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2 **‘Individualism-Collectivism’ as an Explanatory Device for Mental**  
3 **Illness Stigma**

4 **Chris Papadopoulos · John Foster ·**  
5 **Kay Caldwell**

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9 cross-cultural value paradigm ‘individualism-collectivism’  
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12 questionnaire survey of 305 individuals from four UK-based  
13 cultural groups (white-English, American, Greek/Greek  
14 Cypriot, and Chinese) was carried out. The questionnaire  
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19 lectivism effectively explains these attitudes. In contrast, the  
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21 likely individualism effectively explains attitudes. We con-  
22 clude that a consideration of the individualism-collectivism  
23 paradigm should be included in any future research aiming to  
24 provide a holistic understanding of the causes of mental ill-  
25 ness stigma, particularly when the cultures stigmatization  
26 levels are particularly high or low.

27  
28 **Keywords** Stigma · Mental illness · Attitudes ·  
29 Individualism · Collectivism · Culture

**Introduction**

30  
31 Understanding the issues of mental illness stigma is  
32 important for prevention, early detection and community  
33 treatment of psychiatric disorders (Corrigan et al. 2005;  
34 Thornicroft et al. 2008; Thornicroft et al. 2008). The World  
35 Health Organisation highlights the damage resulting from  
36 stigma, stating that those being stigmatised can experience  
37 loss of self-esteem, disruptions in their family relation-  
38 ships, and are consequently limited in their ability to  
39 socialize, obtaining housing and employment. They also  
40 highlight that stigma can hamper the prevention of mental  
41 health disorders, the promotion of mental well-being and  
42 the provision of effective treatment and care (WHO 2011).  
43 Stigma can have significant negative repercussions on not  
44 only those people with the mental health problem, but also  
45 their family members and friends, and mental health pro-  
46 vider groups (Corrigan et al. 2005). More specifically, it  
47 can deter people from seeking help (Thornicroft 2007),  
48 which can delay treatment and lead to social isolation and  
49 loneliness—consequences which can exacerbate problems  
50 (Link et al. 1997; Thornicroft et al. 2009) and hamper  
51 rehabilitation (Link et al. 1997; Ritscher and Phelan 2004;  
52 Link et al. 2001). Stigma has also been shown to reduce  
53 employment and education opportunities (Link et al. 1997;  
54 Thornicroft et al. 2009), result in poorer physical health-  
55 care, suicidality, and higher mortality rates (Thornicroft  
56 et al. 2007). Furthermore, stigma has been identified by  
57 mental health services users as a key reason towards sui-  
58 cide attempts (Eagles et al. 2003), and as potentially more  
59 disabling than the mental illness itself (Finzen 1996).

60 A range of explanatory factors have been proposed for  
61 why people stigmatise mental illness. These have included  
62 being older (Morano and DeForge 2004; Adewuya  
63 and Makanjuola 2008; Webb et al. 2009), being younger

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64 (Crisp et al. 2005; Al-Krenawi et al. 2004), having a lower  
 65 level of education (Lauber et al. 2004; Crisp et al. 2005),  
 66 being from lower social classes (Crisp et al. 2005; Dyduch  
 67 and Grzywa 2009; Yoshii et al. 2011; Brockington et al.  
 68 1993; Heller et al. 1980; Whatley 1959), being male  
 69 (Crisp et al. 2005; Dyduch and Grzywa 2009), having  
 70 fewer mental health services available in the local area  
 71 (Al-Krenawi et al. 2004), and low levels of individual  
 72 contact and experience with mental illness (Crisp et al.  
 73 2005; Addison and Thorpe 2004; Ng and Chan 2000;  
 74 Pettigrew and Tropp 2006; Roman and Floyd 1981; Wolff  
 75 et al. 1996a, b; Yang 1989). It has also been highlighted  
 76 that certain cultures are more likely to stigmatise mental  
 77 health problems than others. For example, it has previously  
 78 been revealed that Greek/Greek-Cypriot UK migrants hold  
 79 significantly higher levels of stigmatising attitudes than  
 80 white-English UK born people on measures of authoritarianism  
 81 and social restrictiveness (Papadopoulos et al.  
 82 2002). Furthermore, UK non-Caucasians have been shown  
 83 to much more likely to object to an educational campaign  
 84 about mental illness than Caucasians (Wolff et al. 1996a, b,  
 85 c), as well as less favourable attitudes towards the mentally  
 86 ill (Bhugra 1989). Anglin et al. (2006) collected nationally  
 87 representative samples of African Americans and Cauca-  
 88 sian Americans and found that the former were significantly  
 89 more likely than the latter to believe that people suffering  
 90 from schizophrenia or major depression would do some-  
 91 thing violent to other people. This difference remained even  
 92 after controlling for age, political views, family income,  
 93 education, and religion. Whaley (1997) has conducted the  
 94 only other nationally representative study of cross-cultural  
 95 stigma differences. This study revealed that the Asian-  
 96 Pacific Islander, African-American, and Hispanic respon-  
 97 dents viewed people with mental illness as significantly  
 98 more dangerous than Caucasian respondents. This finding  
 99 remained significant for the African-American group even  
 100 after controlling for a range of factors, including the level of  
 101 contact with persons who had mental illness. Further sup-  
 102 port for cross-cultural stigma differences have been also  
 103 revealed by a recent literature review of quantitative and  
 104 qualitative studies which have examined mental illness  
 105 stigma and ethnocultural beliefs (Abdullah and Brown  
 106 2011). Specifically, their findings showed that Asian and  
 107 African Americans cultural groups hold comparatively  
 108 stronger stigmatising beliefs than other American cultural  
 109 groups (particularly Americans of European descent).  
 110 Cross-cultural variation of mental illness stigmatisation has  
 111 also been documented by Al-Krenawi et al. (2009) who  
 112 found that stigma levels significantly varied between  
 113 Palestinian, Kuwaitis, Israeli Arabs, and Egyptians national  
 114 student samples.

115 Researchers have yet to be able to adequately explain  
 116 why mental illness stigma levels vary across cultural

117 groups. The aforementioned studies, several of which are  
 118 highly methodologically rigorous, have confirmed that  
 119 cross-cultural stigma variation remains even after control-  
 120 ling for a range of socio-demographic variables. Therefore,  
 121 it seems necessary to try to establish why and how cultural  
 122 variation mediates mental illness stigma. One of the most  
 123 widely used frameworks for characterizing cross-cultural  
 124 differences (and similarities) is the ‘individualism-col-  
 125 lectivism’ value paradigm. This framework pertains to how  
 126 individuals define themselves and their relationships with  
 127 others (Brewer and Chen 2007) and reflects Hofstede’s  
 128 (1980) conceptualisation of culture: “the collective pro-  
 129 gramming of the mind which distinguishes the members of  
 130 one group from another” (p. 21). The framework has been  
 131 criticised as being overly encompassing of all forms of  
 132 cultural differences, as well as a frequent post hoc expla-  
 133 nation of observed differences across cultures (e.g. Bond  
 134 2002; Berry et al. 2011). However, authors of recent  
 135 reviews agree that the constructs of individualism and  
 136 collectivism are important dimensions of cultural variation  
 137 (Oyserman et al. 2002; Schimmack et al. 2005; Brewer and  
 138 Chen 2007).

139 There are currently some tentative clues of a possible link  
 140 between individualism-collectivism and mental illness  
 141 stigma. Firstly, cultures that researchers traditionally agree  
 142 are more strongly individualist, such as the American, white-  
 143 English, German, and Australian cultures, have previously  
 144 been found to be less stigmatising to mental health problems  
 145 (Jaques et al. 1973; Papadopoulos et al. 2002; Westbrook  
 146 et al. 1993). Equally, many previous studies have docu-  
 147 mented the alignment of collectivist values among Asian,  
 148 African and Arab cultures (Hill 2003; Abu-Baker 2005;  
 149 Tyler et al. 2008; Al-Krenawi et al. 2009).

150 Further, examining the attributes of cultural individual-  
 151 ism and collectivism reveal that for individualistic cultures,  
 152 personal goals have primacy over ingroup goals and also  
 153 that ‘cultural complexity’, where there are often more  
 154 cultural choices and lifestyles (Chick 1997), is more likely  
 155 to be found. This is important because the more ‘complex’  
 156 a culture, the more likely it is to be a ‘loose’ (as opposed to  
 157 ‘tight’) culture (Triandis 2001). In loose cultures, it is  
 158 argued that there is a stronger tolerance for deviation from  
 159 norms found in relatively varied societies (where several  
 160 normative systems coexist), where people do not depend on  
 161 each other so much, and where population density, and thus  
 162 the opportunity for surveillance, is low (Triandis 1995). It  
 163 has also been established that ‘tight’ cultures are more  
 164 likely to be collectivist (Carpenter 2000). In such cultures,  
 165 people have clearer ideas about what behaviours are  
 166 appropriate; they agree among themselves that sanctions  
 167 are needed when people do not follow the norms. Tight  
 168 cultures tend to include members that are highly interde-  
 169 pendent, and are to be usually more densely populated, in

170 the sense that surveillance is high. According to Hall  
171 (1976), collectivist cultures are also more likely to be  
172 'high-context' in which there are multiple, cross-cutting  
173 ties and intersections with others, longer-term relationships  
174 are aspired, and group harmony are core cultural values.  
175 Therefore, in such cultures where conformity to norms is  
176 highly valued, surveillance is high, and there are dense,  
177 multiple connections between people, it is not surprising  
178 that mental illness is easily perceived as outside of the  
179 norm and therefore devalued, rejected and stigmatised.

180 In the present study, we aimed to investigate how  
181 explanatorily effective the individualism-collectivism par-  
182 adigm was in explaining attitudes towards mental illness  
183 stigma. Collecting new samples of mental illness attitudes  
184 and individualism/collectivism data among the study cul-  
185 tural groups is also important as culture is a dynamic,  
186 constantly changing phenomenon which, as such, requires  
187 continuous investigation.

188 It was hypothesised that people from traditionally  
189 labelled 'individualistic' cultures (i.e. Americans and  
190 white-English) are less likely to hold stigmatising attitudes  
191 towards mental illness compared to people from collec-  
192 tivist cultures (i.e. Greek/Greek Cypriots and Chinese).  
193 This was based on the theory that people from individu-  
194 alistic cultures are more likely to tolerate diversity and  
195 deviation from the norm because such cultures are extre-  
196 mely fragmented, with extensive individuality, due to the  
197 desirability of personal goals. In collectivistic cultures,  
198 where there is less diversity and fragmentation as people  
199 desire in-group goals and norms, people who deviate from  
200 the norm are more visible to the community due to higher  
201 surveillance levels and the existence of numerous inter-  
202 sections and connections between people. As a conse-  
203 quence, families are more likely to try to hide the existence  
204 of a member who has a mental health problem, and are  
205 therefore less likely to attempt to access the appropriate  
206 services. In such communities where there is less contact  
207 and knowledge about mental health problems, stronger  
208 negative attitudes are likely to exist, as previous research  
209 indicates (Galletly and Burton 2011; Papadopoulos et al.  
210 2002; Pettigrew and Tropp 2006; Wolff et al. 1996a).

## 211 Methods

### 212 Participants

213 Three hundred and five UK-based individuals participated  
214 in a cross-sectional quantitative survey through the use of  
215 snowball sampling. Of these, 75 described themselves as  
216 primarily belonging to the white-English cultural group, 77  
217 to the Greek/Greek Cypriot group, 78 to the American  
218 group, and 75 to the Chinese group. One hundred and forty

four participants were male, and 161 were female. A full  
breakdown of the socio-demographic details of the study  
participants can be seen in Table 1.

### Instruments

The study questionnaire consisted of four sections. Firstly,  
a socio-demographic section with questions on age, gender,  
culture, place of birth, educational levels, marital status,  
occupation (for social class; MRS, 2003), religiousness,  
generation, first language, place of education, and length of  
stay in England.

The second section consisted of the 'Community Atti-  
tudes to Mental Illness scale' (CAMI) (Taylor and Dear  
1981). The tool measures levels of 'authoritarianism' (AU),  
'benevolence' (BN), 'social restrictiveness' (SR) and  
'community mental health ideology' (CMHI). This tool was  
selected as it has been shown to be both valid and reliable  
(Byrne 2001; Sevigny et al. 1999; Song et al. 2005; Byrne  
2001; Sevigny et al. 1999; Song et al. 2005) relatively brief  
and focuses on community rather than professional attitudes  
toward the mentally ill. Our alpha-coefficient reliability  
tests of the CAMI inventory also showed strong reliability  
on each attitudinal scale (AU = 0.8; BN = 0.83; SR =  
0.85 and; CMHI = 0.84). Authoritarianism refers to a view  
of the mentally ill person as someone who is inferior and  
requires coercive handling; benevolence corresponds to a  
paternalistic and sympathetic view of the mentally ill; social  
restrictiveness refers to the belief that the mentally ill  
patients are a threat to society and should be avoided and;  
community mental health ideology concerns the acceptance  
of mental health services and mentally ill patients in the  
community (Taylor et al. 1979).

The third questionnaire section incorporated questions  
that assessed participants' knowledge of mental health  
problems, and their previous level of contact with mental  
illness (Wolff et al. 1996b).

The fourth section consisted of the validated 'vertical-  
horizontal individualism-collectivism scale' (VHIC) in  
order to measure each participant's level and type of  
individualism and collectivism (Triandis 1995). 'Total  
collectivism' and 'total individualism' scales were pro-  
duced and tested for alpha-coefficient reliability for which  
both scales scored highly (.913 and .850 respectively). An  
overall individualism-collectivism score was then con-  
structed for each participant. This was calculated by sub-  
tracting the 'total collectivism' score for each participant  
from their 'total individualism' score. This created a neg-  
ative-positive measure where 0 = evenly individualistic  
and collectivistic, >0 = individualistic, and <0 = collec-  
tivist. The maximum collectivistic score recorded was  
-75, whereas the highest individualistic score was 104.  
The scale also afforded measurements of horizontal

**Table 1** Socio-demographic details of study participants

Socio-demographic variable	Cultural group				
	Total	American	White-English	Greek/Greek Cypriot	Chinese
n	305	78	75	77	75
<i>Gender</i>					
Male	144 (47.2 %)	35 (44.9 %)	41 (54.7 %)	35 (45.5 %)	33 (44 %)
Female	161 (52.8 %)	43 (55.1 %)	34 (45.3 %)	42 (54.5 %)	42 (56 %)
<i>Age</i>					
Median	30	31	35	39	27
Range	18–82	18–65	18–79	18–82	18–69
<i>Generation<sup>a</sup></i>					
1st	176 (76.9 %)	77 (98.7 %)	N/A	42 (54.5 %)	57 (76 %)
2nd	45 (19.2 %)	1 (1.3 %)	N/A	31 (40.3 %)	13 (17.3 %)
3rd	9 (3 %)	0 (0 %)	N/A	4 (5.2 %)	5 (6.7 %)
<i>Migrants<sup>b</sup></i>					
n	178 (58.4)	77 (98.7 %)	0 (0 %)	44 (57.1 %)	58 (77.3 %)
<i>Lifetime living in UK</i>					
Median	57.5 %	4 %	100 %	77 %	22 %
<i>Educational level</i>					
Higher <sup>c</sup>	154 (50.5 %)	55 (70.5 %)	30 (40 %)	34 (44.2 %)	35 (46.7 %)
Lower <sup>c</sup>	151 (49.5 %)	23 (29.5 %)	45 (60 %)	43 (55.8 %)	40 (53.3 %)
<i>Social class</i>					
A/B	58 (19 %)	18 (23.1 %)	20 (26.7 %)	8 (10.4 %)	12 (16 %)
C1/C2	180 (59 %)	52 (66.7 %)	37 (49.3 %)	41 (53.2 %)	50 (66.7 %)
D/E	67 (22 %)	8 (10.3 %)	18 (24 %)	28 (36.4 %)	13 (17.3 %)
<i>First language</i>					
English	203 (66.6 %)	76 (97.4 %)	100 (100 %)	35 (45.5 %)	17 (22.7 %)
Other	102 (33.4 %)	2 (2.6 %)	0 (0 %)	42 (54.5 %)	58 (77.3 %)
<i>Religiousness</i>					
High	81 (26.6 %)	20 (25.6 %)	23 (30.7 %)	34 (44.2 %)	4 (5.3 %)
Medium	112 (36.7 %)	35 (44.9 %)	30 (40 %)	36 (46.8 %)	11 (14.7 %)
Not	112 (36.7 %)	23 (29.5 %)	22 (29.3 %)	7 (9.1 %)	60 (80 %)
<i>Marital status</i>					
Single	161 (52.8 %)	47 (60.3 %)	39 (52 %)	34 (44.2 %)	41 (54.7 %)
Married/cohab	122 (40 %)	27 (34.6 %)	30 (40 %)	34 (44.2 %)	31 (41.3 %)
Other	22 (7.2 %)	4 (5.1 %)	6 (8 %)	9 (11.7 %)	3 (4 %)

<sup>a</sup> 1st generation: someone born in their native country and subsequently moved to live in England; 2nd generation: someone who was born and grew up in England and whose parents are 1st generation; 3rd generation: someone who was born and grew up in England and whose parents are 2nd generation

<sup>b</sup> All migrants were born in their native country except for one American participant who was born in India

<sup>c</sup> Higher (a grouping of ‘university degree’ and ‘post-graduate degree’ responses); lower (a grouping of ‘primary school’, ‘secondary school’, ‘A level’, and ‘college level’ responses)

270 collectivism (e.g. “If a co-worker gets a prize, I would feel  
271 proud”), vertical collectivism (e.g. “I would do what  
272 would please my family, even if I detested that activity”),  
273 horizontal individualism (“One should live one’s life  
274 independently of others”) and vertical individualism (e.g.  
275 “It is important to me that I do my job better than others”).  
276 Alpha-coefficient reliability for these scales were also of a  
277 good level (.890, .845, .814, and .802 respectively).

## Analysis

278  
279 The data collected from the questionnaire-based survey  
280 were analysed using SPSS (v.13). Data cleaning and  
281 checking was then conducted. Missing value analysis was  
282 performed on missing data used which replaced missing  
283 data with analysed estimates. Frequencies and descriptives  
284 were calculated for all levels of data. Non-parametric



285 Mann–Whitney  $U$  tests, Kruskal–Wallis  $H$  tests, and  
 286 Spearman's rho were used where appropriate to establish  
 287 which factors significantly associated/correlated with the  
 288 CAMI constructs. These variables were then entered into a  
 289 binary logistic regression analysis per cultural group, for  
 290 which the four CAMI constructs were used as dependent  
 291 variables. When transformation of linear, non-categorical  
 292 variables was necessary, the median (for splitting into two  
 293 categories) and median-based percentiles (for splitting into  
 294 three or more categories) were utilised.

295 Model strength was evaluated using Nagelkerke  $R^2$ ,  
 296 and model goodness of fit level was evaluated using the  
 297 Hosmer–Lemshow statistic. Odds ratios were determined  
 298 using the 'Exp(B)' statistic. Unexplained model variance  
 299 was measured using the '-2 Log likelihood' (2LL) statistic.

## 300 Results

### 301 Individualism–Collectivism Scores within Cultural 302 Groups

303 The American participants scored the highest median  
 304 individualism score (median = 28, range = -19 to 104),  
 305 followed by the English (median = 19, range = -40 to  
 306 87), Chinese (median = -8, range = -58 to 35) and  
 307 Greek/Greek Cypriots who conversely scored the highest  
 308 median collectivism score (median = -10, range = -75  
 309 to 67). These score differences were significant (Kruskal–  
 310 Wallis  $H = 94.238$ ,  $p < .01$ ). The Greek/Greek Cypriot,  
 311 Chinese and, particularly, the American groups scored  
 312 higher in the vertical measure, the white-English group  
 313 scored higher in the horizontal measure (see Fig. 1).

### 314 Mental Illness Attitudes within Cultural Groups

315 There were significant differences in stigma levels in each  
 316 of the four cultural groups (Table 2). The American group  
 317 scored significantly lower on each of the four stigmatising  
 318 measures than the other cultural groups. The white-English  
 319 group scored the next lowest on each measure, followed by  
 320 the Greek/Greek Cypriot group, and finally the Chinese  
 321 group, who held the most stigmatising views.

### 322 Individualism–Collectivism as an Explanatory Factor 323 of Mental Illness Attitudes within Cultural Groups

324 The strongest impact of the individualism–collectivism  
 325 measure in explaining the CAMI attitudes was found within  
 326 the American sample, for which three significant correla-  
 327 tions were revealed (AU:  $\rho = -.315$ ,  $p < .01$ ; SR:  
 328  $\rho = -.349$ ,  $p < .01$ ; and CMHI:  $\rho = .227$ ,  $p < .05$ ).

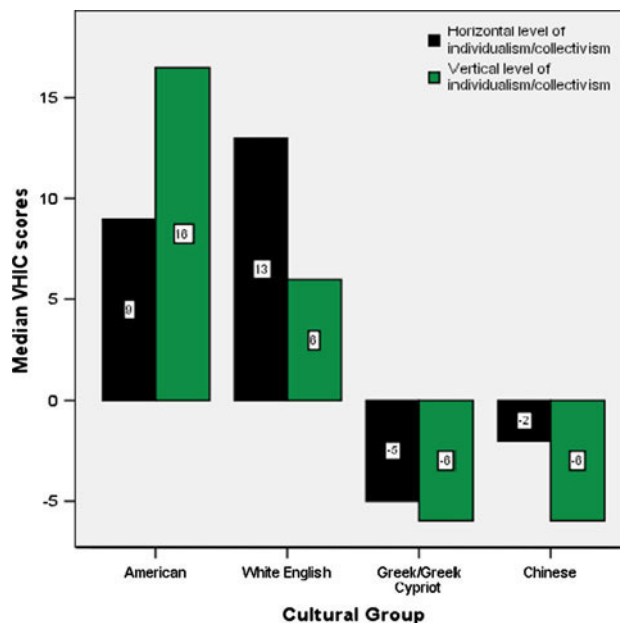


Fig. 1 Cultural group VHIC median scores

The only other significant correlation was found within the  
 Chinese group (CMHI;  $\rho = .306$ ,  $p < .01$ ). No significant  
 correlation scores were found within the English and Greek/  
 Greek Cypriot groups.

A regression analysis of the American and Chinese groups  
 included all variables found to significantly associate with at  
 least one of the CAMI constructs (including individualism–  
 collectivism). For the American group, these variables were  
 mental health knowledge, mental health experience, per-  
 centage of lifetime spent in the UK, educational level, and  
 marital status (see Table 3). The results revealed that higher  
 authoritarianism could be significantly predicted by lower  
 individualism/higher collectivism [ $B = -.040$ ,  $SE = .016$ ,  
 $OR = .961$  ( $CI = .931-.991$ ),  $p = .011$ ], more time spent in  
 the UK [ $B = .115$ ,  $SE = .045$ ,  $OR = 1.121$  ( $CI = 1.028-$   
 $1.224$ ),  $p = .01$ ], a lower educational level [ $B = -1.431$ ,  
 $SE = .545$ ,  $OR = .239$  ( $CI = .082-.695$ ),  $p = .009$ ], and,  
 in particular, lower mental health knowledge [ $B = -.575$ ,  
 $SE = .197$ ,  $OR = .563$  ( $CI = .382-.829$ ),  $p = .004$ ].  
 Higher benevolence was solely predicted by higher indi-  
 vidualism/lower collectivism [ $B = .094$ ,  $SE = .046$ ,  $OR =$   
 $1.098$  ( $CI = 1.004-1.201$ ),  $p = .040$ ]. Social restrictiveness  
 was significantly predicted by both lower individualism/  
 higher collectivism [ $B = -.036$ ,  $SE = .014$ ,  $OR = .964$   
 $(CI = .939-.990)$ ,  $p = .008$ ] and a higher percentage of  
 lifetime spent in the UK [ $B = .097$ ,  $SE = .043$ ,  $OR =$   
 $1.102$  ( $CI = 1.013-1.200$ ),  $p = .024$ ].

Within the Chinese cultural group, eight factors were  
 found to associate with at least one of the CAMI constructs  
 (including the 'individualism–collectivism' measure) (see  
 Table 4). A regression analysis of these factors revealed

**Table 2** Cultural group CAMI construct scores

Cultural group	CAMI measure (median 1–5)							
	Authoritarianism		Benevolence		Social restrictiveness		CMHI	
	MR	Median	MR	Median	MR	Median	MR	Median
American	73	1.75	221	4.4	81	1.8	199	3.8
White-English	141	2.3	162	3.9	150	2.3	156	3.5
Greek/Greek Cypriot	182	2.6	133	3.8	180	2.5	136	3.3
Chinese	218	3.0	94	3.6	203	2.7	119	3.2
H	115**		85**		84**		35**	

*H* Kruskal–Wallis *H* Test, *CAMI* Community Attitudes to Mental Illness

\*  $p < .05$ , \*\*  $p < .001$

360 that higher authoritarianism was only significantly pre-  
 361 dicted by a lower educational level [ $B = -.813$ ,  $SE =$   
 362  $.320$ ,  $OR = .443$  ( $CI = .237-.830$ ),  $p = .011$ ]. Benevo-  
 363 lence was also predicted by educational level [ $B = 1.413$ ,  
 364  $SE = .486$ ,  $OR = 4.108$  ( $CI = 1.583-10.657$ ),  $p = .004$ ]  
 365 as well as mental health experience level [ $B = -.774$ ,  
 366  $SE = .286$ ,  $OR = 2.169$  ( $CI = 1.240-3.796$ ),  $p = .007$ ].  
 367 Higher social restrictiveness was solely predicted by mental  
 368 health knowledge level [ $B = -.264$ ,  $SE = .128$ ,  $OR =$   
 369  $.768$  ( $CI = .598-.987$ ),  $p = .039$ ], while higher CMHI was  
 370 predicted by both higher mental health knowledge level  
 371 [ $B = .263$ ,  $SE = .131$ ,  $OR = 1.301$  ( $CI = 1.007-1.682$ ),  
 372  $p = .044$ ], and higher individualism/lower collectivism  
 373 [ $B = .045$ ,  $SE = .018$ ,  $OR = 1.046$  ( $CI = 1.009-1.084$ ),  
 374  $p = .015$ ].

375 The effect of including or excluding the individualism-  
 376 collectivism variable from the modelling data in terms of  
 377 model strength and unaccounted-for variance per CAMI  
 378 construct can be seen in Table 5.

## 379 Discussion

380 The results of this study partially supported the hypothesis  
 381 that the individualism-collectivism paradigm can be applied  
 382 to explain mental illness attitudes. The paradigm helped  
 383 explain attitudes within the Chinese and, particularly, the  
 384 American sample groups, with both unaccounted-for vari-  
 385 ance in CAMI scores increasing, and model predictive power  
 386 decreasing when the variable was excluded from modelling.  
 387 For the American sample, the paradigm was found to be  
 388 effective in explaining authoritarianism, benevolence, and  
 389 social restrictiveness. Conversely, the only CAMI construct  
 390 which the paradigm significantly influenced within the  
 391 Chinese group was CMHI.

392 More specifically, higher scores of individualism in  
 393 these groups correlated with less stigmatising attitudes,  
 394 whereas higher scores of collectivism correlated with more  
 395 stigmatising attitudes. Since individualist values were also

396 found to be prominent within the American group, this  
 397 branch of the paradigm was considered more important in  
 398 explaining mental health attitudes than collectivism. The  
 399 opposite was true of the Chinese group, since collectivist  
 400 values were found to be more encompassing of this group.

401 In contrast, the paradigm had little or no statistical  
 402 effectiveness in explaining how Greek/Greek Cypriots and  
 403 English groups stigmatise mental illness. One potential  
 404 explanation for these differences could be that the Ameri-  
 405 can and Chinese groups scored the lowest and highest  
 406 CAMI stigma scores respectively. This suggests that the  
 407 paradigm's explanatory power corresponds to the level of  
 408 stigmatisation within a particular culture. Indeed, the par-  
 409 adigm was found to independently predict three of the four  
 410 CAMI attitudes within the Americans group, which was  
 411 also found to be the least stigmatising group. While the  
 412 Chinese group were the most stigmatising group, their  
 413 scores cannot be considered to be extremely stigmatising.  
 414 This may explain why the paradigm could only indepen-  
 415 dently predict one of the four CAMI measures in this  
 416 group. These results also suggest that collectivism plays a  
 417 more explanatory role for groups that are strongly stig-  
 418 matising, whereas individualism plays a more explanatory  
 419 role for those who are more positive in their attitudes  
 420 towards mental illness. Therefore, the paradigm should be  
 421 particularly explanatorily effective for groups who are  
 422 more stigmatising than this study's Chinese sample, and  
 423 that their negative stigma scores would more likely corre-  
 424 late to levels of collectivism than individualism.

425 It is also likely that how individualistic or collectivistic a  
 426 particular group is will associate with how explanatorily  
 427 effective the individualism-collectivism paradigm is in  
 428 explaining mental health attitudes. The fact that the para-  
 429 digm was most effective in explaining attitudes within the  
 430 American sample, and that this group's individualism score  
 431 was considerably higher than any of the other groups'  
 432 individualism-collectivism scores, supports this theory.  
 433 Indeed, the notion that the more strongly individualist or  
 434 collectivist a culture is, the more it is influenced by the

**Table 3** Factors associated with CAMI constructs within the American cultural group

Socio-demographic variable	CAMI								
	n (%)	Authoritarianism		Benevolence		Social Restrictiveness		CMHI	
		MR	Median	MR	Median	MR	Median	MR	Median
<i>Gender</i>									
Male	35 (45)	44	1.8	37	4.3	43	1.8	38	3.8
Female	43 (55)	36	1.6	42	4.4	37	1.8	41	3.8
U		583.5	652.5	624.5	706.5				
<i>Generation<sup>a</sup></i>									
1st	n/a	n/a	n/a	n/a	n/a				
2nd and 3rd	U								
<i>First language</i>									
English	n/a	n/a	n/a	n/a	n/a				
Other	U								
<i>Marital status</i>									
Single	47 (60)	38	1.7	38	4.4	38	1.7	47	4
Married/Cohab	27 (35)	41	1.8	43	4.4	42	1.8	29	3.5
Other	4 (5)	43	1.8	31	4.4	43	1.95	26	3.45
H		0.4		1.3		0.8		11.4**	

	CAMI				
	n	Authoritarianism	Benevolence	Social Restrictiveness	Community Mental Health Ideology
		rho	rho	rho	rho
Age	78	.099	-.116	.181	-.203
% of lifetime spent in UK <sup>a</sup>	78	.321**	-.106	.290**	-.226*
Highest educational level (1–6) <sup>b</sup>	78	-.269*	.212	-.211	.111
Social class (1–6) <sup>c</sup>	78	-.016	-.107	.089	.071
Religiousness level (1–3) <sup>d</sup>	78	.056	-.076	.144	-.205
MH knowledge score (0–13)	78	-.398**	.305**	-.270*	.325**
MH experience score (0–9)	78	-.218*	.248*	-.245*	.204

*H* Kruskal–Wallis *H* test, *U* Mann–Whitney *U* test, *rho* Spearman's bivariate correlation test, *CAMI* Community Attitudes to Mental Illness

\*  $p < .05$ , \*\*  $p < .01$

<sup>a</sup> Excludes White-English participants

<sup>b</sup> 1 primary/equivalent, 2 secondary/equivalent, 3 A level/equivalent, 4 college/equivalent, 5 degree/equivalent, 6 postgraduate/equivalent

<sup>c</sup> 1 class group A, 2 B, 3 C1, 4 C2, 5 D, 6 E

<sup>d</sup> 1 atheist/agnostic, 2 not very religious, 3 extremely/quite religious

435 paradigm's mechanics, is one which is also supported by  
 436 other researchers of the individualism-collectivism para-  
 437 digm (Hofstede 2010; Triandis 1995, 2001). However, the  
 438 finding that the English group does not benefit from the  
 439 individualism-collectivism paradigm as an effective  
 440 explanatory factor is inconsistent with this idea since its  
 441 individualism score was higher than the Chinese group's  
 442 collectivism score. It is likely that this incongruity is the  
 443 result of the English group scores reflecting horizontal

individualism more than vertical individualism. In hori- 444  
 zontal individualist cultures, people pursue their indepen- 445  
 dence and uniqueness but emphasise a stronger preference 446  
 for societal equality and community than those from ver- 447  
 tical cultures in which hierarchy and class inequality is 448  
 more readily accepted (Triandis 2001; Triandis and Suh 449  
 2002; Yang et al. 2007). Therefore, the hypothesis that 450  
 people from individualist cultures are more likely to tol- 451  
 erate diversity and deviation from the norm because such 452

**Table 4** Factors associated with CAMI constructs within the Chinese cultural group

Socio-demographic variable	CAMI								
	n (%)	Authoritarianism		Benevolence		Social Restrictiveness		CMHI	
		MR	Median	MR	Median	MR	Median	MR	Median
<i>Gender</i>									
Male	33 (44)	38	2.9	36	3.6	39	2.8	36	3.0
Female	42 (56)	38	3	40	3.55	37	2.6	39	3.4
U		683	619.5	639	640.5				
<i>Generation<sup>a</sup></i>									
1st	57 (76)	44	3.1	33	3.4	41	2.7	36	3.1
2nd and 3rd	18 (24)	18	2.3	54	4.1	27	2.35	45	3.5
U		156.5**	225**	313*	391.5				
<i>First language</i>									
English	17 (23)	21	2.4	51	3.8	30	2.4	43	3.5
Other	58 (77)	43	3.05	34	3.4	40	2.7	37	3.1
U		207**	269.5**	353	414.5				
<i>Marital status</i>									
Single	41 (55)	36	2.9	39	3.6	37	2.7	39	3.2
Married/cohab	31 (41)	38	3	40	3.6	36	2.6	39	3.2
Other	3 (4)	59	3.7	9	2.9	65	3.8	15	2.3
H		3.1	5.5	4.7	3.4				
	n	CAMI							
		Authoritarianism		Benevolence		Social restrictiveness		CMHI	
		rho		rho		rho		rho	
Age	75	.164		-.171		.222		-.285	
% of lifetime spent in UK <sup>a</sup>	75	-.319**		.252**		-.137		.084	
Highest educational level (1–6) <sup>b</sup>	75	-.323**		.405**		-.421**		.310**	
Social class (1–6) <sup>c</sup>	75	.173		-.168		.224		-.203	
Religiousness level (1–3) <sup>d</sup>	75	-.029		.077		.049		-.084	
MH knowledge score (0–13)	75	-.512**		.597**		.409**		.295*	
MH experience score (0–9)	75	-.391**		.527**		-.404**		.357**	

H Kruskal–Wallis H test, U Mann–Whitney U test, rho Spearman's bivariate correlation test, CAMI Community Attitudes to Mental Illness

\*  $p < .05$ , \*\*  $p < .01$

<sup>a</sup> Excludes White-English participants

<sup>b</sup> 1 primary/equivalent, 2 secondary/equivalent, 3 A level/equivalent, 4 college/equivalent, 5 degree/equivalent, 6 postgraduate/equivalent

<sup>c</sup> 1 class group A, 2 B, 3 C1, 4 C2, 5 D, 6 E

<sup>d</sup> 1 atheist/agnostic, 2 not very religious, 3 extremely/quite religious

453 cultures are more fragmented, due to the desirability of  
454 personal goals, holds more weight for vertical individualist  
455 cultures than horizontal-individualist cultures. This offers a  
456 reasonable explanation for why the individualism-  
457 collectivism paradigm was less effective for the English  
458 group compared to the Chinese group.

459 This study's hypothesis extends to the idea that collec-  
460 tivist cultures will be more stigmatising due to the lower  
461 levels of diversity and fragmentation usually found in such  
462 cultures, and the associative theory that people who deviate  
463 from the norm are more visible to the community due to

464 higher surveillance levels. Thus, it might also be expected  
465 that the individualism-collectivism paradigm is more  
466 effective in explaining mental health attitudes within hor-  
467 izontal-collectivist cultures compared to vertical-collec-  
468 tivist cultures, since community strength is considered  
469 higher and cultural complexity is lower in horizontal-  
470 collectivist cultures (Triandis 1995). However, this study  
471 cannot directly evaluate whether such a difference exists,  
472 since both the Chinese and Greek/Greek Cypriot cultures  
473 sampled in this study are both generally more vertical than  
474 horizontal-collectivist cultures. One may argue that this

**Table 5** Differences in unaccounted-for variance (-2LL) and overall model predictive power (NR<sup>2</sup>) between regression tests that included and excluded individualism-collectivism (I/C) as an explanatory factor in the American and Chinese cultural groups

Cultural group	CAMI construct	-2LL		N R <sup>2</sup>	
		Excluding I/C	Including I/C	Excluding I/C	Including I/C
American (n = 78)	Authoritarianism	71.446	63.671	.500	.579
	Benevolence	100.638	94.484	.121	.213
	Social restrictiveness	86.440	78.053	.309	.414
	CMHI	85.329	83.291	.337	.363
Chinese (n = 75)	Authoritarianism	73.585	73.069	.444	.450
	Benevolence	51.264	51.177	.673	.674
	Social restrictiveness	74.959	73.606	.428	.444
	CMHI	78.444	71.385	.383	.440

475 hypothesis lacks some credence when considering that the  
 476 Greek/Greek Cypriot sample scored slightly higher than  
 477 the Chinese group in horizontal collectivism, yet the  
 478 Chinese group were found to be more stigmatising. How-  
 479 ever, it is possible that the negative impact of poorer  
 480 knowledge, education and personal experience levels about  
 481 mental health problems in the Chinese sample overrides the  
 482 explanatory power of the individualism-collectivism para-  
 483 digm in this culture. Indeed, these factors have been shown  
 484 to be more consistent statistical predictors of CAMI atti-  
 485 tudes in this group than the individualism-collectivism  
 486 paradigm. Furthermore, although the Greek/Greek Cypriot  
 487 sample did score higher than the Chinese in the horizontal  
 488 measure, this was a small difference, and cannot be used to  
 489 dispute its vertical collectivist nature. Indeed, as this survey  
 490 incorporated non-randomised, non-representative methods,  
 491 none of the statistical results can be accurately generalised  
 492 to the wider population. Additionally, the findings of all  
 493 previous research literature point to the Greek/Greek  
 494 Cypriot culture being one which is more vertically than  
 495 horizontally orientated (Broome 1996; Koutsantoni 2005;  
 496 Triandis 1995; Triandis and Vassiliou 1972).

497 The use of snowball sampling and relatively small  
 498 sample sizes are two important study limitations. While  
 499 this data collection technique was useful in contacting  
 500 participants who are hard-to-reach (particularly first gen-  
 501 eration Chinese and Greek/Greek Cypriots), it results in  
 502 low external generalisability reliability due to selection  
 503 bias. Therefore, any inferences made about the meaning of  
 504 the data can only appropriately be applied internally, and  
 505 that generalisations and assumptions made to the wider  
 506 UK-based white-English, American, Greek/Greek Cypriot,  
 507 and Chinese populations must be treated tentatively. Fur-  
 508 ther, any assumptions made about the American culture  
 509 based on this study's survey data must only be in reference  
 510 to white-Americans who are of European descent and are  
 511 from eastern, urbanised States. Similarly, this data best  
 512 reflects urbanised white-English, Greek/Greek Cypriot and

Chinese populations. It is also important to bear in mind  
 that our results are broad generalisations and, as such,  
 certainly do not apply to each person in that cultural group.  
 However, they do represent a summary of the group's level  
 of individualism/collectivism, their attitudes towards  
 mental illness and other factors which are important for  
 developing a more comprehensive understanding of the  
 relationship between culture and mental illness stigma.

To our knowledge, this study represents the first time  
 that the individualism-collectivism paradigm has been  
 tested as an explanatory device for mental illness attitudes.  
 As previously stated, examining whether and why cultural  
 values influence mental illness stigma is important, par-  
 ticularly given the growing evidence-base of significant  
 mental illness stigma variation across cultural groups  
 (which this study now adds to). Specifically, the findings  
 indicate that people who experience mental illness are  
 more likely to be publically stigmatised within cultures that  
 align themselves with collectivist values. As argued by  
 Abdullah and Brown (2011) and Al-Issa (1995), the like-  
 lihood of stigma increases further if a behaviour is per-  
 ceived as deviation from the norm. As such, it is possible  
 that particular behaviours considered by many Western  
 cultures to be symptomatic of mental illness, may not be  
 stigmatised within cultures (including collectivist cultures)  
 which do not perceive the behaviour as outside of the  
 norm. Therefore, it is clear that the likelihood of mental  
 illness stigma occurring within a particular culture is  
 mediated by a range of complex cultural factors such as  
 context, norms, history and values systems such as indi-  
 vidualism/collectivism.

The implications of these findings are that any future  
 research aiming to provide a holistic understanding of the  
 contributory factors of mental illness stigma on an indi-  
 vidual and/or, especially, a socio-cultural level, should  
 include a consideration of the individualism/collectivism  
 paradigm's role. This is particularly important when  
 research samples consist of participants who hold highly

551 collectivistic and/or individualistic values. Additionally,  
 552 anti-stigma initiatives should take into consideration the  
 553 effects of the paradigm may play on mental illness attitude  
 554 formations, particularly in collectivist cultures where  
 555 stigma may be more prevalent. When campaigns target  
 556 collectivist 'high context' cultural groups, in-group locally  
 557 trusted group members or organisations should be involved  
 558 in the delivery of anti-stigmatising initiatives. Mental  
 559 health professionals should also integrate the paradigm into  
 560 their understanding of culture, so that they can be as sen-  
 561 sitive, knowledgeable, and competent as possible when  
 562 interacting with people whose behaviour, values, and atti-  
 563 tudes are influenced by collectivist or individualist notions.  
 564 If these findings and their implications are considered by  
 565 anti-stigma policy-makers and relevant health-care pro-  
 566 fessionals, their understanding of mental illness stigma can  
 567 be advanced, and, as a result, the damage and prevalence of  
 568 such stigma can helped to be reduced.

569 **Conflict of interest** There are no known conflicts of interest. All  
 570 authors in this study certify their responsibility for the conduct of this  
 571 study, the analysis and interpretation of data, that they have helped  
 572 write this manuscript, agree with decisions about it, that they meet the  
 573 definition of an author as stated by the International Committee of  
 574 Medical Journal Editors, and that they have seen and approved the  
 575 final manuscript. The authors also certify that neither the article nor  
 576 any essential part of it, including figures and tables, will be published  
 577 or submitted elsewhere before appearing in the Journal.

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