.32	0.47	0.38	4	0.35 to 0.59	−0.02 to 0.96	–
b. Non-managerial	21	4276	0.31	0.12	0.37	0.13	26	0.32 to 0.41	0.20 to 0.53	–

Note. *k* = number of independent samples; *N* = sample size; \bar{r}_o = uncorrected sample-size-weighted mean correlation; *SD_r* = sample-size-weighted standard deviation of observed mean correlations; $\hat{\rho}$ = corrected sample-size-weighted mean correlation; *SD_ρ* = sample-size-weighted standard deviation of corrected mean correlations; Var_{art}% = percent of variance in $\hat{\rho}$ explained by statistical artifacts; Corrected 95% CI = corrected 95% confidence interval; Corrected 80% CR = corrected 80% credibility interval; Significant Difference = letters in this column corresponds to the letters in rows and suggest that effect sizes are significantly different from one another at 0.05 level. The sign “–” indicates there is no significant between-group difference. EI = emotional intelligence.

Table 2
Comparison of the fit of the alternative models.

	χ^2	df	p value of χ^2	CFI	NFI	GFI	RMR	RMSEA	$\Delta\chi^2(\Delta df)$
Test 1: Job resource as a mediator between ability EI and self-report EI and job satisfaction (Harmonic mean = 634)									
Model 1: partial mediation (a)	0.00	0	–	1.00	1.00	1.00	0.00	–	
Model 2: partial mediation (b)	28.15	1	0.00	0.94	0.93	0.98	0.05	0.21	28.15***(1)
Model 3: partial mediation (c)	6.96	1	0.01	0.99	0.98	0.99	0.02	0.10	6.96**(1)
Model 4: full mediation	33.33	2	0.00	0.93	0.92	0.98	0.05	0.16	33.33*** (2)
Model 5: no mediation	78.50	2	0.00	0.82	0.82	0.94	0.13	0.25	78.50*** (2)
Test 2: Job resource as a mediator between mixed EI and job satisfaction (Harmonic mean = 2447)									
Model 1: partial mediation	0.00	0	–	1.00	1.00	1.00	0.00	–	
Model 2: full mediation	210.72	1	0.00	0.87	0.87	0.95	0.09	0.29	210.72*** (1)
Model 3: no mediation	199.70	1	0.00	0.88	0.87	0.95	0.14	0.29	199.70*** (1)

Note. df = degree of freedom; CFI = comparative fit index; NFI = normed fit index; GFI = goodness of fit index; RMR = root mean square residual; RMSEA = root mean square error of approximation; EI = emotional intelligence. χ^2 difference tests were performed based on the comparison with Model 1. Partial mediation (a) contains direct paths from both ability EI and self-report EI to job satisfaction. Partial mediation (b) contains a direct path from only ability EI to job satisfaction. Partial mediation (c) contains a direct path from only self-report EI to job satisfaction. The models with bold characters refer to the chosen ones according to the results of model comparison.

** $p < 0.01$.
*** $p < 0.001$.

resources ($\hat{\rho} = 0.24$ for ability EI, $\hat{\rho} = 0.27$ for self-report EI, and $\hat{\rho} = 0.28$ for mixed EI). Hence, Hypothesis 1 is supported.

We performed moderator analyses for each individual EI stream and the results for moderator effects have been demonstrated in the last column of Table 1. With regard to ability EI–job satisfaction meta-analytic distribution, our results indicated that ability EI–job satisfaction relationships do not differ across male-dominated ($\hat{\rho} = 0.07$) and female-dominated subgroups ($\hat{\rho} = 0.06$), which translates into a 0.01 between-group effect size difference that is not significant according to z-test. We found the same patterns of non-significant results in self-report EI–job satisfaction and mixed EI–job satisfaction distributions as well. Hence, Hypothesis 3 is not supported. We repeated the same procedures to analyze the other moderators. In sum, job level is a significant moderator only for the self-report EI–job satisfaction relationship. Age is a non-significant moderator for the relationships between all three types of EI and job satisfaction. Tenure is a non-significant moderator for the relationship between self-report EI and job satisfaction. Taken altogether, Hypotheses 4 and 5 are not supported, and Hypothesis 6 is supported only for self-report EI–job satisfaction meta-analytic distribution.

4.2. MASEM

We performed MASEM to test the mediating role of job resources. Considering the moderate multicollinearity between mixed EI and ability EI, and the high multicollinearity between mixed EI and self-report EI, we separated mixed EI from ability EI and self-report EI when conducting MASEM because the existence of multicollinearity would lead to issues of bouncing betas and lower statistical power, plus it would increase standard errors and yield uninterpretable results

(Schwab, 2005). We did not separate ability EI and self-report EI when performing MASEM, due to small multicollinearity between these two types of EI.

We conducted MASEM to assess and compare a set of alternative models (see Table 2). Regarding Test 1 in Table 2, we evaluated how job resources mediate the relationships between ability EI and self-report EI and job satisfaction. We compared all other models to the partial mediation model (a), which has direct paths from both ability EI and self-report EI to job satisfaction. We found that any deletion of paths from the partial mediation model (a) would worsen model fit according to χ^2 difference test (see the results for χ^2 difference test in the last column in Table 2). As such, the partial mediation model (a) was chosen in Test 1 in Table 2. We repeated the same procedure for Test 2 in Table 2, where job resources mediate the relationship between mixed EI and job satisfaction. The chosen model in Test 2 was the partial mediation model denoted with bold characters in Table 2.

Fig. 1 displays both path models and mediation results, along with all standardized path coefficients for the chosen models. Fig. 1 (a) corresponds to Model 1 under Test 1 in Table 2, and Fig. 1 (b) corresponds to Model 1 under Test 2 in Table 2. We conducted three types of mediation tests - Sobel test, Aroian test, and Goodman test.

With respect to Fig. 1 (a), the indirect effect from ability EI to job satisfaction via job resources is 0.13 ($p < 0.001$ [Sobel test: 5.32; Aroian test = 5.31; Goodman test = 5.33]) and the indirect effect from self-report EI to job satisfaction via job resources is 0.15 ($p < 0.001$ [Sobel test: 6.09; Aroian test = 6.08; Goodman test = 6.10]). With regard to Fig. 1 (b), the indirect effect from mixed EI to job satisfaction via job resources is 0.16 ($p < 0.001$ [Sobel test: 13.56; Aroian test = 13.55; Goodman test = 13.56]). Since all of the indirect effects are statistically significant, Hypothesis 2 is supported.

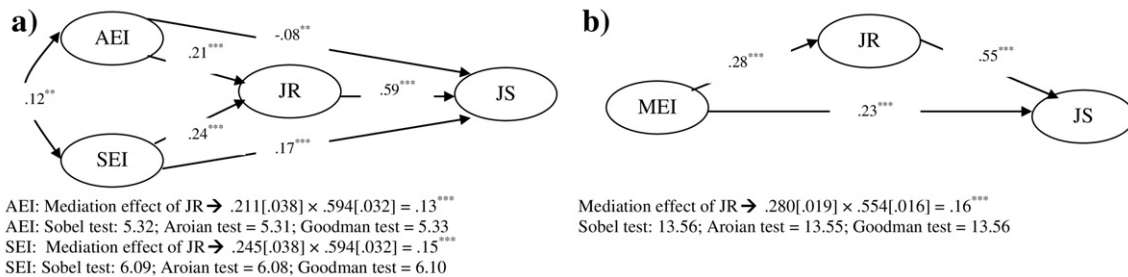


Fig. 1. Path models of the mediating role of job resource in the relationship between EI and job satisfaction. Note. Standardized path coefficients are reported. Standard errors are reported in brackets. AEI = ability emotional intelligence; SEI = self-report emotional intelligence; MEI = mixed emotional intelligence; JS = job satisfaction; JR = job resource. Fig. 1 (a) corresponds to Model 1 under Test 1 in Table 2, and Fig. 1 (b) corresponds to Model 1 under Test 2 in Table 2. ** $p < 0.01$. *** $p < 0.001$.

5. Discussion

If emotion is properly used and managed, the use of emotion can lead to a state of well-being (Humphrey, 2013; Humphrey, Ashforth, & Diefendorff, 2015). Individuals high on EI are versed at using and managing their emotions to achieve better workplace outcomes. Miao et al. (2016b) demonstrated that employees may utilize their EI to enhance their job satisfaction because EI helps one to experience more positive feelings, to reduce negative feelings, and to accomplish performance goals. The present meta-analytic review adds to their finding by showing that employees may also use their EI to acquire job resources from their work in order to improve their job satisfaction.

5.1. Theoretical implications

Our study explored the theoretical mechanism through which EI influences job satisfaction. Building on the JD-R model, we found that the relationship between EI and job satisfaction is mediated by job resources, suggesting that EI enhances job resources as a way to influence job satisfaction. Our study extended the JD-R model and COR theory to EI literature by showing how individuals can make use of EI to manage their emotions in order to acquire job resources and thereby influence their job satisfaction. However, we still need to clarify that our meta-analysis, because it is mostly based on cross-sectional studies, cannot capture the dynamics/fluctuations of job resources, whereas both the JD-R model and COR are dynamic theories (Bakker & Bal, 2010; Halbesleben, Neveu, Paustian-Underdahl, & Westman, 2014; Kammeyer-Mueller, Simon, & Judge, 2016). We call for future studies to apply experience sampling methods and perform multilevel analyses to test how between-individual traits (e.g., EI) influence within-individual variations in job resources, and how multiple job resources interact to affect workplace outcomes.

We also examined how a set of demographic characteristics influence the EI–job satisfaction relationship. We found that the relationship between EI and job satisfaction is not influenced by gender, age, or tenure. As for gender, our findings demonstrated that males and females do not differ in their EI and that they equally benefit from using EI to enhance their job satisfaction. We also did not find any evidence that older individuals are more proficient at using EI to boost their job satisfaction. Interestingly, we did find that self-report EI–job satisfaction is stronger in non-managerial jobs than in managerial jobs. It supports our argument that individuals having managerial positions may rely less on EI to enhance their job satisfaction because they have many other alternative resources to make them feel satisfied, whereas individuals in lower level jobs have fewer resources at their disposal and may rely more on EI to maintain and boost job satisfaction (Nahrgang et al., 2011; Stahl & Caligiuri, 2005). However, the mixed results for this with regard to the other two measures of EI suggest that more research on this is needed before a firm conclusion can be drawn.

5.2. Limitations and future directions

First, studies based on cross-sectional designs dominate our meta-analytic review; therefore, we cannot exclude the possibility of reverse causality (or reciprocal causation). This limitation has particular relevance to our mediation analyses because the term mediation implies a causal direction (Colquitt, Scott, & LePine, 2007). We encourage future studies to perform advanced analyses (e.g., latent growth modeling) and to collect longitudinal data so that robust causal inference can be drawn. Also, two of the three streams of EI rely on self-report measures, and self-report measures can have problems due to common method variance bias (Podsakoff, MacKenzie, & Podsakoff, 2012). Ability measures of EI do not rely on self-reports; the fact that all three streams of EI yield similar correlations with job resources suggests that EI is a valid predictor.

Second, all three streams of EI are statistically significantly related to job resources. According to recent work on effect sizes (Bosco, Aguinis, Singh, Field, & Pierce, 2015), the interpretation of correlational effect

sizes should depend on what is being correlated. In their empirical analysis of 147,328 correlations reported in *Journal of Applied Psychology* and *Personnel Psychology*, attitude–attitude correlations between 0.18 and 0.39 would be considered medium or moderate in size. In contrast, they found that medium or moderate attitude–behavior correlations were considerably smaller, ranging from 0.10 to 0.24. The Bosco et al. study found that the 67th benchmarking percentile for performance and psychological characteristics was 0.23. This study correlated EI with gaining job resources, and gaining job resources could be conceptualized as either a behavior or a type of performance outcome. The overall uncorrected effect size between EI and job resources was 0.23, with slightly higher corrected effect sizes (overall EI: $\hat{\rho} = 0.27$; ability EI: $\hat{\rho} = 0.24$; self-report EI: $\hat{\rho} = 0.27$; mixed EI: $\hat{\rho} = 0.28$). Based on the latest benchmarking criteria, we believe that these effect sizes should be classified as in the high end of the moderate range.

Correction for statistical artifacts only results in a small increase, which ranges from 0.03 to 0.05 in effect sizes because the measures of both EI and job resources generally demonstrate satisfactory reliability across studies and effect sizes were not severely attenuated by measurement errors. The other source of statistical artifacts that we did not correct is range restriction. Range restriction may attenuate effect sizes reported in this study because the standard deviation of EI may be restricted in that only those high on EI were hired. Correction for range restriction requires the unrestricted standard deviation to be entered into the formula. Unfortunately, the unrestricted standard deviation is often unavailable or is challenging to determine (Roth, Le, Oh, Van Iddekinge, & Robbins, 2017). We encourage future EI scholars to report any unrestricted standard deviation of EI so that meta-analysts can do a more accurate quantitative synthesis of literature.

Third, based on what we have identified, a fruitful avenue would be to integrate all variables examined in the present study in order to theorize and test moderated mediation models or mediated moderation models. The analysis of these models would have to be based on raw data, whereas meta-analytic techniques are based on correlation coefficients and not on raw data. Future studies may collect primary data to investigate moderated mediation models or mediated moderation models.

5.3. Practical implications

This study has several important practical implications. First, it indicates that organizations should recruit and select emotionally intelligent employees in order to have a satisfied workforce. Second, it suggests that individuals should seek to develop their own emotional competencies because doing so could help them gain job resources at work and boost their job satisfaction as well. Third, organizations should provide job resources and other forms of support to their employees in order to maintain a satisfied workforce. Supervisory support is a key job resource (Bakker & Demerouti, 2007), and studies have found that leaders high on EI have employees with higher job satisfaction (Miao et al., 2016a; Walter, Humphrey, & Cole, 2012). Thus, training leaders as well as followers in EI and emotional competencies should improve job satisfaction as well.

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¹ References marked with an asterisk (*) refer to the studies included in the meta-analysis.

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