

1 Running head: Society, Culture, and Mental Health

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3 Societal and Cultural Contributions to Adults' Self-Rated Mental Health Problems and

4 Strengths: 7 Culture Clusters, 28 Societies, 16,906 Adults

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Abstract

Background: It is unknown how much variation in adult mental health problems is associated with differences between societal/cultural groups, over and above differences between individuals.

Methods: To test these relative contributions, a consortium of indigenous researchers collected Adult Self-Report (ASR) ratings from 16,906 18- to 59-year-olds in 28 societies that represented 7 culture clusters identified in the Global Leadership and Organizational Behavioral Effectiveness study (e.g., Confucian, Anglo). The ASR is scored on 17 problem scales, plus a personal strengths scale. Hierarchical linear modeling estimated variance accounted for by individual differences (including measurement error), society, and culture cluster. Multi-level ANCOVAs tested age and gender effects.

Results: Across the 17 problem scales, the variance accounted for by individual differences ranged from 80.3% for DSM-Oriented Anxiety Problems to 95.2% for DSM-Oriented Avoidant Personality (mean = 90.7%); by society: 3.2% for DSM-Oriented Somatic Problems to 8.0% for DSM-Oriented Anxiety Problems (mean = 6.3%); and by culture cluster: 0.0% for DSM-Oriented Avoidant Personality to 11.6% for DSM-Oriented Anxiety Problems (mean = 3.0%). For strengths, individual differences accounted for 80.8% of variance, societal differences 10.5%, and cultural differences 8.7%. Age and gender had very small effects.

Conclusions: Overall, adults' self-ratings of mental health problems and strengths were associated much more with individual differences than societal/cultural differences, although this varied across scales. These findings support cross-cultural use of standardized measures to assess mental health problems, but urge caution in assessment of personal strengths.

134 **Keywords:** psychopathology, Adult Self-Report, syndromes, cross-cultural, international,
135 strengths

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138 It is assumed that variations in ratings of mental health problems reflect primarily
139 individual differences. But such variations may also reflect societal and cultural differences. The
140 relevant questions are: *How much variation is due to societal and cultural differences?* and *Does*
141 *the respective variation due to societal and cultural differences vary among different conditions?*
142 If the variations are largely due to societal and cultural differences, then a particular instrument
143 may be less useful for individual treatment planning within particular societies/cultures as the
144 instrument is not sensitive to individual differences within that society or culture. Arthur
145 Kleinman described this concern over forty years ago (Kleinman, 1977). He questioned research
146 that uncritically exported mental health instruments from one society or culture to another. This
147 question highlights the contrast between *emic* approaches that focus on characteristics of a given
148 culture versus *etic* approaches that focus on more universal aspects of cultures (Pike, 1967). This
149 tension spurred the rise of transcultural psychiatry, the landmark 2001 WHO Report on Mental
150 Health, and the burgeoning field of global mental health (Prince et al., 2007; World Health
151 Organization, 2001).

152 It is now clear that certain mental disorders affect people across all regions of the world
153 (Steel et al., 2014; WHO World Mental Health Survey Consortium, 2004). Even so, the construct
154 of mental disorder itself is evolving. The Lancet Commission on Global Mental health recently
155 admitted that “the binary approach to the diagnosis of mental disorder . . . does not adequately
156 reflect the dimensional nature of mental health.”⁴ (Patel et al., 2018) Mental health, like
157 physical health, exists on a continuum from mild, time-limited symptoms to severe, chronic
158 debilitating conditions. To study the role of culture in mental health problems, one needs
159 standardized measures that cover a broad continuum of human behavior and have been adopted
160 and studied across many societies.

161 One measure that meets these criteria is the Adult Self-Report (ASR) (Achenbach &
162 Rescorla, 2003). The ASR is a 15-20 minute questionnaire for ages 18-59 that assesses
163 dimensions of behavioral, emotional, social, and thought problems, and personal strengths. It has
164 been adopted widely and used in over 250 published studies. It has also been adapted for use
165 across many societies. First, each non-English version of the ASR is the result of a process in
166 which indigenous researchers make a translation of the ASR in their language and then obtain an
167 independent back-translations to insure the accuracy of the initial translation (Achenbach &
168 Rescorla, 2015). Next, confirmatory factor analysis has been used to test whether the ASR
169 syndrome structure was supported across 29 societies (Ivanova et al., 2015). The primary model
170 fit index (Root Mean Square Error of Approximation) showed good model fit for all samples
171 (<0.03) and good to acceptable fit for secondary indices (e.g., CFI, TLI). Only 5 (0.06%) of the
172 8,598 estimated parameters were outside the admissible parameter space. These findings support
173 similarities in the factor structure and factor loadings across societies. Additional analyses tested
174 similarities in the mean ratings of individual ASR items and scale scores (Rescorla et al., 2016).
175 As indicated by a mean correlation of 0.77 between the mean ratings of items for all pairs of
176 societies, the rank order of item ratings was similar across societies. The mean scale scores of the
177 scales themselves do vary across societies in a manner consistent with a normal distribution.
178 Together, these findings support the ASR as a useful tool for dimensional assessment of mental
179 health problems in diverse societies. It also provides a way to test effects of societal and cultural
180 difference on adults' self-ratings.

181 We use "society" in reference to geopolitically demarcated populations that include but
182 are not limited to countries. "Culture" is defined as an accumulated set of beliefs, values, and
183 social norms which impact the behavior of a relatively large group of people (Lustig, Koester, &

184 Halualani, 2006). The Global Leadership and Organizational Behavior Effectiveness study
185 (GLOBE) mapped cultures by analyzing responses by 17,000 participants in 62 societies to
186 questionnaires on cultural dimensions proposed by Hofstede including assertiveness, gender
187 egalitarianism, collectivism, and future orientation (Hofstede, 1984; House, Hanges, Javidan,
188 Dorfman, & Gupta, 2004). Ten distinct “culture clusters” were derived from these dimensions
189 (e.g., Confucian, Anglo, Latin America, Eastern Europe, Sub-Saharan Africa).

190 Stankov (2011) applied the GLOBE findings to test the effects of individual societies,
191 GLOBE-defined culture clusters, and individual differences on personality measures completed
192 by college students in 45 societies. For Neuroticism, the personality trait most relevant to mental
193 health, individual differences accounted for 95.3% of the variance, societal differences 2.0%, and
194 culture cluster differences 2.7%. The societal findings for personality are similar to those
195 obtained in another study of 130,602 adults in 22 societies (Kajonius & Mac Giolla, 2017). A
196 similar analytic approach was applied in two studies of ASR-related measures of child/youth
197 mental health problems. For 11-18 year-olds’ self-ratings, individual differences accounted for
198 92.5% of variance across 17 problem scales, societal differences 6.0%, and cultural differences
199 only 1.5%, indicating modest effects of society and culture (Ivanova et al., 2022). For 6-18 year-
200 olds rated by their parents, individual differences accounted for 90% of the variance across
201 problem scales, societal differences 6%, and cultural differences 4% (Rescorla, Althoff, Ivanova,
202 & Achenbach, 2019).

203 **Purpose of the Present Study**

204 In 28 societies representing 7 GLOBE culture clusters, we tested whether society and
205 culture cluster would account for significant variance in adults’ self-rated mental health problems
206 and personal strengths, over and above individual differences. Prior research on 11-18- and 6-18-

207 year-olds suggest modest effects of society and culture. But adults have had much longer
208 exposure to the norms and influences of their society and culture than children and youths. To
209 further examine the effects of society and culture cluster on self-rated mental health problems
210 and strengths, we tested society and gender as predictors in one multi-level model and culture
211 cluster and gender in a second multi-level model.

212 **Method**

213 **Samples**

214 Indigenous researchers independently arranged to have ASRs completed by 16,906 18- to
215 59-year-olds in the 28 societies listed in **Table 1**. These samples were pooled as part of an
216 international consortium of mental health researchers. Samples averaged 42% male, and *N*s
217 ranged from 293 (Egypt) to 2,020 (US). As shown in Table 1, rigorous random sampling
218 methods were used in some societies, resulting in representative population samples. However,
219 in other societies, various methods of convenience sampling were necessary, resulting in samples
220 of unknown representativeness. Follow up analyses tested models in 15 representative samples.
221 Additional details of individual studies are available from cited references and/or listed primary
222 investigators.

223 Using the GLOBE culture cluster taxonomy (House et al., 2004), we classified the 28
224 societies into the following 7 culture clusters: Anglo (*N* = 2362, 2 societies); Confucian Asia (*N*
225 = 3182, 5 societies); Eastern Europe (*N* = 4475, 9 societies); Latin America (*N* = 2094, 4
226 societies); Latin Europe (*N* = 2094, 4 societies); Middle East (*N* = 676, 2 societies); and Sub-
227 Saharan Africa (*N* = 826, 2 societies) (see Table 1). Following the standard ASR procedure,
228 cases that were missing ratings for > 8 problem items were excluded from the analyses.
229 Indigenous researchers followed their institutions' procedures for protection of human

230 participants including obtaining informed consent. The lead authors' university human
231 participants board approved the overall project. All data were de-identified.

232 **Instrument and Tested Model**

233 Indigenous mental health workers conducted translations of the ASR to their language
234 and then obtained independent back-translations to insure the accuracy of the initial translation.
235 The ASR's 120 problem items are rated 0 = *not true*, 1 = *somewhat or sometimes true*, or 2 =
236 *very true or often true*, based on the preceding 6 months. These items tap diverse emotional,
237 behavioral, social, and thought problems, such as *I worry about my family*; *I am stubborn, sullen,*
238 *or irritable*; *I argue a lot*; and *I have thoughts that other people would think are strange*. The 11
239 Personal Strengths items (e.g., *I make good use of my opportunities*; *I work up to my ability*; *I*
240 *am pretty honest*; *I meet my responsibilities to my family*; *I try to be fair to others*; and *I am a*
241 *happy person*) are rated on the same 0–1–2 scale with high ratings indicating positive
242 characteristics.

243 Our analyses focused on 17 ASR problem scales and one personal strengths scale. The
244 scales included eight syndromes derived from exploratory and confirmatory factor analyses of
245 ratings by adults in US population and clinical samples (Achenbach & Rescorla, 2003a). The
246 syndromes are *Anxious/Depressed*, *Withdrawn*, *Somatic Complaints*, *Thought Problems*,
247 *Attention Problems*, *Rule-Breaking Behavior*, *Aggressive Behavior*, and *Intrusive Behavior*. We
248 also analyzed three broad-spectrum scales: *Total Problems* (comprised of all problem items);
249 *Internalizing* (*Anxious/Depressed*, *Withdrawn/Depressed*, and *Somatic Complaints* syndrome
250 items); and *Externalizing* (*Rule-Breaking Behavior*, *Aggressive Behavior*, and *Intrusive*
251 *syndrome* items). Six DSM-Oriented scales comprise ASR problem items identified by an
252 international panel of experts as being very consistent with particular DSM-5 diagnostic

253 categories (Achenbach, 2013; Achenbach, Bernstein, & Dumenci, 2005). The DSM-Oriented
254 scales are designated as *Depressive Problems*, *Anxiety Problems*, *Somatic Problems*, *Avoidant*
255 *Personality*, *AD/H Problems*, and *Antisocial Personality*. Adults' ratings of strengths items
256 comprise an 11-item Personal Strengths scale.

257 For Japan, items assessing illegal behavior (*6. I use drugs (other than alcohol and*
258 *nicotine) for nonmedical purposes; 57. I physically attack people; 82. I steal; and 92. I do things*
259 *that may cause me trouble with the law*) were omitted from the ASR because their endorsement
260 by respondents would have legally obligated the investigators to report them to authorities. To
261 account for these excluded items, we re-wrote our scale-scoring syntax from simply taking the
262 sum of items comprising each scale to, instead, taking the mean of the items comprising each
263 scale (when there were valid responses available for at least 50% of such items) and multiplied
264 that value times the total number of items comprising the scale.

265 Based on US data, Achenbach and Rescorla (Achenbach & Rescorla, 2003a) reported
266 alphas of .89 to .97 for the Internalizing, Externalizing, and Total Problem scales, .51 to .88 for
267 the syndromes, and .68 to .84 for the DSM-Oriented scales. The ASR's 1-week test-retest
268 correlations were .89 to .94 for the broad-band scales, .78 to .91 for the syndromes, and .77 to .86
269 for the DSM-Oriented scales. ASR items and scales discriminated significantly between
270 demographically similar clinically referred and nonreferred samples of US adults. Additional
271 ASR findings across societies are reported by (Achenbach & Rescorla, 2015; Ivanova et al.,
272 2015; Rescorla et al., 2016).

273 **Analyses**

274 The effects of individual, society, and culture cluster contributions to differences on ASR
275 scales were tested with hierarchical linear modeling (HLM) estimated using PROC MIXED in

276 SAS 9.4.(SAS Institute, 2013). Mental health problem scores are positively skewed in general
277 population samples (where many people obtain relatively low scores), but HLM has been found
278 robust to deviations from normality, especially for large samples (Ketelsen, 2014; Man,
279 Schumacker, Morell, & Wang, 2022; Schielzeth et al., 2020). Each ASR scale was tested
280 separately in a multilevel model. Individual differences (i.e., differences between individuals
281 within a society) and unspecified effects (i.e., measurement error) were entered at Level 1.
282 Societal differences were entered at Level 2. Culture cluster differences were entered at Level 3.
283 All multilevel models included intercepts and used the Restricted Maximum Likelihood
284 estimator that provides more robust results. The percent of variance due to predictors at each
285 level was calculated as the ratio of the respective level-specific variance component over total
286 variance. First, we tested the Null model in which no predictors were entered at Level 1, and
287 society and culture cluster were modeled as random effects at Levels 2 and 3. In addition to the
288 random effects model, all results were retested in fixed effects models. For a small number of
289 clusters, the fixed effects model can be more robust than the random effects model that assumes
290 normality in cluster-specific random intercepts (McNeish & Kelley, 2019). Next, we added age
291 and gender as fixed effects at Level 1 and reran the model for each ASR scale. Finally, we tested
292 whether the economic status of societies was a stronger predictor of ASR scale scores than
293 culture cluster. To do this, models were rerun with World Bank income group classification of
294 societies based on Purchasing Power Parity (PPP) included as a Level 2 variable (World Bank,
295 2020).

296 To better understand how society and culture cluster interacted with age and gender in
297 their relations to ASR scores, we used ANOVAs to test associations of Internalizing,

298 Externalizing, and Total Problem scores with society (28 societies) and culture cluster (7
299 clusters), plus age, gender, and all possible interactions.

300

Results

301 **Figure 1** presents Internalizing and Externalizing scores by culture cluster. The 7 clusters
302 are arranged in ascending order for mean Internalizing Problems score. Significant differences
303 were observed between most culture clusters for both Internalizing and Externalizing Problems
304 using Student–Newman–Keuls (SNK) post hoc tests. For Internalizing, there was only
305 exception. The following clusters that did not differ significantly from each other: Sub-Saharan
306 Africa and Middle East. For Externalizing, exceptions were Eastern Europe and Latin America;
307 Latin America and Sub-Saharan Africa; and Anglo and Confucian. The rank-ordering of culture
308 cluster for Externalizing differed from the rank-ordering for Internalizing.

309 **Table 2** presents the variance components estimated for the multilevel Null model for
310 individual differences (Level 1), societies (Level 2), and culture cluster (Level 3). Averaged
311 across the 17 problem scales (i.e. all scales except Personal Strengths), the percent of variance
312 accounted for by individual differences was 90.7%, by society was 6.3%, and by culture cluster
313 was 3.0%. Results based on fixed-effects models (which are less constrained with a small
314 number of clusters) were similar for problem scales and can be found in Table S1.

315 For specific problem scales, the variance accounted for by individual differences ranged
316 from 80.3% for DSM-Oriented Anxiety Problems to 95.2% for DSM-Oriented Avoidant
317 Personality; by society: 3.2% for DSM-Oriented Somatic Problems to 8.0% for DSM-Oriented
318 Anxiety Problems; and by culture cluster: 0.0% for DSM-Oriented Avoidant Personality to
319 11.6% for DSM-Oriented Anxiety Problems. Individual differences explained most of the
320 variance in scores for problem scales, while society explained most of the remaining variance.

321 The variance accounted for by individual differences (80.8%) in Personal Strengths was
322 substantially smaller than for the 17 problem scales (90.7%). Hence, the variance accounted for
323 by society (10.5%) and by culture cluster (8.7%) was greater for Personal Strengths than for
324 society and culture cluster averaged across the problem scales (6.3% and 3.0%, respectively). In
325 the fixed effects models, the variance accounted for by culture cluster for Personal Strengths was
326 greater still at 15.9%. **Figure 2** displays all ASR scales ranked from lowest to highest for total
327 variance accounted for by society and culture cluster in random effects models. The total
328 variance accounted for by society and culture cluster ranged from close to 5% for DSM Avoidant
329 Personality to near 20% for Personal Strengths and DSM Anxiety. When all models were
330 retested only including 15 representative samples, the results were similar to findings in Tables 2
331 and S1.

332 The multilevel models were rerun with age and gender as fixed effects at the individual
333 level. Their addition did not significantly change the variance components for individual
334 differences, society, or culture cluster for any scale. We then added the World Bank's PPP Index
335 as a level 2 variable. In these models, individual differences accounted for 93.2% of the variance,
336 society for 3.7%, culture for 2.1% and the World Bank PPP Index for 1.0%, averaged across 17
337 problem scales (see **Table S2**). These findings confirm that most of the variance in ASR problem
338 scale scores was associated with individual differences. For personal strengths, individual
339 differences accounted for 75.8% of the variance, society for 7.2%, Culture for 15.5% and the
340 World Bank PPP Index for 1.4%.

341 **Table 3** presents the variance components from ANOVAs of Internalizing, Externalizing,
342 and Total Problems scales. Predictors were society (28 societies) or culture cluster (7 clusters),
343 plus age, gender, and all possible interactions. Results of ANOVAs for Internalizing,

344 Externalizing, and Total Problems scores indicated that effects of society (7.5%, 5.8%, and 7.4%,
345 respectively) were larger than effects of culture cluster (2.9%, 1.7%, and 2.8%, respectively). In
346 terms of main effects, age had larger effects on Externalizing and Total Problems than on
347 Internalizing Problems (~5.1% vs. 1.8%), whereas gender had larger effects on Internalizing
348 Problems than on Externalizing and Total Problems (~1.8% vs. 0.2%). All of the 24 effects
349 involving age and gender interactions were $\leq 1\%$.

350 **Discussion**

351 Our goal was to conduct the broadest test to date of the effects of society and culture on
352 differences in adults' self-rated mental health problems and strengths. Several findings are
353 noteworthy. First, most of the variance in adult problem ratings (~90%) was associated with
354 individual differences. Of the remaining variance, society accounted for, on average, double the
355 variance of culture cluster. These estimates, however, varied across constructs: Society and
356 culture accounted for only 5% of the variance in DSM Avoidant Personality but up to 20% of the
357 variance in DSM Anxiety Problems. The effects of society and culture on the Personal Strengths
358 scale were twice as large as for the problem scales. Overall, the effects of society and culture on
359 adults' self-rated problems were small to moderate, but they varied broadly--from small to large--
360 -across the different scales (Cohen, 1988).

361 We know of no other studies that have tested the effects of societal and cultural effects on
362 adults' self-ratings of mental health problems. We know of one such study of parent ratings of
363 children (Rescorla et al., 2019) and one of youth self-ratings (Ivanova et al., 2022). The results
364 converge in three ways. Firstly, all three studies found that about 90% of the variance in problem
365 scale scores was associated with individual differences (parent-ratings: 92.5%; youth self-
366 ratings: 89.8%; adult self-ratings: 90.6%). This is striking given that the two child/youth studies

367 included societies and culture clusters not included here. Next, society generally accounted for
368 more of the variance in ratings of mental health problems than culture in all three studies (parent-
369 report: 6.1% vs. 4.2%; youth self-report: 6.0% vs. 1.5%; adult self-report: 6.3% vs. 3.0%).
370 Finally, there were similarities in the rank ordering of results for the individual mental health
371 scales. The DSM Anxiety scale showed the largest combined effects of society and culture in
372 both the adult and the youth self-rating studies (it was 3rd in the child parent-rating study). Also,
373 both the youth study and our study supported larger societal and cultural contributions to
374 Personal Strengths (16.6% in youth self-ratings and 19.2% in adult self-ratings) than to problem
375 scales.

376 Why did society and culture account for *twice as much* of the variance in ratings of
377 strengths as in mental health problems? A similar discrepancy was observed by Stankov (2011).
378 There, societal and cultural effects on personality scales were smaller than on social attitude and
379 norm scales. Stronger societal/cultural effects on social constructs than on personality scales
380 might be expected. The ASR and YSR strengths scales, however, do not assess social constructs
381 but rather self-ratings of strengths (e.g., *I make good use of my opportunities, I work up to my*
382 *ability, I am pretty honest*). Our notions of strengths may reflect values that are shared or defined
383 within different societal and cultural groups. Our notions of mental health problems, by contrast,
384 may be more universal because of how these problems impair functioning and cause distress.
385 Self-ratings of strengths may also be more affected by social desirability, but it is not clear why
386 this would be the case. Future research should attempt to clarify why the effects of society and
387 culture on self-ratings of strengths were larger than on self-ratings of problems. In any case, the
388 findings for personal strengths suggest caution in comparing personal strengths across societies
389 and cultures.

390 *Limitations*

391 Our study’s strengths included: 1) Use of a standardized mental health measure that has
392 been adopted and tested extensively across many societies; and 2) Data from 16,906 adults
393 across 28 societies that represent 7 culture clusters. There are also limitations to consider. Our
394 samples were collected under varying conditions in diverse societies by indigenous researchers.
395 Some of our samples were of unknown representativeness because they were obtained using
396 convenience rather than random sampling methods. Second, our findings are limited to the
397 specific problems and strengths assessed by the ASR. Many societies and cultural groups were
398 not included in the study. The inclusion of additional societies and cultures might yield different
399 results. Also, other ways of classifying cultures might yield different results. In HLM analyses,
400 effects associated with individual differences included residual variance. The residual variance
401 may be due to other variables such as the adult’s family, work, or local community. Third, our
402 work has previously demonstrated similarity in factor structure and factor loadings, but did not
403 formally test other aspects of measurement invariance. Finally, “society” and “culture” may be
404 associated with genetic differences, as well as with socio-cultural demarcations of populations.

405 *Conclusion*

406 Over the past 30 years, the study of mental health problems has been extended to many
407 societies around the world (Prince et al., 2007; World Health Organization, 2001). In this time,
408 the global health burden for mental health conditions has increased (Vos et al., 2020). The unmet
409 need for mental health treatment around the world is large and, sadly, growing. Despite the
410 myriad difference between societies and cultures with respect to geographic location,
411 political/economic systems, history, population, ethnicity/race, and religion, the mental health
412 conditions identified and studied across societies and cultures appear rather similar even if there

413 are differences in the mean levels of those conditions. In previous work, our international
414 consortium has obtained large alpha levels for ASR scales and a good fit for the syndrome
415 structure across societies. The current study suggests that societal and cultural effects on problem
416 scores are modest. Together, our findings suggest that cross-cultural use of standardized
417 measures like the ASR to assess individual mental health problems is warranted but suggest
418 more caution regarding personal strengths.

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Table 1. ASR samples

| Society | Reference | <i>N</i> | Age Range | Mean Age (SD) ^c | % Male | Sample |
|--------------------------|---|----------|-----------|--|--------|--|
| Sub-Saharan Africa (826) | | | | | | |
| 1. Angola | Caldas (2012a) ^b | 399 | 18-59 | 18-25: 43% 26-39: 34% 40-49: 12% 50-59: 11% | 63 | Community sample. |
| 2. Kenya | Harder & Ndetei (2013) ^b | 427 | 18-59 | 38.9 (8.5) | 40 | Regional sample of parents of school-aged children, with children's names randomly drawn from class rosters. |
| Anglo (2,363) | | | | | | |
| 3. UK | Talcott, Nakubulwa, Virk, (2012) ^b | 343 | 18-59 | 34.0 (12.5) | 35 | Community sample. |
| 4. US | Achenbach and Rescorla (2003) | 2020 | 18-59 | 39.1 (12.0) | 41 | Recruited by stratified random sampling via households in 40 states using national statistics/census information; participants interviewed at home; representative sample stratified by age, gender, and |

| | | | | | | |
|-------------------------------|--------------------------------|-------|-------|-------------|----|--|
| | | | | | | urban-suburban-rural residence to be representative of the U.S. population. |
| Confucian Asia (3,182) | | | | | | |
| 5. China | Liu (2012) ^b | 558 | 18-59 | 33.1 (9.6) | 38 | Community sample drawn from regions of mainland China. |
| 6. Hong Kong | Au & Leung (2012) ^b | 324 | 18-59 | 29.4 (12.7) | 39 | Community sample stratified by age and gender to be representative of the Hong Kong population. |
| 7. Japan ^a | Funabiki (2012) ^b | 1,000 | 18-59 | 38.2 (10.7) | 47 | Community sample recruited by a research company. |
| 8. Korea ^a (South) | Kim, Kim, & Oh (2009) | 1,000 | 18-59 | 37.9 (9.8) | 51 | Representative national sample, randomly drawn from the national registry, with stratification by age, gender, and educational attainment. |
| 9. Taiwan | Chen (2012) ^b | 300 | 18-59 | 37.0 (11.9) | 50 | Community sample stratified by region, gender, and age to be representative of the national population. |

| | | | | | | |
|--------------------------|---|-----|-------|-------------|----|---|
| Eastern Europe (4475) | | | | | | |
| 10. Albania | Sokoli et al. (2016) | 750 | 18-59 | 37.3 (12.8) | 50 | Nationally representative. |
| 11. Czech Republic | Csemy (2012) ^b | 588 | 18-59 | 37.8 (12.4) | 51 | Community sample stratified by region, age, gender, and educational attainment to be representative of the national population. |
| 12. Kosovo | Shahini & Ahmeti-Pronaj (2012) ^b | 571 | 18-59 | 30.6 (10.5) | 40 | Community sample. |
| 13. Latvia | Sebre (2012) ^b | 302 | 18-59 | 33.9 (12.7) | 43 | Community sample stratified by age, gender, educational attainment, and region to be representative of the national population. |
| 14. Lithuania | Šimulionienė et al. (2010) | 573 | 18-59 | 35.3 (11.1) | 48 | Representative national sample randomly drawn from the national registry, with stratification by gender, age, and educational attainment. |
| 15. Poland | Zasepa & Wolanczyk (2011) | 310 | 18-59 | 36.7 (11.9) | 37 | Community sample stratified by age, gender, residence, and |

| | | | | | | |
|-------------------------|--|-----|-------|-------------|----|--|
| | | | | | | educational attainment to be representative of the national population. |
| 16. Romania | Dobrean (2011) ^b | 638 | 20-56 | 24.2 (6.1) | 15 | University students. |
| 17. Russia | Malykh (2012) ^b | 429 | 18-55 | 20.6 (4.3) | 33 | University students. |
| 18. Serbia | Markovic (2012) ^b | 314 | 18-59 | 35.7 (10.6) | 42 | Representative sample of the Novi Sad metropolitan area randomly drawn from the population registry, with stratification by age. |
| Latin America (2094) | | | | | | |
| 19. Argentina | Samaniego & Vázquez (2012) | 679 | 18-59 | 35.7 (12.0) | 48 | Community sample stratified by level of educational attainment to be representative of the greater Buenos Aires area. |
| 20. Brazil | Silvares & da Rocha (2012) ^b | 813 | 18-59 | 34.5 (11.7) | 41 | Community sample stratified by region, age, gender, and socioeconomic status to be representative of the national population. |

| | | | | | | |
|---------------------|---|-------|-------|-------------|----|---|
| 21. Chile | Lecannelier (2013) ^b | 294 | 18-58 | 25.0 (10.1) | 34 | Community sample from 2 Chilean cities. |
| 22. Mexico | Leiner de la Cabada & Avila Maese (2013) ^b | 308 | 18-59 | 27.3 (9.8) | 59 | Community sample. |
| Latin Europe (3290) | | | | | | |
| 23. France | Mahr et al. (2018) | 1,238 | 18-59 | 24.5 (7.4) | 29 | University students. |
| 24. Italy | Bellina (2012) ^b | 519 | 18-59 | 38.0 (12.4) | 46 | Representative sample of the Lecco province randomly drawn from the electoral roll. |
| 25. Portugal | Caldas (2012b) ^b | 397 | 18-59 | 35.4(12.0) | 49 | Community sample stratified by age and gender to be representative of the national population. |
| 26. Spain | Ezpeleta et al. (2014) | 1,136 | 18-58 | 37.6(5.3) | 48 | Community sample of parents of preschoolers in the greater Barcelona metropolitan area randomly drawn from the registry of parents of preschoolers. |
| Middle East (676) | | | | | | |
| 27. Egypt | Riad (2012) ^b | 293 | 18-59 | 25.7(8.2) | 29 | Community sample. |

| | | | | | | |
|------------|-----------------------------|-----|-------|-----------|----|-------------------|
| 28. Turkey | Sakarya (2012) ^b | 383 | 18-58 | 25.6(8.2) | 24 | Community sample. |
|------------|-----------------------------|-----|-------|-----------|----|-------------------|

Note. ^aThe identical sample sizes for Japan and Korea are coincidental, not errors. ^bUnpublished data. ^cOnly age ranges were available for Angola.

| Table 2. Percent of variance accounted for by individual, society, and GLOBE culture cluster effects in hierarchical linear models of adult self-ratings on the ASR | | | |
|---|------------------------|---------|-----------------|
| ASR scale | Individual differences | Society | Culture cluster |
| Broad-spectrum scales | | | |
| Internalizing Problems | 89.7 | 6.2 | 4.1 |
| Externalizing Problems | 91.1 | 7.1 | 1.8 |
| Total Problems | 88.4 | 7.8 | 3.9 |
| Syndromes | | | |
| Anxious/Depressed | 91.9 | 6.6 | 1.5 |
| Withdrawn | 88.6 | 6.2 | 5.1 |
| Somatic Complaints | 92.3 | 4.1 | 3.6 |
| Thought Problems | 87.6 | 10.1 | 2.3 |
| Attention Problems | 93.1 | 6.3 | 0.6 |
| Rule-breaking Behavior | 92.6 | 5.9 | 1.5 |
| Aggressive Behavior | 92.2 | 6.0 | 1.8 |
| Intrusive Behavior | 90.4 | 7.9 | 1.6 |
| DSM-Oriented scales | | | |
| Depressive Problems | 93.8 | 4.1 | 2.1 |
| Anxiety Problems | 80.4 | 8.0 | 11.6 |
| Somatic Problems | 91.1 | 3.2 | 5.6 |
| Avoidant Personality | 95.2 | 4.8 | 0.0 |
| AD/H Problems | 91.9 | 5.4 | 2.7 |
| Antisocial Personality | 91.3 | 7.2 | 1.5 |
| Averaged Across Problem scales | 90.7 | 6.3 | 3.0 |
| | | | |
| Personal Strengths | 80.8 | 10.5 | 8.7 |

All effects of individual differences and society were significant ($p < .001$). Effects of culture cluster did not reach the $p < .05$ level of significance.

| Table 3 Percent of variance accounted for by individual and society or GLOBE culture cluster in ANOVAs of ASR Internalizing, Externalizing, and Total Problems scores | | | |
|---|------------------|------------------|-------------------|
| Predictor | Internalizing | Externalizing | Total Problems |
| Age | 1.8 ^a | 5.2 ^a | 5.1 ^a |
| Gender | 1.7 ^a | 0.1 ^a | 0.3 ^a |
| Society | 7.5 ^a | 5.8 ^a | 7.4 ^a |
| Age*Gender | 0.1 ^a | 0.01 | 0.04 ^a |
| Age*Society | 0.9 ^a | 0.6 ^a | 0.9 ^b |
| Gender*Society | 0.3 ^a | 0.4 ^a | 0.2 ^b |
| Age*Gender*Society | 0.2 | 0.2 | 0.2 |
| | | | |
| Age | 1.8 ^a | 5.3 ^a | 5.1 ^a |
| Gender | 1.7 ^a | 0.1 ^a | 0.3 ^a |
| Culture Cluster | 2.9 ^a | 1.7 ^a | 2.8 ^a |
| Age*Gender | 0.1 ^a | 0.01 | 0.04 ^c |
| Age* Culture Cluster | 0.5 ^a | 0.3 ^a | 0.4 ^a |
| Gender* Culture Cluster | 0.1 ^a | 0.1 ^c | 0.06 |
| Age*Gender* Culture Cluster | 0.04 | 0.03 | 0.03 |

^ap < .0001; ^bp < .01; ^cp < .05.

