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Culturally Anchored Mental-Health Attitudes: The Impact of Language

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Abstract

Culture plays a key role in the long-standing underutilization of professional mental-health services among immigrants and ethnic minorities, especially among Asian communities. Furthermore, language nativeness can modulate the salience of cultural norms. Through a series of four experimental studies (N = 1,120), we evaluated whether bilingual speakers' attitudes toward mental-health treatment are affected by whether they are using their native Chinese or foreign English. Overall, participants more strongly endorsed mental-health treatment when information was presented in English. The same outcome was found for participants residing in the United States and mainland China. Consistent with a language-priming-culture hypothesis, participants using Chinese endorsed mental-health treatment less when their affiliation with traditional Asian values was higher, whereas in English their recommendations remained independent of affiliation with traditional Asian values. In sum, these studies reveal the significance of language in culturally anchored mental-health attitudes.

Keywords

bilingualism, mental health, culture, immigration, help seeking, open data, open materials, preregistration

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Despite effective treatment options available for mental disorders, professional mental-health services have significantly low utilization rates worldwide. Even in highincome countries-in which the treatment rate for severe disorders is more than double that found globallyroughly one third of severe cases still go untreated (World Health Organization [WHO], 2021). And in the United States, for people who do ultimately seek treatment, a nearly decade-long median delay exists between disorder onset and first treatment contact (Wang et al., 2005). Such staggering delays are even more acute for racially and ethnically diverse populations, who are significantly less likely to seek adequate treatment for mental illness (Yasui et al., 2017). Compared with White adults with any mental illness, Black and Hispanic adults were only two thirds as likely to use mental-health services annually between 2015 and 2019 (48.8% vs. 31.0% and 32.5%, respectively), and Asian adults were only half as likely to do so (48.8% vs. 22.5%; Center for Behavioral Health Statistics and Quality [CBHSQ], 2021). Note that

this treatment gap has continued to persist over decades (Yasui et al., 2017).

The pathway toward treatment is, of course, influenced by an array of sociodemographic and structural factors, including logistical barriers such as lack of transportation, insurance, access to health care, and language barriers (Alegría et al., 2015; Bellamy et al., 2016); pressures of poverty and racism (Jones et al., 2016; Richman et al., 2007); lack of bilingual and bicultural providers (Snowden et al., 2011); and low mentalhealth literacy (McKay & Bannon, 2004). However, racial and ethnic disparities in help seeking remain even after accounting for many such factors as well as for disorder prevalence within each population (CBHSQ, 2021; Chu & Sue, 2011). And one prominent factor that emerges in explaining these disparities is the role

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played by culture in the conceptualization of mental illness, its treatment, and the ensuing attitudes toward mental illness (Yasui et al., 2017).

At the same time, research has recently suggested an important link between language use and decisionmaking-that merely using a foreign language can change a people's attitudes and decisions by reducing the impact of the cultural norms and emotions associated with the native tongue (e.g., Hadjichristidis et al., 2017b). However, the intersection between the fields of language, culture, and mental health has thus far gone unexamined, particularly because research on mental-health treatment among bilingual speakers has largely focused on the effect of low English-language proficiency on help seeking (Leong & Lau, 2001; Yang et al., 2008). We therefore sought to investigate the potential of a foreign language to promote treatment seeking among bilingual speakers by reducing the salience of cultural norms that may discourage seeking professional mental-health services.

We chose to focus on individuals from Asian cultures primarily for their comparatively low usage rates of mental-health services and pronounced stigma toward mental illness (CBHSQ, 2021; Cheng, 2015; Shen et al., 2006; WHO, 2021). We focused on Chinese individuals in particular because they represent the largest population in the world, with an estimated 1.4 billion individuals (United Nations Department of Economic and Social Affairs, Population Division, 2021), and because they represent one of the largest ethnic groups among immigrants and sojourners worldwide (Menozzi, 2020), for whom our findings have the most direct implications. In the United States, for instance, which hosts far more immigrants than any other country, most immigration over the last decade has been driven by new arrivals from Asia, particularly China, and a majority of its Asian population is foreign-born (Budiman et al., 2020; Budiman & Ruiz, 2019; Menozzi, 2020).

Mental-Health Treatment and Cultural Values

Before initial treatment contact, a problem needs to be recognized as a mental-health issue. Although more conventional conceptualizations of health have clear definitions of what constitutes mental illness, different cultures tend to perceive health holistically as an integration of the body, mind, and spirit. Mental distress, then, is largely understood as an imbalance or disruption of the harmony between these elements, and thus treatment is focused on restoring this harmony. For instance, the primary way Asians seek healing is via culturally anchored sources such as cultural remedies, spiritual help, and seeking interpersonal support within close networks, particularly the family (Hwang et al., 2008; Phillips et al., 2000). Hence, mental-health treatments that focus on the treatment of psychological dysfunction through emphasis on individual growth and actualization tend to be viewed as culturally dystonic and considered as a last resort (Leong & Lau, 2001).

Among East Asians, Confucian values of emotional constraint and self-control shape cultural and social norms that associate emotional anguish with internal traits such as weakness of character and a lack of will power and self-control. The expression of emotional distress, then, is considered countercultural and shameful (Han & Pong, 2015; Yasui et al., 2017). Hence, emotional distress is more likely to be expressed as physical problems rather than problems regarding one's emotional or mental state both conceptually (e.g., Dere et al., 2013; Ryder et al., 2008; Zhou et al., 2011) and the way it is communicated (Choi et al., 2016). As a result, the manifestation of distress through psychological mechanisms, such as emotion and behavior, is frequently met with stigmatizing attitudes and discriminatory behaviors toward individuals struggling with mental distress (Park et al., 2010; Yong & McCallion, 2004).

Such attitudes are further shaped by the collectivistic nature of Asian cultures and by the central role played by the concept of "face," or social reputation, in the fabric of Asian society. In Asian cultures, individuals are viewed as an extension of their relationships, and a notably greater emphasis is placed on upholding social harmony and family reputation (Cheng, 2015; Yasui et al., 2017). Consequently, the shame and stigma associated with mental illness extend to the individual's family. Among other implications, if individuals were to seek outside help in the form of professional mentalhealth services, it would also indicate a failing on the part of their family (Han & Pong, 2015). In this manner, such internalized cultural norms effectively encourage emotional reticence, self-reliance, and even denial of mental-health issues. In other words, they serve as a significant deterrent to seeking professional mentalhealth services, which could risk a tacit admission of mental illness and a loss of face for the individual and family. And indeed, negative attitudes toward mental illness are negatively associated with help-seeking attitudes (Han & Pong, 2015) and the actual use of mentalhealth services among Asian communities (Eisenberg et al., 2009; Zhang et al., 2020).

Taken together, such findings highlight the invaluable utility of targeting the cultural component that underlies help-seeking attitudes regarding mental illness. It is with this in mind that we examined whether communicating mental-health information in a foreign language may distance Chinese bilingual speakers from some of the cultural norms associated with their native tongue, thereby making treatment for a mental illness seem more permissible.

Language and Cognition: Distancing From Sociocultural Values

Language-particularly one's native tongue-is closely tied to culture. Language often reflects the culture from which it originates, and the different ways in which languages choose to communicate about certain concepts often reflect deeper, hidden cultural differences (Jiang, 2000). Building on this concept, researchers have explored how the language through which one is currently communicating may connect people to certain cultural values, which, in turn, can influence their behavior. These studies broadly fall into three different categories: (a) examining how language and culture influence one's judgments and decisions, (b) examining how bilingual people use and respond to emotionally charged language in each language, and (c) examining how multicultural bilingual speakers can activate different cultural frames when using each language.

First, several recent studies have demonstrated that native-language use connects individuals more readily to their social and cultural values, which, in turn, can systematically influence how they reason and make decisions. To name a few examples, when using a foreign versus native language, individuals are less likely to be swayed by superstitious beliefs (Hadjichristidis et al., 2017a), less likely to punish taboo actions (Geipel et al., 2015a), and more likely to prefer more utilitarian choices when faced with a moral dilemma (Cipolletti et al., 2016; Corey et al., 2017; Costa et al., 2014, 2019; Geipel et al., 2015b; Hayakawa et al., 2017). These effects have been explained by a reduced adherence to social and cultural norms, allowing individuals to deviate from their social or cultural beliefs when they are not using their native language. Because cultural norms and values are often encoded from an early age in one's native language, they are more readily activated in that language than their foreign language. This, in turn, leads them to make decisions more aligned with their cultural values in their native tongue, whereas in their foreign language these norms are less easily accessed, and hence individuals are more likely to deviate from them when making a choice.

Beyond decision-making, individuals also tend to systematically differ in their emotional reaction to taboo language when using their native versus foreign language, which is also tied to how readily each language taps into cultural permissibility. For example, in certain cultures that particularly admonish cursing, bilingual people will sometimes switch from their native to foreign language when swearing to circumvent the norm violation (Dewaele, 2010a). In addition, when asked to translate ethnic slurs, bilingual people tended to choose more offensive words when translating from their native to foreign language and less offensive words when translating from their foreign to native language (Gawinkowska et al., 2013). This suggests that when bilingual people are using their foreign language, they feel distanced from the social-norm violation of using a given offensive word, which, in turn, mutes their emotional response to it. Therefore, to reach the same level of emotional resonance, they have to use a more extreme word when translating from their native to foreign language. This has been further supported by evidence that emotionally charged language is less emotionally evocative and leads to reduced physiological responses in people's foreign language than in their native tongue (Caldwell-Harris & Ayçiçeği-Dinn, 2009; Dewaele, 2004; Harris et al., 2003).

Finally, for bilingual people with bicultural exposure, language can selectively prime the culture associated with each language. For instance, bilingual speakers of Chinese and English described themselves in ways consistent with an individualistic culture when using English but provided descriptions consistent with a collectivistic culture when using Chinese (Chen & Bond, 2007; Kemmelmeier & Cheng, 2004; Ralston et al., 1995; Ross et al., 2002; Trafimow et al., 1997). This demonstrates that bilingual people with bicultural knowledge tend to implicitly activate the prototypical characteristics of the group most associated with the language they are using and hence end up expressing themselves in ways consistent with the perceived values or norms of that culture (Chen & Bond, 2010).

In sum, these studies show that language and culture are closely intertwined and that when using their foreign language, bilingual people can either be distanced from their own cultural norms or, in the case of bicultural bilingual people, activate the norms associated with the target language's culture. Therefore, we propose that when considering mental-health treatment, Chinese bilingual individuals will find it more permissible in English than in Chinese because such treatment is more congruent with the culture associated with English and less so with culturally anchored Asian values (Yasui et al., 2017).

Current Studies

To test this theory, in a series of four studies, we examined whether bilingual speakers of Chinese and English were more accepting of mental-health treatment in their foreign English compared with their native Chinese. In these studies, we presented participants with a description of an individual with symptoms characteristic of depression, either in Chinese or in English, and investigated their willingness to recommend mental-health treatment as a function of language (Studies 1–4). We found that in all studies except for Study 2, participants Imagine that someone similar to you has been feeling really sad for the past 2 weeks. She wakes up in the morning with a flat, heavy feeling that sticks with her all day long. She no longer enjoys things she normally would enjoy. In fact, nothing gives her pleasure. Even when good things happen, they do not seem to make her happy. She manages to get through the day, but it is really hard. The smallest tasks are difficult to complete. She finds it hard to concentrate on anything. She feels like she has no energy. And even though she feels tired throughout the day, when night comes she cannot go to sleep. She feels quite worthless and very discouraged.

Fig. 1. The mental-health vignette used in Study 1 (female participant, English version).

were more likely to recommend mental-health treatment in their foreign English than in their native Chinese. Furthermore, we evaluated whether these effects held not only for bilingual speakers residing in the United States, who had an extended exposure to English-speaking culture that may be primed when using English (Study 1), but also bilingual speakers residing in China (Studies 2–4). Finally, in Study 4, we examined possible explanations for this language effect.

Study 1: Treatment Recommendations Among Bilingual Speakers of Chinese and English in the United States

Transparency and openness

Study 1 was approved by the University of Chicago Institutional Review Board and was carried out in accordance with the provisions of the 2008 World Medical Association Declaration of Helsinki. Data and materials for this and all studies reported can be found on OSF at https:// osf.io/wn2bz/. We report how we determined our sample size, all data exclusions, all manipulations, and all measures in the study. Study 1 was not preregistered.

Method

Participants. Two hundred five Chinese participants residing in the United States were recruited online according to the following criteria: (a) native Mandarin Chinese speakers who spoke English as a second language, (b) passed a basic English comprehension check in which they were asked to identify a main theme of a written passage in English from one of four options, (c) grew up in mainland China and had not spent more than a year in an English-speaking country before college, (d) did not grow up speaking English at home, and (e) were 18 or older. Participants were excluded if they reported their English proficiency as higher than their native Mandarin Chinese proficiency (n = 4). This left a sample size of 201 participants (age: M = 24.2 years, range: 18–48; 35.3% male, 64.7% female). From this sample, participants reported a mean English proficiency of 5.79 (SD = 0.77) and a mean Chinese proficiency of 6.90 (SD = 0.26) on a scale from 1 (*not proficient*) to 7 (*very proficient*). The mean age of acquisition of English, defined here as the age at which participants began learning English, was 10.5 years (SD = 4.0). And participants had spent on average 28.2 months (SD = 28.8) in an English-speaking country. Finally, 17.8% of participants reported having used mental-health services in the past. No measure of education or socioeconomic status was collected, but given random assignment to conditions, the distribution of socioeconomic status is unlikely to differ across conditions.

Materials. We developed a brief vignette portraying the emotional symptoms of an individual struggling with depression (see Fig. 1), adapted from Sai and Furnham (2013).

Following the vignette, we presented four scenarios in which the character's social and occupational functioning incrementally deteriorated. The decline in functioning ranged from no decline to a sharp decline (see Fig. 2). First, both social and occupational functioning are at a normal level (none), then social functioning begins to decline (low), then social and occupational functioning worsen (moderate), and finally social and occupational functioning sharply deteriorate (sharp).

The decline-in-functioning scenarios were developed with a clinical psychologist and were based on the Global Assessment of Functioning (GAF) scale as it appears in the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 2000, p. 34). As opposed to the vignette, which describes the character's inner emotional state, the scenarios describe the character in terms of functioning. Furthermore, using the GAF as the basis of the scenarios allowed us to incrementally decrease their state of functioning using a scale that has been used extensively cross-culturally in the assessment of mental-health functioning (for a review of the GAF, see Aas, 2010). Both the mental-health vignette and subsequent scenarios were first written in English, translated to Chinese, and then back translated to English to ensure the meaning accurately translated from English to Chinese (Brislin, 1970).

Level of Decline	Scenario
None	She still socializes with others and performs as usual at work.
Low	She still performs as usual at work but spends much less time with her friends and family.
Moderate	She spends much less time with her friends and family, and her work performance has gotten worse. Recently, she has received warnings from her boss.
Sharp	She stays in bed all day and completely avoids her friends and family. She has also been fired from her job due to poor work performance.

Fig. 2. Incrementally decreasing social- and occupational-functioning scenarios used in Study 1 (female participant, English version).

Finally, we created an item to measure participants' perceived depression of the individual described in the vignette using a scale from 1 (*not at all depressed*) to 5 (*extremely depressed*). Each level on the depression scale was accompanied by a corresponding emoticon adapted from De Langhe et al. (2011).

Procedure. Participants completed the survey using the online survey platform Qualtrics and were randomly assigned to complete the survey in English (n = 101) or in Chinese (n = 100). First, participants read the vignette portraying an individual struggling with symptoms characteristic of depression. The gender of the depicted individual, as reflected by use of gender pronouns (he/she), was matched to the participant at the start of the survey. Immediately following the vignette, participants were asked whether the individual described in it should go to a therapist on a scale from 0 (definitely should not) to 100 (definitely should). Participants were then presented with the four scenarios in which the character's social and occupational functioning incrementally deteriorated. They were asked to assume all the information applied from the prior vignette and then to consider the changes that each scenario presented. Using the same scale as in the vignette, they indicated whether the character should go to a therapist after each level of deterioration in functioning. Finally, participants rated their perceived depression of the character in the vignette, answered a brief set of demographic questions, and then were compensated for their time.

Results

Overall, for the initial treatment question, participants made significantly stronger treatment recommendations in English (M = 85.86, SD = 13.73) than in Chinese (M = 75.34, SD = 19.59; 95% confidence interval [CI] = [-15.23, -5.81]), t(177.22) = 4.41, p < .001, d = 0.62. We also ran

a repeated measures analysis of variance examining the impact of language (language: Chinese | English, between subjects) and level of decline in functioning (decline: none, low, moderate, sharp, within subjects) on subsequent treatment recommendations. Overall, participants gave stronger treatment recommendations in English (M = 83.31, SD = 18.95) than in Chinese (M = 77.57, SD = 21.39), resulting in a main effect of language, F(1, 199) = 7.74, p = .001, $\eta_G^2 = .03$. There was also a significant Language × Decline interaction, F(3, 597) = 5.42, p < .001, $\eta_G^2 = .01$; Tukey-Kramer contrasts of the effect of language at each level of decline revealed a significant effect of language on treatment recommendations on all but the sharp decline in personal and occupational functioning (see Fig. 3).

One possible explanation for the stronger treatment recommendations in English than Chinese is that participants may have perceived the individual as more depressed in English and thus more in need of treatment. However, both the literature and the data suggest otherwise. First, information communicated in one's native tongue typically carries a greater emotional resonance (Dewaele, 2010b), which, in turn, may bolster perceiving the individual as more depressed in Chinese than in English. Second, we measured participants' perceived level of depression regarding the individual in the vignette and found no significant difference across language conditions (English M = 3.36, SD = 0.99; Chinese: M = 3.32, SD = 0.94; 95% CI = [-0.32, 0.22]), t(198.01) =0.34, p = .73, d = 0.04, suggesting perceived depression did not influence treatment recommendations.

Discussion

The results of Study 1 were consistent with our hypothesis that bilingual people would be more willing to recommend mental-health treatment in their foreign



Fig. 3. Effect of language on treatment recommendations across incrementally increasing levels of decline in functioning (none | low | moderate | sharp) in Study 1.

English than their native Chinese. Note that this effect could not be explained by differences in the perceived level of depression of the individual described because there were no differences in perceived depression ratings across language conditions.

Study 2: Treatment Recommendations Among Bilingual Speakers of Chinese and English in China

Although Study 1 provided initial support for our hypothesis, all the participants in the sample resided in the United States at the time of the study. Hence, the language effect could have resulted from immersion in the cultural values associated with English-speaking culture, consistent with research with bicultural bilingual people activating certain cultural values depending on the language they are using (Chen & Bond, 2010). Therefore, to test whether the effect depends on bilingual people having extended bicultural experience, in Study 2, we recruited bilingual speakers of Chinese and English who were residing in China. If this language effect does not depend on being embedded in an English-speaking context, then it should replicate for bilingual people residing in China.

Furthermore, to determine whether participants were simply more likely to recommend treatment in a foreign language for any disorder irrespective of its nature, in Study 2, we introduced a physical-health vignette. Because stigma is more distinctively associated with mental disorders specifically (Qin & Hsieh, 2020), if the language effect on treatment recommendations is driven by reducing the salience of stigma, we predicted an effect of language with the mental-health vignette but not with the physical-health vignette.

Finally, we made minor changes to the vignette and included a more explicit measure of stigma by administering two additional questionnaires that gauge stigma toward mental illness and mental-health treatment.

Method

Transparency and openness. Study 2 was approved by the University of Chicago Institutional Review Board and was carried out in accordance with the provisions of the 2013 World Medical Association Declaration of Helsinki. Data and materials for this and all studies reported can be found on OSF at https://osf.io/wn2bz/. We report how we determined our sample size, all data exclusions, all manipulations, and all measures in the study. Study 2 was preregistered at https://osf.io/wr4ye.

Participants. Two hundred one Chinese participants residing in Beijing were recruited in person using the same screening criteria as Study 1. Participants were excluded if they reported their English proficiency as higher than their native Mandarin Chinese proficiency (n = 1) or failed at least one of two comprehension checks (n = 5). This left a sample size of 195 participants (age: M = 24.7 years, range = 18-51; 49.23% male, 50.77% female). From this sample, participants reported a mean English proficiency of 5.18 (SD = 1.00) and a mean Chinese proficiency of 6.78(SD = 0.61) on a scale from 1 (not proficient) to 7 (very proficient). The mean age of acquisition of English as a foreign language was 10.2 years (SD = 3.9), and participants had spent on average 6.9 months (SD = 16.9) in an English-speaking country. Finally, 24.35% of participants reported having previously used mental-health services in the past. No measure of education or socioeconomic status was collected.

Materials. We made a few key changes to the materials from Study 1. First, we modified the vignette to address the possibility that language may have differentially influenced participants' perceived closeness to the described individual as well as the individual's implied location. To address the perceived closeness, the relationship of the reader to the individual ("a close friend") was clearly specified. Then, to prevent any assumptions that perhaps the individual described in the English version of the vignette was either residing in an English-speaking country or was someone from abroad, the individual's current location ("Beijing") and name (e.g., "Zhang Wei") were specified. In addition, of the four scenarios in which the individuals's social and occupational functioning incrementally deteriorated, we excluded the level that indicated

no decline, in which both aspects were fully intact. Finally, we developed and presented participants with a second vignette that described a physical disorder in which a separate individual of the same gender as the participant was described as suffering from physical symptoms consistent with diabetes.

We also included two questionnaires to measure different facets of mental-health stigma. To assess stigma toward the individual with depression described in the mental-health vignette, participants completed a modified version of the 27-item Attribution Questionnaire (AQ-27; Corrigan, 2008). The original AQ-27 includes a vignette describing an individual with schizophrenia, followed by 27 items responding to the vignette. These items are divided into nine factors measuring different stereotypical attributions regarding people with mental illness; each item measures endorsement of an attribution on a scale from 1 (none at all) to 9 (very much). To adapt the AQ-27 for our study, we replaced the original vignette with our own and excluded three factors not as relevant to depression: dangerousness, segregation, and coercion. Moreover, two items assessing how "frightened" and "scared" one would be of the individual were collapsed into a single item because both words translate to the same term in Chinese ("害 怕"). To measure stigma toward seeking mental-health treatment, we used the 10-item Attitudes Toward Seeking Professional Psychological Help Scale - Short Form (ATSPPH-SF) developed by Fischer and Farina (1995). For this scale, participants responded on a scale from 0 (disagree) to 3 (agree); higher total scores indicate more positive attitudes toward help seeking. Both stigma scales were translated to Chinese and then back translated to English to ensure the meaning accurately translated from English to Chinese (Brislin, 1970).

Procedure. Participants were randomly assigned to complete the survey in English (n = 96) or Chinese (n = 99). First, participants read the physical-health vignette, which described an individual experiencing an onset of physical symptoms characteristic of diabetes. Then, on a scale of 0 (*definitely should not*) to 100 (*definitely should*), they were asked whether they think this individual should go to a doctor to receive treatment. Participants then read the mental-health vignette and using the same scale evaluated whether the individual should go to a clinical psychologist to receive treatment.

After the second vignette, participants rated their perceived depression of the individual in the mentalhealth vignette and were presented with the three deteriorating social- and occupational-functioning scenarios from Study 1. Finally, participants completed a modified version of the AQ-27 followed by the ATSPPH-SF. At the end of the study, participants answered a brief set of demographic questions and were compensated for their time.

Results

Physical bealtb. First, we evaluated whether there were differences in recommending an individual with symptoms consistent with diabetes seek medical treatment. Here, we found that language did not affect treatment recommendations (English: M = 92.68, SD = 11.73; Chinese: M = 91.76, SD = 11.93; 95% CI = [-2.42, 4.24]), t(192.96) = 0.54, p = .59, d = 0.08. This shows that language did not affect treatment recommendations for disorders that are not stigmatized.

Mental bealth. Unlike in Study 1, participants were just as likely to initially recommend mental-health treatment in Chinese (M = 86.87, SD = 15.10) as in English (M = 87.01, SD = 20.26), t(175.54) = 0.06, p = .96, d = 0.01. Furthermore, when examining the impact of language and decline of deterioration of social and occupational functioning on subsequent treatment recommendations, there was neither a main effect of language, F(1, 193) = 1.03, p = .31, $\eta^2_G = .004$, nor an interaction between language and decline, F(2, 386) = 0.36, p = .70, $\eta^2_G < .001$.

Attribution questionnaire. Of the six factors used from the AQ-27 to measure stigma, participants indicated they would ascribe greater blame to the individual described in the vignette for their present condition in Chinese (M = 12.92, SD = 5.18) than in English (M = 11.38, SD = 4.77; 95% CI = [0.14, 2.95]), t(192.48) = 2.17, p = .03, d = 0.31, and would feel less pity for the individual in Chinese (M = 18.87, SD = 4.72) than in English (M = 20.31, SD = 4.49), t(192.93) = 2.19, p = .03, d = 0.31.

As for the four remaining factors, there were no significant differences across languages. That is, participants reported they would feel similarly angry (Chinese: M = 10.32, SD = 5.24; English: M = 9.27, SD = 4.82), t(192.48) = 1.46, p = .15, d = 0.21; frightened (Chinese: M = 7.71, SD = 3.95; English: M = 6.75, SD = 3.76), t(192.93) = 1.73, p = .09, d = 0.25; avoidant (Chinese: M = 15.34, SD = 4.85; English: M = 15.60, SD = 4.26; 95% CI = [-1.03, 1.55]), t(191.14) = 0.40, p = .69, d = 0.06; and willing to offer help (Chinese: M = 6.56, SD = 3.84; English: M = 6.18, SD = 4.73; 95% CI = [-1.60, 0.84]), t(182.96) = 0.61, p = .54, d = 0.09.

Attitudes toward seeking professional psychological belp. Although only a small difference, participants had more positive personal attitudes regarding seeking mental-health treatment in Chinese (M = 17.20, SD =2.93) than they did in English (M = 16.17, SD = 2.96), t(192.69) = 2.46, p = .02, d = 0.35. Higher scores indicate more positive attitudes.

Discussion

In Study 1, bilingual people provided stronger mentalhealth-treatment recommendations in their foreign language. Given that no language effect was found for a physical disorder (diabetes), Study 2 provided initial evidence that the effect is specific to mental-health disorders, thus suggesting that it manifests only when a behavior is incongruent with cultural values. However, Study 2 did not replicate Study 1. In addition, although participants did indicate they would feel significantly more pity and would ascribe less blame to the individual for depression in their foreign English than in their native Chinese (in line with our cultural framework), they also reported more positive attitudes regarding seeking mental-health treatment in Chinese than in English.

We considered two reasons for the lack of replication. One is that the language effect found in Study 1 may depend on being immersed in an English-speaking culture. This would produce the results found across Studies 1 and 2. However, it may also be the case that some of the changes made to Study 2 have resulted in a nonreplication. Specifically, in Study 2, we included a physical-health vignette before the mental-health vignette. Participants strongly recommended seeking medical treatment for the physical disorder in both languages, and this may have influenced their treatment recommendations in the subsequent mental-health vignette. This is indirectly supported by the boost in mental-health-treatment recommendations in Study 2 compared with Study 1, particularly for participants responding in Chinese. In Study 1, the mean treatmentrecommendation score was 85.86 in English and 75.34 in Chinese, whereas in Study 2, it increased to 87.01 in English and 86.87 in Chinese. In addition, the revision of the vignette in Study 2 may have contributed to the nonreplication. In particular, including a name and age for the individual in the vignette may have resulted in the character being overspecified in a way that limited participants' ability to imagine someone in their own lives.

Study 3: Treatment Recommendations Among Bilingual Speakers of Chinese and English in China (Abbreviated Study)

To determine whether the different pattern of results between Studies 1 and 2 was either evidence that the language effect depends on cultural immersion or may have been due to changes made to Study 2, we made a few key changes from Study 2 to Study 3. First, we removed the physical-health vignette to prevent any interference from it on the mental-health-vignette treatment recommendations. We also removed mention of the individual's name and age in the vignette, essentially reverting to a more general description similar to Study 1. In avoiding an overspecific description, this should have better allowed participants to imagine an actual person they know. Finally, because the goal of Study 3 was to see whether the effect of language from Study 1 replicated, we ran an abbreviated version of Study 2 that did not include the stigma questionnaires.

If the results of Study 3 replicate those of Study 2, then this would provide support for the theory that the effect of language depends on being culturally immersed in English-speaking culture. However, if the results of Study 1 replicate in Study 3, this would provide initial evidence that the lack of replication in Study 2 was due to the procedural changes and that the language effect may be driven by a distancing from cultural values encoded in one's native language.

Method

Transparency and openness. Study 3 was approved by the University of Chicago Institutional Review Board and was carried out in accordance with the provisions of the 2013 World Medical Association Declaration of Helsinki. Data and materials for this and all studies reported can be found on OSF at https://osf.io/wn2bz/. We report how we determined our sample size, all data exclusions, all manipulations, and all measures in the study. Study 3 was preregistered at https://osf.io/5bw8g.

Participants. Four hundred eighteen Chinese participants residing in Beijing were recruited in person using the same screening criteria as Study 1. Participants were excluded if they reported their English proficiency as higher than their native Mandarin Chinese proficiency (n = 12) or failed the comprehension check (n = 14). This left a sample size of 392 participants (age: M = 22.38years, range = 18-50; 69.1% female, 30.9% male). From this sample, participants reported a mean English proficiency of 4.70 (SD = 1.19) and a mean Chinese proficiency of 6.58 (SD = 0.59) on a scale from 1 (not proficient)to 7 (very proficient). The mean age of acquisition of English as a foreign language was 9.8 years (SD = 5.1). And on average, participants had spent 8.5 months (SD =26.2) in an English-speaking country. No measure of education, socioeconomic status, or previous use of mentalhealth services was collected.

Materials. The mental-health vignette remained the same as in Study 2 barring the removal of the name and age of the character in the vignette. In addition, the physical-health vignette and stigma questionnaires from the



Fig. 4. Effect of language on treatment recommendations across incrementally increasing levels of decline in functioning (low | moderate | sharp) in Study 3.

previous study were removed; the social- and occupational-functioning scenarios were kept the same.

Procedure. Participants were randomly assigned to complete the survey in English (n = 197) or in Chinese (n = 195). Similar to Studies 1 and 2, participants were first presented with the mental-health vignette followed by the three social- and occupational-functioning scenarios. Participants responded using the same scale as Studies 1 and 2. Following the scenarios, participants answered a brief set of demographic questions and were compensated for their time.

Results

Study 3 replicated the language effect from Study 1. Across the varying levels of deterioration in social and occupational functioning, there was a significant main effect of language such that participants reported stronger treatment recommendations in English (M = 81.75, SD = 21.87) than in Chinese (M = 77.57, SD = 23.91), F(1, 390) = 5.13, p = .02, d = 0.19. The interaction between language and decline was not significant, F(2, 780) = 1.77, p = .17, $\eta_{G}^{2} = .001$ (see Fig. 4).

Discussion

Study 3 replicated Study 1: Participants provided stronger mental-health-treatment recommendations in their foreign English than in their native Chinese. Therefore, the language effect found in Study 1 does not depend on residing in an English-speaking country and possessing more extensive cultural immersion.

Study 4: Testing Explanations for the Language Effect on Treatment Recommendations

The goal of Study 4 was to examine more directly the roles of culture and stigma in the effect of language on treatment recommendations. To this end, we made two additions compared with Study 3. First, we reintroduced both stigma questionnaires (AQ and ATSPPH-SF) in Study 4. Second, to assess whether the effect of language is indeed due to a distancing from cultural norms encoded in one's native language, we examined whether the effect of language varies as a function of adherence to these cultural norms and values through the inclusion of the Asian Values Scale-Revised (Kim & Hong, 2004). In other words, culture might ultimately discourage seeking mental-health treatment not only through outright stigma but also more subtly through deeply ingrained cultural norms. As mentioned, in Chinese society, attitudes toward mental illness are also shaped by the culture's collectivistic nature, the uniquely pivotal role of social reputation (mianzi), and the emotional reticence and self-reliance ultimately encouraged to avoid loss of face (Cheng, 2015; Yasui et al., 2017). Therefore, we investigated whether these values have a greater impact when using Chinese than when using English.

If the use of one's native language is indeed more closely tied with cultural values that make it less permissible to recommend mental-health treatment, then we predict a greater difference in treatment recommendations between English and Chinese for participants with a stronger adherence to traditional Asian values.

Method

Transparency and openness. Study 4 was approved by the University of Chicago Institutional Review Board and was carried out in accordance with the provisions of the 2013 World Medical Association Declaration of Helsinki. Data and materials for this and all studies reported can be found on OSF at https://osf.io/wn2bz/. We report how we determined our sample size, all data exclusions, all manipulations, and all measures in the study. Study 4 was preregistered at https://osf.io/f8w2x.

Participants. Three hundred fifty Chinese participants residing in Beijing were recruited in person using the same screening criteria as Study 1. Participants were excluded if they reported their English proficiency as higher than their native Mandarin Chinese proficiency

(n = 18), failed the comprehension check (n = 7), or had a technical issue during the survey (n = 2). This left a sample size of 323 participants (27.2% male, 72.14% female, 0.6% other). From this sample, participants reported a mean English proficiency of 5.50 (SD = 1.01)and a mean Chinese proficiency of 6.81 (SD = 0.41) on a scale from 1 (not proficient) to 7 (very proficient). The mean age of acquisition of English as a foreign language was 8.6 years (SD = 3.7). Participants had spent on average 15.6 months (SD = 26.4) immersed in an Englishspeaking country. No measure of education, socioeconomic status, or previous use of mental-health services was collected. In addition, because of a programming error, participants' age was not collected. However, participants were recruited using similar recruitment methods as Studies 2 and 3 and therefore likely fall into a similar age distribution as prior studies.

Materials. Study 4 used the same study materials as Study 3 plus three sets of scales not used in Study 3. First, the study included the ATSPPH-SF from Study 2 and the AQ-9 (Corrigan, 2008), which is an abbreviated version of the AQ-27 used in Study 2 that includes only the highest loading item for each of the nine factors. We modified the AQ-9 for our current purposes by excluding one of its nine factors (i.e., segregation) that was deemed too extreme to use in the context of depression. Second, we included the Asian Values Scale–Revised (Kim & Hong, 2004) to measure adherence to Asian cultural values. As with the AQ and ATSPPH-SF, the Asian Values Scale–Revised was translated to Chinese and back translated to English to ensure the meaning accurately translated from English to Chinese (Brislin, 1970).

Procedure. Participants were randomly assigned to complete the survey either in Chinese (n = 157) or in English (n = 166). The procedure was the same as Study 2, with the addition of the Asian Values Scale–Revised at the end of the experiment. To capture the extent to which individuals identified with traditional Asian values without language influencing responses to the scale, all responses to this scale were collected in their native Chinese. As in previous studies, the gender of the individual described in the vignette and scenarios was matched to that of the participant. For participants who indicated "other" (0.6%), the gender of the character in the vignette was randomly assigned between the two versions.

Results

Similar to Studies 1 and 3, there was a significant main effect of language on mental-health-treatment recommendations such that individuals made stronger treatment recommendations across the decline levels in English (M = 81.92, SD = 21.89) than in Chinese (M = 78.04, SD = 21.77), F(1, 321) = 4.74, p = .03, d = 0.19. Similar to Study 3, language and decline did not interact, F(2, 638) = 2.41, p = .09, $\eta^2_G = .002$. Therefore, we averaged the mean treatment recommendations across the levels of decline and used it in the following mediation and moderation analyses to examine why individuals were providing stronger treatment recommendations in English. The following analyses focused on the perceived depression of the individual in the vignette, stigma toward the individual described in the vignette (AQ), stigma toward seeking mental-health treatment (ATSPPH-SF), and adherence to traditional Asian values (Asian Values Scale–Revised).

Perceived depression. First, there was a small but nonsignificant difference in perceived depression of the individual; participants ascribed slightly higher depression ratings in English (M = 3.96, SD = 0.65) than in Chinese (M = 3.81, SD = 0.72; 95% CI = [-0.27, 0.03]), t(313.19) =1.60, p = .10, d = 0.17. Therefore, as a first step in mediation, we examined whether the effect of language was reduced when including depression scores into our prior model. However, the effect of language became stronger, not weaker, therefore showing that differences in perceived depression did not mediate the language effect.

Attribution questionnaire. Of the eight factors used from the AQ-9 to measure stigma, participants reported they would feel more frightened of the individual in English (M = 4.93, SD = 2.49) than Chinese (M = 3.36, SD =2.15; 95% CI = [1.06, 2.08], t(318.41) = 5.89, p < .001, d =0.68; less avoidant in English (M = 1.98, SD = 1.21) than Chinese (M = 2.34, SD = 1.57; 95% CI = [0.05, 0.66]),t(292.75) = 2.27, p = .02, d = 0.26; and less likely to force treatment in English (M = 5.62, SD = 2.21) than Chinese (M = 6.15, SD = 1.96; 95% CI = [0.07, 0.98]), t(319.61) =2.27, p = .02, d = .25). Although the less stigmatizing attitudes in English, in terms of less coercion and avoidance, were in line with our hypothesis, the relatively greater fear exhibited in English was surprising. However, when each of these factors was included separately in the treatmentrecommendation model along with language, the language effect either became stronger or remained the same, suggesting possible differences across these factors did not mediate the language effect.

As for the other five factors, there were no significant differences in pity (Chinese: M = 7.44, SD = 1.63; English: M = 7.39, SD = 1.81; 95% CI = [-0.33, 0.42]), t(320.14) = 0.25, p = .80, d = 0.03; danger (Chinese: M = 6.83, SD = 1.69; English: M = 6.71, SD = 1.85; 95% CI = [-0.31, 0.34]), t(320.59) = 0.66, p = .51, d = 0.07; blame (Chinese: M = 2.69, SD = 1.67; English: M = 2.57, SD = 1.51; 95% CI = [-0.23, 0.47]), t(319) = 0.91, p = .36,



Fig. 5. Mental-health-treatment recommendations across different levels of traditional Asian values by language. Higher scores on the x axis indicate higher adherence to traditional Asian values.

d = 0.07; anger (Chinese: M = 2.12, SD = 1.53; English: M = 2.06, SD = 1.46; 95% CI = [-0.31, 0.34]), t(317.63) = 0.09, p = .92, d = 0.01; or desire to help (Chinese: M = 3.41, SD = 2.73; English: M = 3.57, SD = 2.97; 95% CI = [-0.78, 0.47]), t(320.76) = 0.48, p = .63, d = 0.06.

Attitudes toward seeking professional psychological belp. Finally, we examined general attitudes around mental-health treatment. Here, too, although individuals did show a significant effect of language, whereby they actually had more positive attitudes toward mental-health treatment in Chinese (M = 17.11, SD = 2.97) than in English (M = 16.14, SD = 2.70; 95% CI = [0.35, 1.59]), t(314.15) =3.07, p = .002, d = 0.34, including this factor in the model did not change the strength of the language effect, and hence this factor did not mediate the effect.

Traditional Asian values. As a possible moderating factor, we also collected measures of how aligned individuals reported themselves as being with traditional Asian values. Because there was a marginally significant interaction between language and adherence to traditional Asian values on treatment recommendations, F(1, 319) = 3.58, p = .06, $\eta_p^2 = .01$, a Johnson Neyman moderation was run to see at what value of the moderator there is a significant difference in treatment recommendations, for 55.73% of participants who had a traditional Asian values score higher than 59.27, there is a significant effect of language on treatment recommendations (at p < .05). Among this group, participants were consistently more

willing to recommend treatment in English than in Chinese (see Fig. 5). This analysis demonstrates that adherence to traditional Asian values played a role when participants used Chinese but not English. When using Chinese, the more an individual reported feeling aligned with traditional Asian values, the less they were likely to recommend treatment; however, when using English, their treatment recommendation was independent of their alignment with traditional Asian values.

General Discussion

We found that bilingual speakers of Chinese and English are more likely to recommend professional mentalhealth treatment for an individual with depression when the information is presented in their foreign English than in their native Chinese. In particular, the language effect was found both for participants residing in the United States (Study 1) and participants in mainland China (Studies 3 and 4). Thus, these findings suggest the language effect does not depend on the context of one's immediate environment or on having had spent extensive time in an English-speaking country. The language effect on mental-health-treatment recommendations did not replicate in Study 2, likely because of a procedural limitation, which was subsequently resolved in Studies 3 and 4. Furthermore, we found that the language effect was reserved particularly for mental illness (Studies 1, 3, 4), given that it was not found for strictly physical disorders (Study 2). This suggested that participants were not simply more readily endorsing treatment in general but specifically for mental-health disorders, in which professional treatment is culturally incongruent.

Finally, in Study 4, we examined several factors that might explain the effect of language on treatment recommendations. Overall, there were no significant differences across languages in the stigma questionnaires, and neither mediated treatment recommendations. However, we found that as adherence to traditional Asian values increased, the strength of treatment recommendations decreased in Chinese. Yet in English, treatment recommendations remained independent of any affiliation with traditional Asian values. In this manner, Study 4 further bolstered the central role played by culture in shaping conceptualizations and attitudes regarding mental illness and seeking treatment.

In sum, our studies reveal the significance of language in influencing culturally anchored mental-health attitudes among bilingual Chinese individuals. This highlights the importance of attending to the specific language through which mental-health-treatment information is communicated. Considering the widespread effects of mental illness, the dire delays just in seeking—not necessarily even receiving—treatment, the serious emotional distress, and reduced access to housing and employment opportunities (Surgeon General, 2001; Wang et al., 2005), it is essential to find ways to remove such barriers and make it more permissible to seek professional mentalhealth treatment.

Most practically, our findings have important clinical implications, particularly for bilingual Chinese individuals who are living abroad and hence may encounter mental-health-service information in either their native Chinese or foreign language. Although reducing language barriers through the provision of services in the native tongue is routinely recommended (e.g., Leong & Lau, 2001), our studies signal the potential need for discretion when serving bilingual speakers. We show that something as simple as considering the possibility of mental-health treatment in a foreign language can make treatment seem more permissible than when considered through the lens of one's native tongue. When cultural values associated with the native tongue are inconsistent with mental-health treatment, this kind of simple intervention could nudge individuals who are uncertain about pursuing treatment toward actually seeking it. Such intervention may be particularly effective for individuals who are less acculturated and hold a strong cultural orientation, such as relatively new immigrants or international students. In this regard, we note that among Asian Americans, the children of immigrants are more similar to immigrants in their pattern of service use, whereas third-generation or later individuals are more similar to the general population in the United States (Abe-Kim et al., 2007).

That said, there are a number of areas within our studies that warrant future research. First, our studies focus specifically on examining attitudes around seeking mental-health treatment with a focus on psychotherapy. Future studies could also examine how language may influence the likelihood of seeking other forms of care more broadly, such as support groups or more complementary medicine approaches that combine conventional treatments with culturally based alternative-medicine approaches (Fang & Schinke, 2007; Zhu, 2019).

In addition, our studies focused on native Chinese bilingual speakers in the United States and China. Although Chinese individuals make up the largest population globally (United Nations, 2021), it would be important to extend these findings to other communities as well. Given that many Asian communities have similar culturally-anchored values, it would be of particular interest to test whether these findings extend to such communities. Moreover, because stigma toward mental illness is near universal, although it manifests differently across cultures (Yang et al., 2007; Yasui et al., 2017), it would also be of interest to explore this language effect in non-Asian cultures. Globally, 280 million individuals live outside the country of their birth (Menozzi, 2020), and many know both their native language and the local language of their country of residence. Therefore, it would be important to examine whether this extends more broadly to other bilingual groups beyond Asian cultures.

An investigation of the language effect with additional bilingual populations would serve another important function. Our investigation demonstrates that the salience of cultural norms contributes to the language effect. However, it is not clear whether the observed effect is driven by cultural distancing, cultural priming, or some combination of the two. In other words, it may be the case that deliberating about professional mentalhealth services in a foreign language distanced participants from cultural beliefs encoded more strongly in their native Chinese, that English in particular primed more permissible attitudes toward these services (which are more normative in Western culture), or both. Note that English priming more permissible cultural attitudes is predicated on participants being not only bilingual but also bicultural, yet the language effect replicated with a group of bilingual speakers residing in China with relatively little bicultural exposure. Although this finding provides more support for cultural distancing, it does not rule out that cultural priming could be at play if participants are generally aware of the more permissible attitudes around psychotherapy in Western culture. If, however, the language effect was to replicate in circumstances in which the foreign language is a non-Western language, this would more clearly support cultural distancing over cultural priming. More fundamentally, one of the reasons it was difficult to tease apart cultural distancing versus cultural priming is the inherent asymmetry between the cultures associated with each language and their respective congruence with mental-health treatment. To address this, a simpler examination would involve studying a language pair associated with cultures sharing relatively similar attitudes regarding mental-health treatment. If the language effect still replicates, it is unlikely to be explained by cultural priming.

Finally, our studies have three limitations that might be worth addressing in future research. First, our sample comprised primarily younger individuals, mainly because we recruited individuals with a higher working English proficiency, who tend to be younger than the overall population. Future work could examine the impacts of language use on mental-health attitudes across the age spectrum. Second, we did not measure education level or socioeconomic status and therefore could not examine whether these language effects vary as a function of such factors. Third, almost all the participants in our studies have been immersed in an English-speaking country for a relatively short time. Further studies could examine the effect of language for individuals who have spent longer periods of time immersed in an English-speaking country.

In conclusion, our studies offer an important insight into the role of language and culture and how their connection can influence attitudes toward mental health among bilingual speakers. We hope that these findings will highlight the prominence of the role of language in mental-health decision-making and will inspire research on its applicability to other cultures and, ultimately, to treatment-seeking behavior.

Transparency

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Author Contribution(s)

Uriel C. Heller: Conceptualization; Investigation; Methodology; Writing – original draft.

Leigh H. Grant: Conceptualization; Formal analysis; Investigation; Methodology; Writing – review & editing.

Miwa Yasui: Conceptualization; Methodology; Writing – review & editing.

Boaz Keysar: Conceptualization; Methodology; Writing – review & editing.

Declaration of Conflicting Interests

The author(s) declared that there were no conflicts of interest with respect to the authorship or the publication of this article.

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Open Practices

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