

Sources of variation in emotional awareness: Age, gender, and socioeconomic status



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ABSTRACT

The present study examined associations between emotional awareness facets (type clarity, source clarity, negative emotion differentiation, voluntary attention, involuntary attention) and sociodemographic characteristics (age, gender, and socioeconomic status [SES]) in a large US sample (N = 919). Path analyses—controlling for variance shared between sociodemographic variables and allowing emotional awareness facets to correlate—demonstrated that (a) age was positively associated with type clarity and source clarity, and inversely associated with involuntary attention; (b) gender was associated with all facets but type clarity, with higher source clarity, negative emotion differentiation, voluntary attention, and involuntary attention reported by women than men; and (c) SES was positively associated with type clarity with a very small effect. These findings extend our understanding of emotional awareness and identify future directions for research to elucidate the causes and consequences of individual differences in emotional awareness.

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1. Introduction

Emotional awareness is a multifaceted construct that broadly encompasses how people understand, describe, and attend to their emotional experiences (Bagby, Taylor, & Parker, 1994; Boden & Berenbaum, 2011; Gasper & Clore, 2000; Gohm & Clore, 2000; Palmieri, Boden, & Berenbaum, 2009; Salovey, Mayer, Goldman, Turvey, & Palfai, 1995). Emotional awareness has multiple broad dimensions, including clarity of emotions (i.e., the degree to which people unambiguously identify, label, and represent their own emotions), emotion differentiation (i.e., the complexity with which people represent the type of emotion they experience), and attention to emotion (i.e., the degree to which people attend to their emotions). These dimensions are facets of several constructs popularized in scientific literature, including emotional intelligence and alexithymia (e.g., Bagby et al., 1994; Gohm, 2003; Gohm & Clore, 2000; Salovey et al., 1995).

Identifying sources of individual variation in emotional awareness will inform theory and research on its potential downstream consequences. For example, numerous researchers have explored how emotional awareness relates to emotion regulation (e.g., Barrett, Gross, Christensen, & Benvenuto, 2001; Boden & Thompson, 2015; Kashdan, Barrett, & McKnight, 2015; Vine & Aldao, 2014). Sociodemographic characteristics are one potential source of individual variation in

emotional awareness; associations between emotional awareness and sociodemographic characteristics are not well characterized. Addressing this gap might clarify the contexts within which emotional awareness contributes to adaptive emotion regulation. In this cross-sectional study, we investigated how age, gender, and SES relate to emotional awareness in a large generally representative adult sample of the U.S. Following, we review research on facets of emotional awareness and describe how sociodemographic characteristics may relate to them.

1.1. Emotional awareness

Recent research has delineated multiple sub-facets of two broad dimensions of emotional awareness: emotional clarity and attention to emotions (Boden & Berenbaum, 2011; Boden & Thompson, 2015; Huang, Berenbaum, & Chow, 2013). Emotional clarity is parsed into *type clarity* and *source clarity* (Boden & Berenbaum, 2011). Type clarity represents the extent to which people unambiguously identify, label, and represent the type of emotion experienced (e.g., sadness versus anger). Source clarity represents the extent to which people unambiguously identify, label, and represent the source of their emotional experiences (Boden & Berenbaum, 2011, 2012). For example, greater source clarity reflects an improved ability to understand the source of their distress, whereas greater type clarity reflects an improved ability to understand the particular type of distress they might feel (e.g., sadness, fear). Distinct from emotional clarity is *negative emotion differentiation* (Boden, Thompson, Dizén, Berenbaum, & Baker, 2013b), which captures the

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complexity with which people identify, distinguish, and label specific negative emotions (e.g., sad, depressed, anxious versus bad; Barrett et al., 2001; Kashdan et al., 2015). In the current study, we examined negative emotion differentiation, which has been shown to uniquely predict psychological well-being (e.g., Barrett et al., 2001; Erbas, Ceulemans, Pe, Koval, & Kuppens, 2014; Kashdan & Farmer, 2014). Attention to emotion is parsed into *voluntary attention* and *involuntary attention* (Huang et al., 2013; Boden & Thompson, 2015). Voluntary attention represents the extent to which people purposefully attend to their emotions, and involuntary attention represents the extent to which people attend to their emotions unintentionally (Huang et al., 2013).

1.2. Age

Emotional awareness facets should vary across the lifespan. We presume that older adults have had a greater number and more diverse learning experiences involving emotion. As people age, we posit that they experience more opportunities to “practice” identifying, labeling, and representing the type and source of their emotions. Therefore, we predict that age will be positively associated with type and source clarity. We expect to replicate the finding that emotion differentiation is positively associated with age (e.g., Ready, Carvalho, & Weinberger, 2008). We think that age will be positive associated with negative emotion differentiation because greater differentiation is related to more adaptive psychological and emotional functioning (e.g., Barrett et al., 2001; Kashdan et al., 2015), and growing older has been associated with adaptive patterns of emotional processing (e.g., Blanchard-Fields, 2007; Carstensen, Pasupathi, Mayr, & Nesselrode, 2000). Research on the socioemotional selectivity theory (e.g., Carstensen, 2006; Charles & Carstensen, 2010; Scheibe & Carstensen, 2010) suggests that as people age, they prioritize socially and emotionally meaningful goals and become more selective about the situations and people with whom they associate. They focus more on the emotional aspects of their experience that optimize adaptive outcomes (e.g., Carstensen, Isaacowitz, & Charles, 1999). This increased control over how older individuals attend to their emotional experiences suggests two things. First, they attend more to emotions that are consistent with their social and emotional goals. Second, they do not generally attend to emotions that are inconsistent with these goals. In line with this, we predict that older age will be positively associated with voluntary attention to emotions and inversely associated with involuntary attention to emotions.

1.3. Gender

Extant research has demonstrated that emotional experience differs by gender, but that many of these differences are driven by cultural factors (Brody & Hall, 2008). For example, women in Western cultures are stereotyped as being more emotionally expressive, emotionally skilled, and emotionally intense than men (see Brody & Hall, 2008). In fact, research has found that women attend more to their emotions than men (Boden, Gala, & Berenbaum, 2013a; Boden et al., 2013b; Gasper & Clore, 2000; Gohm & Clore, 2000). Because stereotypes affect behavior through both conscious and nonconscious manners (e.g., Hilton & von Hippel, 1996), compared to men, women might attend more to their emotions both voluntarily and involuntarily due to how they were socialized to experience emotion, including the influence of these aforementioned gender stereotypes.

In contrast to attention to emotion, past research indicates that type and source clarity do not vary by gender (Boden et al., 2013a; Gohm & Clore, 2000; B. Thompson, Waltz, Croyle, & Pepper, 2007; Boden & Berenbaum, 2012). Although the experience of emotions may vary by gender in terms of attention to emotions, the extent to which emotions are unambiguously identified, labeled, and represented (type clarity and source clarity) do not tend to differ. We do not make a specific prediction regarding the association between negative emotion differentiation and gender; no prior studies have examined their association, and relevant

theory does not suggest that men or women should differ in negative emotion differentiation.

1.4. Socioeconomic status

SES reflects social position and status in society; it is a complex construct with multiple sources of influence. The American Psychological Association (APA, Task Force on Socioeconomic Status, 2007) recommends operationalizing SES by including income, occupation, and education. SES might relate to facets of emotional awareness. For example, if emotional awareness contributes to effective navigation of day-to-day life, then we would expect SES to positively relate to some of the facets. Indeed, in a prospective study, Libbrecht, Lievens, Carrette, and Côté (2014) demonstrated that higher emotional understanding, which is conceptually related to type and source clarity and negative differentiation, predicted higher levels of interpersonal academic performance (i.e., performance in courses that centered on doctor-patient communication) among medical students. Further, Perera and DiGiacomo (2015) found that during the transition to university, emotional intelligence, which includes aspects akin to type and source clarity and negative emotion differentiation, contributed to academic performance through the engagement in coping strategies. On the other hand, other research on facial expressions of emotions has suggested that lower SES might relate to greater emotional awareness. Compared to people in higher status positions, people in lower status positions are better able to distinguish facial expressions of emotions (Kraus, Côté, & Keltner, 2010); this increased awareness of others' emotions might extend to increased awareness of one's own emotions. Therefore, we explore how SES relates to emotional awareness facets in the present study.

1.5. The present study

We predicted that older *age* would be associated with higher type clarity, source clarity, negative emotion differentiation, and voluntary attention and lower involuntary attention; and that *gender* would not be associated with type clarity or source clarity, but that women would report higher voluntary attention and involuntary attention than would men. Finally, we explore how *SES* would be related to individual variation in emotional awareness facets without specific predictions.

2. Method

2.1. Participants & procedure

We recruited an adult sample through Amazon Mechanical Turk (MTurk). MTurk provides diverse samples of the U.S. population with data that is similar in quality to convenience samples (Buhrmester, Kwang, & Gosling, 2011; Paolacci & Chandler, 2014). We restricted recruitment to U.S. citizens who were 18 years or older and spoke English as their first language. Of 1022 people who indicated interest in the study, 64 people did not meet inclusion criteria and 103 people did not complete any study items. The final sample was 919 participants.

Once eligibility was established, participants consented to participation and provided demographic characteristics (see Results). For our analyses of gender, we dummy-coded the data (men = 0, and women = 1). Participants completed a negative emotion differentiation task and self-report measures of clarity and attention. We presented measures in a randomized order across participants. We compensated participants 0.50USD, a rate consistent with MTurk surveys of this length.

2.2. Measures

2.2.1. Emotional awareness

Emotional clarity and attention to emotions were assessed with items recommended by Boden and Thompson (2015), which were based on the results of a factor analysis of data obtained from the

present sample. We assessed *type clarity* with 13 items from the clarity subscale of the Trait Meta Mood Scale (TMMS; Salovey et al., 1995) and the Difficulty Identifying Feelings subscale of the Toronto Alexithymia Scale (TAS-20; Bagby et al., 1994). *Source clarity* was assessed with five items from the Sources of Emotions Scale (Boden & Berenbaum, 2012). We assessed *voluntary attention* with six items from the Attention subscale of the TMMS and two items from the Externally Oriented Thinking subscale of the TAS-20. *Involuntary attention* was assessed with seven items recommended by Huang et al. (2013) and two TMMS items from the Attention subscale. Participants responded to items using a 5-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*). We averaged these scores; higher scores indicated higher levels of each facet. Internal consistencies were as follows: type clarity: $\alpha = .92$; source clarity: $\alpha = .91$; voluntary attention: $\alpha = .85$; involuntary attention: $\alpha = .92$.

We assessed *negative emotion differentiation* with a modified version of the negative emotion differentiation task (Erbas et al., 2014). Participants viewed ten standardized emotional photographs (presented individually in randomized order) from the International Affective Picture System (IAPS; Lang, Bradley, & Cuthbert, 1995), representing a wide range of negative emotions. For each image, participants reported their current experience of ten negative emotions (i.e., fearful, worried, lonely, sad, guilty, ashamed, jealous, embarrassed, angry, disgusted) on a 7-point Likert scale (0 = *not at all*, 6 = *very much*). To compute negative emotion differentiation, we calculated the average intra-class correlation with absolute agreement (ICC 1; Shrout & Fleiss, 1979) between the negative emotion words across the image presentations for each participant (e.g., Barrett, 1998; Boden et al., 2013a, 2013b; Kashdan, Ferrisizidis, Collins, & Muraven, 2010; Pond et al., 2012; Tugade, Fredrickson, & Barrett, 2004). We transformed the ICCs using Fisher Z' transformation (see Boden et al., 2013a, 2013b). To facilitate interpretation, we reverse-coded the transformed ICCs such that higher values represent higher levels of negative emotion differentiation.

2.2.2. SES

Participants reported their household's annual *income* in categories ranging from 1 (\$0–10,000) to 21 (\$500,000 or more). They completed two questions from the Four Factor Index of Social Status (Hollingshead, 1975), which assessed their *occupation* and highest level of *completed education*. For occupation, participants provided a free response to "What do you do for a living?" Three extensively trained undergraduate research assistants rated responses with the Hollingshead coding scheme (Hollingshead, 1975), which provides hierarchical ratings from 1 (e.g., farm laborers/menial service workers) to 9 (e.g., higher executives, proprietors of large business, and major professionals). Interrater reliability (Fleiss' kappa; Fleiss, 1971) was $\kappa = .78$. Raters reached consensus for divergent ratings through discussion; consensus ratings were used in the analyses. For education, participants indicated their highest level of completed education, ranging from 1 (i.e., less than seventh grade) to 7 (i.e., graduate/professional degree). We computed a SES composite score by taking the mean of standardized values of income, education, and occupation.

3. Results

Demographic information is presented in Table 1. The majority of the sample was female and white/Caucasian, with substantial variation in age. Participants reported an average income equivalent to approximately \$50,000. Approximately half of the participants had earned a bachelor's degree, and the average occupation score was between 5 (clerical/sales jobs, small farm owners) and 6 (technicians and semi-professionals). Consistent with previous research utilizing MTurk (Paolacci & Chandler, 2014), our sample was diverse. Yet it was composed of a greater proportion of women, and was younger, more white/Caucasian, and more educated compared to the general population (United States Census Bureau, 2015).

Table 1
Sociodemographic characteristics and descriptive statistics.

Variable	%	M	SD	Range
Demographics				
Age		35.4	13.1	18–79
Gender (female)	66.9			
Hispanic/Latino	6.3			
Race/ethnicity				
Asian	3.7			
Biracial/bicultural	4.2			
Black/African American	7.5			
Native American	0.4			
Native Hawaiian	0.3			
White/Caucasian	83.8			
Income		5.2	3.3	1–21
Occupation		5.8	1.9	1–9
Completed education				
Partial high school		1.6		
GED or high school diploma		15.7		
Partial college		31.0		
College or university degree		34.9		
Graduate or professional degree		16.8		
Socioeconomic status composite		−.03	0.7	−2.01–2.67
Emotional awareness facets				
Type clarity		3.8	0.8	1.23–5
Source clarity		4.0	0.9	1–5
Negative emotion differentiation		0.5	0.5	−1.65–1
Voluntary attention		3.7	0.7	1.13–5
Involuntary attention		3.3	0.9	1–5

Note. Socioeconomic status composite is composed of the mean of standardized income score, occupation score, and completed education.

We conducted correlation analyses (point-biserial correlations for gender; Pearson correlations for all others) to examine the zero-order relations among emotional awareness facets and sociodemographic variables. As shown in Table 2, due to the large sample size, many of the correlations were statistically significant. Thus, we focus the discussion of statistically significant results in terms of the strength of the effect in conjunction with standard rules of thumb (i.e., small = .10, medium/moderate = .30, large = .50; Cohen, 1992). Type and source clarity were positively associated to a large degree and each had a small positive association with negative emotion differentiation. Type and source clarity each had a moderate positive association with voluntary attention and a moderately small negative association with involuntary attention. Negative emotion differentiation had a small positive association with voluntary attention. Voluntary attention and involuntary attention were positively associated to a moderately large degree. Age had a small positive association with SES. Age also had a small positive association with type and source clarity and negative emotion differentiation and a small negative association with involuntary attention. Gender was moderately associated with voluntary attention and had a small association with involuntary attention, source clarity, and negative emotion differentiation, such that women tended to have higher levels of these emotional awareness facets. SES had a small positive association with type clarity and a small negative association with involuntary attention.

Next, we examined the unique relations between sociodemographic characteristics and emotional awareness facets. Using version 7.3 of MPlus (Muthén & Muthén, 2013), we conducted a path analysis using a model that specified simultaneous standardized regression coefficient paths from each sociodemographic characteristic (age, gender, SES) to each emotional awareness facet, which accounted for variance shared between sociodemographic variables. We allowed (1) the sociodemographic characteristics to correlate with each other, (2) the residuals of the emotional awareness facets to correlate with each other, and (3) allowed age to be dichotomous while all other variables were continuous. We examined main effect sizes of age, gender, and SES in the path analysis by computing the variance explained (incremental increase in R^2) by the inclusion of each of these sociodemographic variables in separate path models. For example, to test the effect of age, age was added to a model that included gender, SES, and all emotional awareness

Table 2
Descriptive statistics and zero-order correlations among sociodemographic characteristics and emotional awareness facets.

Variable	1	2	3	4	5	6	7
1. Age							
2. Gender	.03						
3. Socioeconomic status	.10**	-.03					
4. Type clarity	.25**	.05	.09**				
5. Source clarity	.17**	.08*	.01	.69**			
6. Negative emotion differentiation	.08*	.10**	.01	.21**	.25**		
7. Voluntary attention	.04	.31**	-.06	.28**	.29**	.12**	
8. Involuntary attention	-.15**	.20**	-.07*	-.23**	-.23**	-.05	.45**

Note. Gender is coded as men = 0, women = 1. Correlation coefficients involving gender are point-biserial. All other coefficients are Pearson.

* $p < .05$

** $p < .01$

facets. We did the same in separate models for gender and SES. Age incrementally accounted for 11.3% of the variance; gender incrementally accounted for 14.9% of the variance; and SES incrementally accounted for 1% of the variance.

As shown in Fig. 1, path analysis results were similar to the zero-order correlation findings. Consistent with our hypotheses, age had a moderate positive association with type clarity, a small positive association with source clarity, and a small negative association with involuntary attention. Inconsistent with our hypotheses, age was not significantly associated with voluntary attention, and the association of age and negative emotion differentiation was only quite small. As expected, gender was unrelated to differences in type clarity; being female was moderately associated with greater voluntary and involuntary attention. We also found that gender was associated with negative

differentiation and source clarity, such that being female was associated with slightly higher source clarity and greater negative emotion differentiation. Finally, SES only had a very small positive association with type clarity¹ but no significant associations with the other four emotional awareness facets.

4. Discussion

The current study significantly furthers the scope of the emotional awareness literature. The results demonstrate that sociodemographic factors showed varying associations with emotional awareness facets in a sample that is generally representative of the U.S. Findings highlight several avenues that will elucidate how social and developmental processes contribute to differences in emotional awareness.

Extending research on the socioemotional selectivity theory (e.g., Scheibe & Carstensen, 2010), age was positively associated with generally adaptive emotional awareness facets, including type clarity and source clarity and a very small effect on negative emotion differentiation. Previous research demonstrates that as individuals age, they prioritize processing material that is consistent with short-term goals and de-emphasize processing negative material (e.g., Löckenhoff & Carstensen, 2004); older participants reporting lower involuntary attention supports this line of research. Perhaps increasingly careful selection of one's socioemotional environment relates to mastery over attention to emotion. The absence of association between voluntary attention and age might reflect that older adults attend more to positive and less to negative emotions (Reed, Chan, & Mikels, 2014), leading to insignificant associations when valence is not assessed as in the present study. Thus, future research should assess attention to positive and negative emotions separately to clarify their associations with age.

We extended research on gender and emotion (e.g., Brody & Hall, 2008) by demonstrating that women exhibit higher levels of negative emotion differentiation than men, albeit with a small effect. We corroborated extant research that type clarity was not associated with gender (e.g., Boden et al., 2013a, 2013b; Gasper & Clore, 2000; B. Thompson et al., 2007). Inconsistent with our hypotheses, women reported higher levels of source clarity than did men, but with a very small effect. Although there was little association between gender and type clarity, which is consistent with our prediction, a lack of association cannot prove the null hypothesis. Future research would benefit from exploring the relations between gender and state and indirect measures of clarity (e.g., Lischetzke, Cuccodoro, Gauger, Todeschini, & Eid, 2005),

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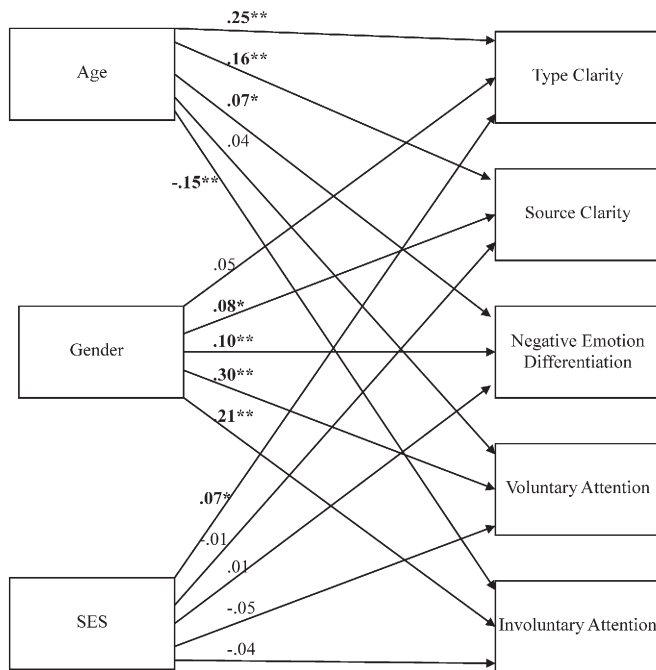


Fig. 1. Path analysis predicting emotional awareness facets (type clarity, source clarity, negative emotion differentiation, voluntary attention, and involuntary attention) from sociodemographic characteristics (age, gender (men = 0; women = 1), SES). All path coefficients are standardized. To avoid visual clutter, the following correlations are excluded from the figure: Age by Gender = .03, Age by SES = .10**, Gender by SES = -.03, Type Clarity by Source Clarity = .68**, Type Clarity by Negative Emotion Differentiation = .20**, Type Clarity by Voluntary Attention = .28**, Type Clarity by Involuntary Attention = -.21**, Source Clarity by Negative Emotion Differentiation = .24**, Source Clarity by Voluntary Attention = .28**, Source Clarity by Involuntary Attention = -.16**, Negative Emotion Differentiation by Voluntary Attention = .09**, Negative Emotion Differentiation by Involuntary Attention = -.06, Voluntary Attention by Involuntary Attention = .42**. * $p < .05$; ** $p < .01$.

¹ The majority of participants ($n > 900$) reported income and education. A subset of the participants ($n = 579$) also reported all three indicators of SES (income, education, and occupation). Therefore, we used the mean of the SES indicators provided by each participant (i.e., some SES scores were computed with the mean of two indicators, while the majority were computed with the mean of all three indicators). To examine whether including only income and education in the computation of SES would result in a different pattern of results, we conducted an additional path analysis. This path analysis resulted in estimates of similar magnitude with only one exception (age and involuntary attention). Further, the patterns of significance between variables was replicated with the exception of SES on type clarity, which became marginally significant ($p = .06$).

potentially using Bayesian analyses that are better suited to testing for the lack of relations between variables. Consistent with our hypotheses, women reported greater voluntary and involuntary attention than men. Future research is needed to directly investigate how stereotypes and socialization processes influence attention to emotions in men and women. For example, women might attend more to their emotions to navigate traditional, and thus, stereotyped gender roles. Indeed, from an early age women are expected to be more highly interpersonally cooperative and empathetic than men (Eisenberg, Cumberland, & Spinrad, 1998; Rose & Rudolph, 2006). These expectations might motivate women to attend to their emotions to successfully manage daily and longer-term tasks (e.g., Chaplin, Cole, & Zahn-Waxler, 2005).

Of the emotional awareness facets, SES was only associated with type clarity. It will be important to examine the developmental contributions to type clarity. For example, SES is positively related to the development of a larger vocabulary in childhood through differences in parental communication (e.g., Hoff, 2003; Sohr-Preston et al., 2013). If this general finding for vocabulary extends to emotional vocabulary—such that SES would be positively related to the development of a larger emotional vocabulary—then SES might contribute to type clarity and negative emotion differentiation. Because language can be considered a context within which the emotions of others can be perceived (e.g., Barrett, Lindquist, & Gendron, 2007), language could provide such a context for understanding one's emotions. Although adult SES is positively associated with childhood SES (e.g., Pollitt et al., 2007), a longitudinal study should test whether SES contributes to the development of type clarity and emotion differentiation. Future studies should examine SES and emotional awareness longitudinally in child samples.

The absence of relations between SES and the remaining facets could suggest a more complicated story. Some researchers posit that people with lower SES might be more strongly influenced by their external environments than people with higher SES (e.g., Kraus et al., 2010). The increased influence of the external environment might reduce the amount of attention allocated to their internal emotional experience, but also might facilitate less ambiguous identification of the potential sources of their emotions. In this case, lower SES would predict greater source clarity through a reduction in attention to emotion. Future prospective studies should test the interactions among emotional awareness facets and sociodemographic characteristics over time.

The current study has limitations that warrant discussion. First, approximately two-thirds of participants provided a free response for occupation. Although the inclusion and exclusion of occupation resulted in similar patterns of findings, our SES results should be interpreted with caution. Second, a longitudinal design would clarify the directionality of the associations between sociodemographic characteristics and emotional awareness and could examine how demographic characteristics contribute to developmental and socialization processes that influence emotional awareness. For example, research could assess whether as individual age, they develop greater type clarity, source clarity, and negative emotion differentiation to determine whether associations with age are development or cohort effects.

The current study identified a number of future directions that can further illuminate the sources, mechanisms, and downstream consequences of emotional awareness. Emotional awareness facets are differentially related to the use of specific emotion regulation strategies (Boden & Thompson, 2015). Extensive research demonstrates that gender is associated with differences in emotion regulation (e.g., Nolen-Hoeksema, 2012; Tamres, Janicki, & Helgeson, 2002). Gender differences in the use of rumination (e.g., Johnson & Whisman, 2013) might be related to individual differences in emotional awareness. For example, rumination involves inflexible attention (involuntary attention) directed toward the causes (source clarity) and consequences of one's negative emotions. Future research should examine how variation in age, gender, and SES reveals theoretically important differences in the relations among emotional awareness, emotion regulation, and

psychopathology. Our results demonstrate the importance of considering age, gender, and SES in examinations of emotional awareness.

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