

PERCEPTIONS OF ATTENUATED PSYCHOSIS SYNDROME (APS) IN AN ETHNICALLY
DIVERSE SAMPLE OF COLLEGE UNDERGRADUATES

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Table of Contents

List of Tables	ii
Introduction	1
Methods	14
<i>Participants</i>	14
<i>Materials</i>	15
<i>Procedure</i>	16
Results	17
<i>Exploratory and Confirmatory Factor Analyses</i>	17
<i>Within-group Analyses</i>	21
<i>Within-Questionnaire Factor Comparisons</i>	24
<i>Between-Group Ethnicity Comparisons</i>	25
<i>Interactions Between Ethnicity and Factor</i>	27
Discussion	28
Conclusions	35
Tables	36
Appendix A	48
<i>Sample Vignettes</i>	
Appendix B	49
<i>Questions Questionnaire</i>	
Appendix C	50
<i>Causes, Types, and Sources Questionnaire</i>	
References	51

List of Tables

Table 1. Model Fit Results for Causes Questionnaire.....	36
Table 2. Factor Loadings of Causes Items.....	37
Table 3. Model Fit Results for Types of Help.....	38
Table 4. Factor Loadings of Types of Help Items.....	39
Table 5. Model Fit Results for Sources of Help Questionnaire.....	40
Table 6. Factor Loadings of Sources of Help Items.....	41
Table 7. Model Fit Results for Questions Questionnaire.....	42
Table 8. Factor Loadings of Questions Items.....	43
Table 9. Repeated-Measures ANOVAs by Psychosis Level.....	44
Table 10. Repeated-Measures ANOVAs Comparing Factors Within Questionnaire.....	45

Perceptions of Attenuated Psychosis Syndrome (APS) in an Ethnically Diverse Sample of College Undergraduates

Schizophrenia is a debilitating and costly disorder, affecting approximately 1% of the population and resulting in billions of dollars annually in excess healthcare costs. One recent study estimated the excess direct medical cost of schizophrenia in the United States, which includes expenses such as medication and hospital stays, to be approximately 22.7 billion dollars annually (Wu et al., 2005). Schizophrenia is characterized by positive symptoms (symptoms that are present in schizophrenia that are not present in non-psychotic individuals), such as auditory or visual hallucinations or delusions, and negative symptoms (symptoms that are not present in schizophrenia that are present in non-psychotic individuals) such as flat affect or reduced ability to experience emotion. These symptoms are frequently accompanied by decreased cognitive and social abilities, increased comorbid psychiatric conditions and substance use, and medications with a host of undesirable side effects. Furthermore, a diagnosis of schizophrenia has been found to be associated with both internal and external stigmatization and may be associated with discrimination when applying for jobs, finding housing, or seeking insurance coverage (Dickerson, Sommerville, Origoni, Ringel, & Parente, 2002). Due to the financial burden of the disorder both on society and on the individual, attention and demand has shifted to prevention, with researchers and policymakers now attempting to address early signs of psychosis in a way that could prevent subsequent conversion to more severe mental illness.

Although the exact etiology of schizophrenia remains unknown, there is evidence that schizophrenia progresses in phases with generally identifiable patterns of abnormalities. In the first phase, the premorbid phase, overt symptoms of psychosis are largely undetectable; however, the individual may begin to exhibit negative symptoms and cognitive deficits. When an

individual progresses to the prodromal phase, subclinical positive symptoms (e.g., having the notion that others might be able to hear one's thoughts being spoken out loud) begin to manifest and intensify. In some cases, these symptoms escalate to what is known as a “first episode of psychosis” in which one or more domains of functioning, such as social or occupational functioning, are impacted. Often, this is the point at which the individual encounters the healthcare system, either through voluntary treatment-seeking behavior or hospitalization. The course of illness from this point depends on many things (e.g., severity of prodromal symptoms and history of substance abuse; Cannon et al., 2008), but outcomes can vary from symptom remission to conversion to full-blown psychosis. A recent meta-analysis of DSM/ICD diagnostic outcomes reported that 26% of 2,182 study participants who were identified as being at clinical high-risk for psychosis went on to experience a psychotic episode at some point over the course of 2.35 years (Fusar-Poli et al., 2013). The majority (59%) of these individuals were eventually diagnosed with schizophrenia, whereas 11% were diagnosed with affective psychosis and 16% with other psychoses. These figures indicate that, while the majority of individuals who present with high-risk for psychosis will sufficiently recover or achieve remission from their symptoms, those who progress in the disorder are far more likely to suffer from serious impairment.

One consistent determining factor in the prognosis of high-risk individuals is the duration of untreated psychosis (DUP). Several studies have indicated that the longer one goes from the onset of psychosis to first treatment, the less likely he or she is to eventually achieve symptom remission (e.g., Malla et al., 2006; Simonsen et al., 2007; Tang et al., 2014). For example, a prospective study conducted in Hong Kong, which followed up with first-episode psychosis patients after 1, 2, 3, and 13 years, found that patients with short DUP (<30 days) were significantly more likely than those with medium (31-180 days) or long (\geq 180 days) DUP to

have achieved remission from the 2-year time point onward (Tang et al., 2014). Furthermore, there was no significant difference in remission rate among the medium and long DUP groups, suggesting that DUP persisting beyond a month can significantly impact prognosis. Because the majority of individuals with early signs of psychosis do remit (approximately three-quarters, according to the estimate of Fusar-Poli et al., 2013) and because DUP is consistently found to be negatively correlated with symptom improvement, recent research has shifted focus to identifying early detection methods and interventions for individuals in the prodromal phase. If we can identify and treat these people as early as possible, we may be able to improve the course of symptoms, delay the onset of schizophrenia, or prevent it from developing entirely.

Until recently, no official diagnosis existed that accurately captured the construct of the psychosis high-risk state, leaving practitioners uncertain of how to classify and treat patients who experienced distressing symptoms of psychosis but did not meet criteria for another psychosis-spectrum diagnosis, such as schizophrenia or schizotypal personality disorder (Woods, Walsh, Saks, & McGlashan, 2010). Assuredly, the language used to describe the high-risk state illustrates this ambiguity, as researchers will refer to “clinical high risk,” “ultra-high risk,” “at-risk mental state,” and “prodromal phase” interchangeably. In light of this concern, prior to the release of the most recent edition of the Diagnostic and Statistical Manual (DSM-5; American Psychiatric Association, 2013), experts in the field raised the question of whether to include a psychosis-risk syndrome, termed Attenuated Psychosis Syndrome (APS), in the main body of the text. Proposed clinical criteria for an APS diagnosis include, specifically, the presence of one or more attenuated delusions/delusional ideas, hallucinations/perceptual abnormalities, or disorganized speech/communication which must have occurred at least once per week over the past month, must have begun or worsened over the past year, are sufficiently distressing, lead the

client to seek help, and are not better accounted for by any other diagnosis (Tsuang et al., 2013). Furthermore, the client must never have met criteria for a psychotic disorder at any point in the past. APS differs from other less severe disorders on the psychosis spectrum – such as schizotypal personality – in that fewer and less concrete symptoms are required for diagnosis and these symptoms may occur within a shorter time frame. Similarly, both the attenuated nature and the reduced frequency of APS symptoms preclude a more severe diagnosis like schizophrenia.

The decision of whether or not to include APS as a DSM-5 diagnosis sparked tremendous debate within the field of psychosis research. Both sides agreed on several key points: (1) individuals in the prodromal phase of psychosis are indeed symptomatic; (2) they are at an increased risk of transitioning to more severe psychosis; (3) they are frequently in need of intervention to address their symptoms and prevent psychiatric deterioration; and, critically, (4) there are inherent risks involved in adding a psychosis-risk syndrome as a diagnosis, such as the potential for false positives, stigma, and discrimination of individuals diagnosed with APS (Nelson & Yung, 2011). Scholars who advocated for APS argued that having a named psychosis-risk syndrome would decrease the likelihood of misdiagnosing individuals with more serious psychotic disorders and, by extension, would deter clinicians from prescribing potentially harmful doses of antipsychotic medication or otherwise contraindicated treatments (Woods et al., 2010). A defined set of diagnostic criteria for the high-risk state may serve to aid community clinicians who are often not well-trained in discriminating among schizophrenia-spectrum disorders and may also help these clinicians determine an appropriate course of treatment.

One of the major, persistent arguments against including APS in the DSM-5 as a diagnostic category, however, is that doing so would increase the likelihood that people who receive the diagnosis will be stigmatized by others or will experience internal stigmatization,

wherein an individual begins to think negatively of him or herself based on the diagnosis (Yang, Wonpat-Borja, Opler, & Corcoran, 2010). Mental illness stigma research has indeed shown that people express more favorable attitudes toward, and desire less social distance from, individuals described as physically ill when compared with those described as mentally ill; mental illness tends to be conceptualized as more within a person's control than physical illness (Corrigan et al., 2000). Furthermore, people differentially stigmatize mental illness such that psychosis and drug addiction are associated with stronger conceptions of instability and social avoidance, but conditions such as major depression are not viewed as negatively (Corrigan et al., 2000). For example, vignette characters described as having symptoms of substance dependence or schizophrenia were more likely than a character with major depressive disorder to be rated as violent and unpredictable in a nationally representative sample (Link, Phelan, Bresnahan, Stueve, & Pescosolido, 1999). Study participants also desired greater social distance from these characters when compared with those who were described as experiencing symptoms of depression (Link et al., 1999) or panic disorder (Kasow & Weisskirch, 2010). This has serious implications for the quality of life of people with schizophrenia-spectrum or other psychotic disorders, as stigma of this nature can affect an individual's job prospects, social opportunities, and self-esteem (Staring, Van der Gaag, Van den Berge, Duivenvoorden, & Mulder, 2009).

APS opponents contend that formally diagnosing high-risk individuals with APS may result in similar stigmatization, which could be especially detrimental for prodromal patients who do not go on to develop a psychosis-spectrum disorder (i.e., false positives), due to the transience of their symptoms. However, there is a general lack of evidence regarding whether at-risk individuals are stigmatized in a similar manner as individuals with schizophrenia, or if they are even stigmatized at all. One of the few studies attempting to empirically address this

question, though published after the release of the DSM-5, provided initial evidence that labelling a vignette character with a diagnosis of “state of high risk for psychosis” can lead to patterns of stereotyping and discriminatory beliefs similar to those associated with schizophrenia in a sample of young college students (Yang et al., 2013). While this is an important initial step toward uncovering the relationship between stigma and attenuated psychosis symptoms, replication is needed to determine whether these findings generalize beyond a sample of urban college students.

Ultimately the psychotic disorders work group decided to include APS in Section III of the DSM-5 as a “condition for further study,” citing a general lack of research on APS as a condition (Tsuang et al., 2013). Specifically, the work group concluded that there was insufficient evidence showing that APS represents a trait – rather than a state – condition, that the help-seeking behaviors of APS individuals are consistently attributable to APS, rather than to a comorbid condition, and, most importantly, that APS can be reliably identified by non-expert clinicians. Tsuang et al. (2013) note that, because there was not an adequate number of presenting APS cases during the DSM-5 field trials to allow for estimates of interrater kappa between clinicians (Regier et al., 2013), APS was essentially disqualified from the main body of the text.

The unreliable identification of APS symptoms is further highlighted in a study by Jacobs, Kline, and Schiffman (2011) in which three vignettes describing a character with no psychosis, attenuated psychosis (according to the proposed clinical criteria) and full psychosis (according to DSM-IV-TR criteria) were diagnosed by a sample of psychologists, psychiatrists, and general practitioners. Participants were asked if they believed the person in each vignette was experiencing a mental illness and to provide what they believed was an appropriate DSM-

IV-TR diagnosis. Responses indicated that most professionals identified the person in the attenuated psychosis vignette as having a mental illness (92%), and the majority (78%) classified this mental illness as falling along the schizophrenia spectrum; “mood disorder” was the second-most frequent classification, endorsed by approximately 35% of the sample. Among those who diagnosed the APS character on the schizophrenia spectrum, almost 30% believed the character met criteria for a diagnosis of full schizophrenia, approximately 25% chose schizophreniform disorder, and close to 15% diagnosed psychotic disorder – not otherwise specified. These results indicate that, although many professionals are able to accurately identify APS symptoms as belonging on the psychosis spectrum, specific classification of these symptoms is highly variable.

In a follow-up study, Jacobs and colleagues reported the sample’s recommendations for treatment of the vignette characters (Jacobs, Kline, & Schiffman, 2012). The same sample of psychiatrists, psychologists, and general practitioners was provided with a list of 50 potential treatment options and were first instructed to select all the treatments they believed would help the person in the story, then to go back through the list and select all the treatments they believed would be harmful to the person in the story. Fifteen treatments were identified as helpful to the APS individual by more than 30% of the 293 responders. Of these, antipsychotic medication was selected most frequently, with 69% of the sample endorsing this as a useful treatment. However, among the treatments selected as harmful to the APS character, “no treatment” was selected by 48% of the sample, implying that many professionals accurately identified the character in the APS vignette as in need of some sort of intervention.

Taken together these results are particularly disconcerting, as they indicate that practitioners may be misdiagnosing APS as full schizophrenia and providing treatments that are

not entirely appropriate for individuals in the prodrome. Although the studies do not provide statistical connections between the practitioners who diagnosed the APS character with full schizophrenia and those who recommended antipsychotic medication, one is led to conclude that some 30% of practitioners would treat a patient with APS in a manner similar to a patient with schizophrenia, which often begins with some form of antipsychotic in combination with other psychiatric medications. Many experts have noted the potential dangers of prescribing antipsychotic medications to patients who only experience attenuated psychotic symptoms, and, in their clinical practice guidelines for early psychosis, the International Early Psychosis Association Writing Group stated that antipsychotics should be used judiciously, if at all (International Early Psychosis Association Writing Group, 2005).

Although these studies provide insight into how mental health professionals view APS, almost nothing is known about the way in which lay people perceive and understand APS symptoms, though this research question appears to be moving to the foreground. For example, in a recent follow-up to the Yang et al. (2013) study discussed above, the research team found that young peers are less likely to spontaneously label a high-risk vignette character with terms related to psychosis (41% of the sample used words such as “paranoid” to describe the individual), and more often provided non-psychotic (e.g., “depressed”) or non-psychiatric (e.g., “troubled,” “weird”) characterizations (Anglin, Greenspoon, Lighty, Corcoran, & Yang, 2014). These results suggest that most laypeople do not explicitly associate APS symptoms with psychosis, but that many (two-thirds in the above sample) recognize that the abnormality of the described behaviors extends beyond merely idiosyncratic into psychiatric. Anglin et al. (2014) also assessed stigmatization of APS symptoms by determining whether sample participants were inclined to be fearful or avoidant of, or to ascribe dangerousness to, the vignette character. Fear

of the character was significantly higher in participants who had provided a psychotic-like diagnostic term, leading the authors to conclude that fear-based stigma may be linked more to the psychosis label than to psychotic behavior (Anglin et al., 2014). Continuing to enhance our understanding of how the general public perceives attenuated psychosis symptoms could provide important insight into how the quality of life of APS individuals may be impacted by the attitudes of potential employers, social contacts, and others in the milieu. Therefore, the first goal of the current project is to explore questions of stigmatization and general impressions of APS symptoms, and to examine whether laypersons rate subclinical psychosis symptoms as more severe psychopathology (i.e., APS is more like schizophrenia), less severe psychopathology (i.e., APS is more like “normal” behavior), or conceive of them as a separate entity (i.e., distinct from no psychosis and full psychosis) by analyzing interpretations of where such symptoms originate and what treatments are recommended. If APS is associated with increased stigmatization or inaccurate impressions of either the etiology or appropriate treatments for attenuated psychosis symptoms, it may suggest that these stereotypes are translating into negative behavioral responses toward individuals with APS symptoms, which could negatively impact recovery and quality of life.

The second goal of the current research is to examine how ethnicity affects people’s perceptions, beliefs, and attitudes towards mental illness in general and APS in particular. When defining mental illness as behavior that deviates from the norm, it is crucial to begin with a clear understanding of what constitutes normal behavior, which can differ across cultures. For example, in some East Asian cultures, avoiding eye contact is considered respectful, while in western cultures, avoiding eye contact tends to be viewed negatively. Culturally-shaped beliefs and norms also influence how mental illness manifests behaviorally across individuals, how

people conceptualize the etiology of disorders, and what people judge to be suitable treatment for those who experience mental illness. Research has shown that individuals from Japanese backgrounds tend to endorse social origins of mental illness (e.g., “problems with others” or “strong rejection from family”) or attribute development of mental illness to flaws in one’s personality more so than Caucasian individuals, who are more likely to support biological or genetic etiological explanations (Furnham & Muraio, 1999; Nakane et al., 2005; Narikiyo & Kameoka, 1992). Edman and Johnson (1999) conducted a study on beliefs about the causes and treatment of schizophrenia in Filipinos, who endorsed more spiritual/religious and social causes and treatments than did Caucasian participants. There is also evidence to suggest that African-Americans are more likely than other groups to attribute mental illness to religious or supernatural causes, such as interference from spirits or punishment from God (Alvidrez, 1999; Carpenter-Song et al., 2010). Typically, similar patterns are found in analyses of treatment recommendations, with Caucasians being more likely to recommend professional help for mental illness than other ethnic groups (Narikiyo & Kameoka, 1992; Schnittker, Freese, & Powell, 2000; Yamawaki, Riley, Sato, & Omori, 2015).

Another relevant approach to studying ethnic differences in attitudes toward mental illness is to investigate how different groups view those who experience and seek help for psychiatric problems. Studies have analyzed this at a national level through data collected via the National Comorbidity Survey (NCS) and its replication, NCS-R. The NCS and the NCS-R surveyed 8098 Americans in 1990-1992 and 9282 Americans in 2001-2003, respectively, and included three questions thought to broadly assess the construct of mental illness stigmatization: How likely would you be to seek professional help if you had a behavioral health problem? how comfortable would you feel speaking to a mental health professional? and how embarrassed

would you be if one of your friends found out you were receiving treatment? These studies have found that African-Americans and Hispanics tend to show more favorable attitudes toward mental health treatment-seeking behaviors than Caucasians (Diala et al., 2001; Shim, Compton, Rust, Druss, & Kaslow, 2009). In Asian-American populations, attitudes toward treatment-seeking have been found to be complex, such that willingness to seek professional mental health treatment is inversely correlated with adherence to traditional Asian cultural values (Kim & Omizo, 2003; Sun, Hoyt, Brockberg, Lam & Tiwari, 2016), particularly emotional control (Kim & Kendall, 2015; Liao, Rounds, & Klein, 2005). Emotional control refers to an avoidance of emotional self-disclosure and a desire to resolve one's psychological issues without involving others. This could be partially responsible for the tendency of Asian individuals to delay seeking mental health treatment, which can lead to greater severity of presenting psychiatric problems and extended periods of service utilization (Chen, Sullivan, Lu, & Shibusawa, 2003).

Because APS is a relatively new construct and has not been extensively studied across different ethnic backgrounds, one way to theorize how ethnicity might be related to attitudes toward APS specifically is to look at how schizophrenia is regarded in different groups. Previous research with Asian populations has found that samples of both Chinese (Furnham & Chan, 2004) and Japanese (Furnham & Muraio, 1999) laypersons tend to have more negative opinions of schizophrenia than samples of British laypersons. One particularly impactful study by Griffiths et al. (2006) compared stigmatizing attitudes toward both chronic schizophrenia and early schizophrenia in large samples of Australian and Japanese participants and found that, on almost all points, Japanese participants exhibited higher levels of stigmatization than Australians. For example, Japanese participants more frequently agreed that the problems displayed by the vignette characters were the result of personal weakness and not indicative of medical illness,

overwhelmingly desired greater social distance from the characters, and were less likely to employ or vote for someone with similar symptoms (Griffiths et al., 2006). Though stigmatizing beliefs were slightly tempered for the early schizophrenia character when compared to the chronic schizophrenia character, these beliefs were consistently significantly higher in Japanese participants. While these results could be attributed to different factors (e.g., cultural values, differences in the structure of healthcare systems, initiation of stigma reduction campaigns), they lend support to the notion that Western societies may have fewer stereotypical beliefs and less negative attitudes regarding severe mental illness.

An area of weakness in the literature on this topic is that virtually no studies have investigated attitudes toward psychosis in Hawaiian populations, though research has examined perceptions of mental illness in other Pacific Island nations. A recent study compared perceptions of schizophrenia in a sample of Maori and European New Zealander schizophrenia patients and found few differences overall in beliefs regarding controllability of the illness (either personally or through the use of medication), its effect on their emotions and identity, or the perceived consequences of the diagnosis (Sanders, Kydd, Morunga, & Broadbent, 2011). In fact, the only significant difference in illness perception between the two groups was that Maori participants tended to believe in a shorter time course, considering their disorder to be acute rather than chronic. These authors speculate that the homogeneity of beliefs between the two groups, despite the higher prevalence of schizophrenia in Maori populations, may be due in part to acculturation of the Maori participants in this urban sample (Sanders et al., 2011). It is unclear, however, whether this pattern would be found in Hawaiians or other Pacific Islanders, who may or may not have experienced changes in attitudes toward mental health due to Western influence.

The lack of understanding of psychosis among lay persons and the lack of research analyzing influence of ethnicity on perceptions of psychosis in general, and APS specifically, indicate that more work is needed to understand how these variables interact with one another. Thus, the first goal of the current proposal was to understand whether individuals identify Attenuated Psychosis Syndrome symptoms as constituting mental illness by examining the extent to which APS symptoms are judged as abnormal, and whether these symptoms are associated with stigmatizing attitudes. It was hypothesized that: (1) participants would endorse different beliefs regarding the causes, treatments, presence, and stigmatization of mental illness based on severity of psychosis exhibited by a vignette character; (1a) more severe character psychosis would be associated with higher levels of stigma and stronger identification of the character as mentally ill; (1b) more severe character psychosis would be associated with more professional recommendations for treatment and biological causes, whereas less severe character psychosis would be associated with more social treatment recommendations and etiological explanations. The second goal of the current project was to analyze whether individuals conceptualize psychosis differently based on their ethnic background. Essentially no research exists on how Hawaiians conceptualize psychosis symptoms, so one important aspect of this goal was to analyze Hawaiians' attitudes toward APS. Specific hypotheses related to the second goal were: (2) ratings of causal beliefs, treatment recommendations, presence of mental illness, and stigmatizing beliefs for the vignette characters would differ as a function of ethnic identity; (2a) Caucasian participants would be more likely to endorse biological causes and professional treatments of mental illness, whereas Hawaiian and East Asian participants would be more likely to support social types and sources of treatment; (2b) Caucasian participants would be less likely

to endorse stigmatizing beliefs, but more likely to identify psychosis symptoms as indicative of mental illness, than East Asian or Hawaiian participants.

Methods

Participants

522 responses were collected from undergraduate students enrolled in a psychology course at the University of Hawai‘i – Mānoa (UHM) during the spring semester of 2013. Students were recruited via class announcement and participated in this research project either as part of course requirements or to gain extra credit. All study material was accessed at the participant’s convenience on Qualtrics, an online survey platform. Credit for participating in the study was awarded through SONA, a system that facilitates undergraduate research at UHM. The study took approximately 90 minutes. In cases where duplicate entries were attributed to the same SONA ID number and it was unclear which response reflected the genuine attempt, the first response was retained and all other responses were removed from the sample ($n=57$). A further 10 responses were dropped from subsequent analyses due to missing more than 2/3 of the data. This resulted in a final sample of 455 participants.

Participants began by completing an online consent form and providing demographic information. They were asked to report their gender, age, ethnicity, place of birth, length of residence in Hawaii, and ethnicity, birthplace, level of education, and occupation for both parents. Data on ethnicity were collected by asking participants to select from a list all ethnicities with which they identified. The final sample was 72.3% female with a mean age of 20.4 years. 24.6% of the sample identified as Japanese, 18.2% identified as Caucasian, 13.2% identified as Hawaiian, 8.6% identified as Chinese, and 5.1% identified as Korean. 6% of the sample

identified as either Hispanic, African American, Vietnamese, or other Pacific Islander and 24.2% identified as more than one ethnicity, coded as multiethnic.

Materials

Vignettes. Vignettes used in this study were based on those developed by Jacobs, Kline, and Schiffman (2011), which depicted individuals experiencing either no psychosis, attenuated psychosis (according to the proposed clinical criteria), or full psychosis (according to diagnostic criteria in the DSM-IV-TR). Each vignette was initially given a diagnosis and Global Assessment of Functioning (GAF) score – a clinician-rated index of current psychological, social, and occupational functioning scored on a 0 (serious impairment or danger to self and others) to 100 (no symptoms) scale – by clinical psychology graduate students familiar with the Structured Interview for Prodromal Symptoms. All five raters agreed on each diagnosis, and GAF scores were all within the expected range for each condition, except one which was later revised after discussion. Subsequently, vignettes were sent to experts who were asked to rate how much they agreed that the vignette accurately depicted the intended condition: five were experts in the field of psychotic disorders, six were clinical psychologists with an average of 31 relevant citations, one Masters level psychology researcher with nine relevant citations, and two psychiatrists with an average of 13 relevant citations (Jacobs et al., 2011). More than 80% of the experts rated each vignette as depicting the condition “well” or “very well,” and vignettes were revised based on feedback.

In the Jacobs et al. (2011) study, each character was identified with an ethnicity (Caucasian, African-American, or Hispanic), which was held constant across presentations. This was modified for the current study by identifying all characters as male with traditional male names, thus eliminating any potential gender confound, and by changing the ethnicities and

names of the characters from Caucasian, African-American, and Hispanic to Caucasian, Japanese, and Native Hawaiian (see Appendix A). After accounting for all possible combinations of ethnicity and level of psychosis, nine vignettes comprised the final pool. Through the Qualtrics platform, on which the questionnaires were constructed and administered, each participant was randomly assigned to read and respond to questions about three of the nine vignettes, one selected from each of the three levels of psychosis.

Questionnaires. Each vignette was followed by a series of 12 questions created for the current study which asked participants to rate on a 5-point scale their level of agreement with statements designed to assess whether they could accurately identify the presence or absence of mental illness (e.g., “the person in the story is mentally ill”) and their stigmatizing beliefs toward the vignette characters (e.g., “if the person in the story were a family member, I would feel embarrassed;” see Appendix B). Next, participants used a 1 (not at all) to 5 (certainly) scale to rate the likelihood or helpfulness of each item on lists of potential causes, types of help, and sources of help (adapted from Narikiyo and Kameoka, 1992; see Appendix C). Potential causes of mental illness included those which could be considered biological (e.g., “brain disorder”), social (e.g., “problems with other people”), or spiritual (e.g., “punishment for sins”) in nature. Types of help and sources of help similarly included those which could fall under medical, social, and spiritual categories of treatment.

Procedure

This study was reviewed by the UHM Institutional Review Board and was found to qualify as exempt. All participants proceeded through the questionnaires in the same order, beginning with consent and demographic information. This was followed by a vignette, selected at random from the pool of nine options, and questions about the character in the vignette. After

three vignettes and related questions were completed, participants responded to a variety of psychosis symptom, personality, and culture questionnaires as part of a larger study.

Results

Exploratory and Confirmatory Factor Analyses

Factor analyses were conducted on each of the four questionnaires (Causes, Types, Sources, and Questions) to determine the existence of an underlying factor structure and reduce the number of subsequent between- and within-group tests. All factor analyses were conducted in Mplus version 7.4 (Muthen & Muthen, 2016) with 465 participant responses (i.e., before participants with >2/3 missing data were removed). Data were analyzed separately according to questionnaire and level of psychosis (APS, schizophrenia, none). No questionnaire at any one level of psychosis had more than 2% of data missing. Cases with data missing on all responses to a particular questionnaire at any one psychosis level were dropped from that analysis, though they were included in subsequent analyses for which all responses were present. Each analysis was conducted using a Maximum Likelihood estimator, which is the best estimator when dealing with non-normally distributed data, and geomin rotation, which is an oblique rotation method and thus allows for correlation between factors.

Analysis for each questionnaire proceeded as follows. First, an initial measurement model, which was conceptualized based on previous research and theory, was tested using confirmatory factor analysis (CFA) on the APS data. Because these models did not fit the data well in any case, an exploratory factor analysis (EFA) was conducted on the first half of the APS data (cases 1-232), with up to 10 factors requested. Factors with eigenvalues greater than one were retained and factor loadings were examined to determine factor structure. Chi-square difference testing was then used to compare this model to models with one fewer and one

additional factor. If this method determined that another model fit the data significantly better than the original, both models were retained as candidate models. The decision of which model to retain as the final model was based on alternate goodness-of-fit indices (e.g., RMSEA, CFI/TLI, SRMR) and a check to ensure that no one factor of any candidate model had fewer than two items with sufficient loadings. The final factor structure for each questionnaire was then applied to the second half of APS data via CFA, then to the schizophrenia data, then to the no psychosis data.

Causes. Model fit information for the Causes questionnaire can be found in Table 1. Unless specified, all CFA results represent model fit using APS data, cases 233-465. Attempting to run the initial four factor model resulted in a failure of this model to converge, indicating that the particular factor structure must be under-identified. From the EFA, four factors with eigenvalues greater than 1 were retained. However, running the EFA-identified three-factor model revealed that this model was only slightly above the cutoff score for significant chi-square difference at the .05 level ($\Delta\chi^2_{\text{critical}}$ with $df=3 = 7.815$; $\chi^2_{4\text{factor}} - \chi^2_{3\text{factor}} = 8.036$). Because (a) this difference becomes non-significant at the more stringent .01 level, (b) the chi-square difference between the three- and four-factor models was non-significant for both the schizophrenia and no psychosis data, and (c) the three-factor model is a more parsimonious explanation of the data, the decision was made to retain the three-factor model as the final measurement model. This model was found to fit the data significantly better than a model in which all items loaded on one factor, and model fit was slightly better for the schizophrenia data, but significantly worse for the no psychosis data. The first extracted factor was termed Psychosocial and consisted of seven items: bad family, problems with others, negative thinking, weak mind, major change in life, work/school pressure, and keeps problems to self. The second factor, Spiritual/Alternative,

consisted of five items: diet, demons, punishment for sins, curse, and God. The third factor, Biological, consisted of three items: brain disorder, hereditary, and physical illness. Factor loadings for each of the items within this three-factor model can be seen in Table 2.

Types. Model fit information for the Types questionnaire can be found in Table 3. From the EFA, four factors with eigenvalues greater than one were retained. This model was an adequate fit to the second half of the APS data, but fit both the schizophrenia and no psychosis data significantly worse. When compared to a three-factor model, the chi-square difference test revealed significantly better fit for the four-factor model, so this model was retained as the final model. Again, this model was found to fit significantly better than both the initial four-factor model and a model in which all items loaded on a single factor. The four factors from the Types questionnaire were identified as Physical, Psychosocial, Spiritual/Nontraditional, and Psychological. Four items comprised the Physical factor: meditate/relax, prayer, change diet, and exercise. Six items loaded highest on the Psychosocial factor: resolve disagreements, talk to friends and family, positive thinking, spend time with others/socialize, endure and adjust, and learn social skills. The Spiritual/Nontraditional factor was comprised of four items: confess sins, surgery, please spirits, and remove curse. Two items, therapy and medication, made up the Psychological factor. Factor loadings for the Types items can be found in Table 4.

Sources. Model fit information for the Sources questionnaire can be found in Table 5. From the EFA, four factors with eigenvalues greater than one were retained. This model provided a significantly better fit to the data than a three-factor model at all three psychosis levels. Furthermore, the four-factor model identified by the EFA fit the data significantly better than the initially-proposed four-factor model and a model in which all items loaded on a single factor. For these reasons, the EFA-identified four-factor model was retained for subsequent

analyses. The four Sources factors were identified as Psychological, Community, Social, and Alternative/Nontraditional. Psychologist and Psychiatrist were the two items that comprised the Psychological factor. The Community factor was made up of faith healer, herbalist, minister, and family doctor. Six items comprised the Social factor: counselor, himself, social worker, friends, self-help/support group, and family. Four items – surgeon, exorcist, fortune teller, and hypnotist – loaded highest onto the Alternative/Nontraditional factor. Factor loadings for the Sources EFA can be found in Table 6.

Questions. Model fit information for the Questions questionnaire can be found in Table 7. From the EFA, three factors with eigenvalues greater than one were retained. This three-factor model provided a significantly better fit than a two-factor model. As compared to the initial three-factor model, the final model was again found to fit the data significantly better and a one-factor model with these data failed to converge. The final model did not fit the schizophrenia data as well as the APS data, however, it did fit these data better than the no psychosis data. Therefore, the three-factor model identified by the EFA was retained for subsequent analyses. The first factor, termed Identification, was comprised of three items: The person in the story is mentally ill; the person in the story needs psychological help; and the person in the story needs psychological medication. Stigmatization was the second identified factor and was comprised of six items: The person in the story is shameful; if the person in the story were a friend, I would want to help them with their problems (reverse coded); if the person in the story were a friend of mine, I would stop being friends with them; the person in the story is crazy; if the person in the story were a family member, I would feel embarrassed; if the person in the story were a family member, I would want them to get help (reverse coded). The third factor was best identified as a judgment of the person's emotional state (Emotion) and was comprised

of three items: The person in the story is happy; the person in the story is sad (reverse coded); the person in the story is normal. Factor loadings for the Questions items can be found in Table 8.

Within-Group Analyses

Any response with data missing on two or more vignette presentations was dropped from subsequent analyses ($n=10$), resulting in 455 remaining participants. Dropped participants were 50% female with an average age of 19.1 years; five identified as multiethnic, two were Japanese, two were Caucasian, and one was Hawaiian.

To test hypothesis 1 that participants would endorse different beliefs regarding the causes, treatments, presence, and stigmatization of mental illness based on severity of psychosis exhibited by the vignette character, a series of repeated-measures ANOVAs was conducted with each of the identified factors using APS, schizophrenia (SCZ), and no psychosis (NONE) as levels. Mauchly's test of sphericity revealed that assumptions of sphericity were generally violated, with Mauchly's w estimates ranging from .76 to .99. As such, the Huynh-Feldt correction was applied to F statistics and degrees of freedom. In this case, the Huynh-Feldt correction was preferred to the Greenhouse-Geisser correction because, when estimates of sphericity are above .75, the Greenhouse-Geisser estimate is overly conservative (Field, 2013). Despite having to apply this correction, all but one ANOVA (Sources-Social) revealed significant differences between psychosis levels (see Table 9) with an alpha level set at .05.

Questions. With respect to the Identification factor of the Questions questionnaire, post-hoc paired samples t-tests indicated significant differences between all three psychosis levels such that the SCZ character ($M = 3.01$, $SD = .64$) was more likely to be identified as mentally ill than both the APS character ($M = 2.79$, $SD = .67$), $t(454) = 6.56$, $p < .001$, and the NONE character ($M = .84$, $SD = .82$), $t(453) = -41.30$, $p < .001$. The APS character was statistically more

likely than the NONE character to be identified as mentally ill, $t(453) = -39.24, p < .001$.

Participants showed slightly more stigmatizing attitudes toward the SCZ character ($M = 3.21, SD = .61$) when compared to both the APS character ($M = 3.07, SD = .60$), $t(454) = 5.68, p < .001$, and the NONE character ($M = 2.91, SD = .55$), $t(453) = -10.32, p < .001$. The APS character was also slightly more likely to be stigmatized than the NONE character $t(453) = -5.18, p < .001$.

Finally, participants judged the emotional state of the SCZ character ($M = 3.18, SD = .61$) to be less positive than that of both the APS character ($M = 3.47, SD = .55$), $t(454) = -9.10, p < .001$, and the NONE character ($M = 4.46, SD = .66$), $t(453) = 28.42, p < .001$. Similarly, the emotional state of the APS character was viewed as less positive than that of the NONE character, $t(453) = 23.79, p < .001$. In a general comparison between the three characters, these results appear to represent a more critical attitude toward a character exhibiting schizophrenia symptoms, with attitudes toward an APS character consistently falling somewhere in between full psychosis and no psychosis.

Causes. When considering possible etiological explanations for the problems described in the vignettes, paired samples t-tests indicated that participants were more likely to endorse psychosocial factors for the SCZ character ($M = 2.77, SD = .88$) than for both the APS character ($M = 2.38, SD = .78$), $t(454) = -10.40, p < .001$, and the NONE character ($M = 2.40, SD = .81$), $t(454) = 8.54, p < .001$. However, participants rated psychosocial causes as equally likely for the APS and NONE characters ($p = .53$). Although spiritual/alternative causes were rated very low for all three characters, means on this factor were significantly lower for the NONE character ($M = 1.24, SD = .54$) when compared to both the APS character ($M = 1.44, SD = .60$), $t(454) = 8.54, p < .001$, and the SCZ character ($M = 1.45, SD = .60$), $t(454) = 7.86, p < .001$. Ratings for the APS and SCZ characters did not statistically differ on this factor ($p = .83$). Biological causes were

rated as equally likely for the APS ($M = 2.78, SD = .89$) and the SCZ ($M = 2.82, SD = .94; p = .42$) characters, and significantly higher for the APS and SCZ characters compared to the NONE character ($M = 1.39, SD = .66$), with $t(454) = 29.65, p < .001$ and $t(454) = 27.57, p < .001$, respectively.

Types of help. Paired samples t-tests indicated significant, but slight, differences between the SCZ character ($M = 2.42, SD = .91$) and both the APS character ($M = 2.27, SD = .87$), $t(454) = -4.70, p < .001$, and the NONE character ($M = 2.24, SD = .86$), $t(454) = 4.67, p < .001$ on the Physical factor of the Types of Help questionnaire. The difference between the APS and the NONE characters on this factor was nonsignificant ($p = .67$). Psychosocial types of help were more likely to be endorsed for the NONE character ($M = 3.03, SD = .93$) than for both the APS character ($M = 2.61, SD = .91$), $t(454) = -9.90, p < .001$, and the SCZ character ($M = 2.80, SD = .95$), $t(454) = -5.87, p < .001$. Furthermore, psychosocial types of help were rated significantly higher for the SCZ character than for the APS character, $t(454) = -4.96, p < .001$. Once again, the spiritual factor was rated very low across all three characters, but this factor was rated significantly lower for the NONE character ($M = 1.22, SD = .56$) when compared to both the APS character ($M = 1.45, SD = .70$), $t(454) = 7.96, p < .001$, and the SCZ character ($M = 1.41, SD = .64$), $t(454) = 7.49, p < .001$. Means for the APS and SCZ characters did not differ significantly on this factor ($p = .16$). Finally, psychological types of help were more likely to be endorsed for the SCZ character ($M = 3.27, SD = 1.01$) than for both the APS character ($M = 3.07, SD = 1.04$), $t(454) = -4.65, p < .001$, and the NONE character ($M = 1.62, SD = .77$), $t(454) = 29.29, p < .001$. Psychological help was also considered to be more helpful for the APS character than for the NONE character $t(454) = 25.96, p < .001$.

Sources of help. With regard to the Sources of Help questionnaire, paired samples t-tests revealed significant differences between all three psychosis levels on the Psychological factor such that participants rated psychological help higher for the SCZ character ($M = 3.80, SD = 1.04$) than for both the APS character ($M = 3.64, SD = 1.04$), $t(454) = -4.45, p < .001$, and the NONE character ($M = 2.29, SD = 1.08$), $t(454) = 25.85, p < .001$. Psychological help was also endorsed as more useful for the APS character than for the NONE character $t(454) = 22.49, p < .001$. Community-based sources of help were rated significantly higher for the APS character ($M = 2.03, SD = .84$) compared to the NONE character ($M = 1.57, SD = .75$), $t(454) = 13.61, p < .001$, and for the SCZ character ($M = 2.03, SD = .84$), $t(454) = 12.96, p < .001$. The difference between the APS and SCZ means on this factor were nonsignificant. Alternative/nontraditional sources of help were equally likely to be endorsed for the APS character ($M = 1.42, SD = .61$) and the SCZ character ($M = 1.40, SD = .64; p = .43$). The NONE character ($M = 1.18, SD = .52$) was rated significantly lower on this factor than both the APS, $t(454) = 9.23, p < .001$, and SCZ characters, $t(454) = 8.81, p < .001$. No significant differences were found between psychosis levels on the Social factor.

Within-Questionnaire Factor Comparisons

In order to determine which factors were rated by participants as most and least helpful for the APS character, a series of repeated-measures ANOVAs was conducted on the Causes, Types of Help, and Sources of Help questionnaires with the individual factors as levels. Although the assumption of sphericity was violated for each of the three tests, and the Huynh-Feldt correction was subsequently applied, all F statistics remained significant. These results can be seen in Table 10.

Causes. A repeated-measures ANOVA comparing the means of the Causes factors was significant ($F(1.84, 834.22) = 504.10, p < .001$), and paired samples t-tests indicated that all three factors were significantly different from one another. The Spiritual/Alternative factor ($M = 1.44, SD = .60$) was the least likely of the three to be endorsed as an etiological explanation for the APS character and corresponded most closely with the “not at all” anchor point of the rating scale. The Psychosocial factor fell in the middle ($M = 2.38, SD = .78$), and the Biological factor ($M = 2.78, SD = .89$) was rated as most likely to be causal.

Types of help. The repeated-measures ANOVA comparing the means of the Types of Help factors was significant ($F(2.41, 1097.78) = 409.14, p < .001$), and paired samples t-tests indicated that all four factors were significantly different from one another. The Psychological factor ($M = 3.07, SD = 1.04$) was rated as most helpful for the APS character, followed by the Physical factor ($M = 2.61, SD = .91$), then the Psychosocial factor ($M = 2.27, SD = .87$), with the Spiritual factor ($M = 1.45, SD = .70$) rated as least helpful.

Sources of help. The repeated-measures ANOVA comparing the means of the Types of Help factors was significant ($F(2.36, 1070.50) = 847.32, p < .001$), and paired samples t-tests indicated that all four factors were significantly different from one another. The Psychological factor ($M = 3.64, SD = 1.05$) was rated as most helpful for the APS character, followed by the Social factor ($M = 2.95, SD = .94$), then the Community factor ($M = 2.03, SD = .84$), with the Alternative/Nontraditional factor ($M = 1.42, SD = .61$) rated as least helpful.

Between-Group Ethnicity Comparisons

To test hypothesis 2 that ratings of causal beliefs, treatment recommendations, presence of mental illness, and stigmatizing beliefs for the vignette characters would differ as a function of ethnic identity, a series of one-way ANOVAs was conducted on a subsample of East Asian,

Caucasian, and Hawaiian participants. Participants were categorized into ethnic groups according to their responses to the checklist portion of the demographic questionnaire and, in an attempt to remove potential variance attributable to generational status, only participants who reported having been born in the United States were retained in this analysis. Although participants were free to select as many ethnic identities as they felt applied, for the purposes of this analysis only participants who selected one East Asian ethnicity (i.e., checked only Japanese/Okinawan, Chinese, or Korean), or a combination of the listed options (i.e., Multiethnic) were included in the East Asian group. Preliminary analyses comparing between-group differences among the four disaggregated East Asian groups revealed significant differences between Korean and Japanese participants on three variables within the schizophrenia vignette (Questions-Emotional State, Causes-Psychosocial, and Types-Psychological), therefore, the responses of the Korean group were not retained in the final East Asian sample ($n = 89$). The Caucasian group consisted only of US-born participants who selected only the “Caucasian” option in the demographic questionnaire ($n = 76$). However, the Hawaiian group was composed of participants who selected the “Native Hawaiian” option ($n = 56$), regardless of whether they selected other ethnic options as well. This decision was made largely due to the unique way in which individuals identify as Hawaiian and the complex mixing of ethnic backgrounds present in the Hawaiian Islands.

As can be seen in Table 11, one-way between-subjects ANOVAs were significant for only four variables: APS-Types-Psychosocial, $F(2, 218) = 3.578, p < .05$; SCZ-Questions-Stigmatization, $F(2, 218) = 4.173, p < .05$; SCZ-Sources-Social, $F(2, 218) = 3.122, p < .05$; NONE-Questions-Stigmatization, $F(2, 218) = 4.101, p < .05$. Post-hoc t-tests revealed significant differences between East Asian ($M = 2.64, SD = .95$) and Caucasian ($M = 2.35, SD = .75$) groups

on the APS-Types-Psychosocial factor, $t(163) = 2.16, p < .05$, which suggests that the East Asian group was more likely than the Caucasian group to recommend psychosocial types of treatment for the APS character. In regard to the SCZ-Questions-Stigmatization factor, East Asians ($M = 3.28, SD = .59$) were statistically more likely to endorse stigmatizing beliefs toward the schizophrenia character than Hawaiians ($M = 3.00, SD = .59$), $t(143) = -2.83, p < .01$. Post-hoc t -tests indicated significant differences between groups on the SCZ-Sources-Social factor, such that Hawaiians ($M = 3.22, SD = .95$) were more likely than both the East Asian group ($M = 2.89, SD = .92$), $t(143) = -2.08, p < .05$, and the Caucasian group ($M = 2.84, SD = .91$), $t(130) = 2.329, p < .05$, to endorse social sources of treatment for the schizophrenia character. Finally, Hawaiians ($M = 2.71, SD = .49$) were found to be less likely than either the East Asian group ($M = 2.97, SD = .54$), $t(142) = -2.87, p < .01$, or the Caucasian group ($M = 2.91, SD = .55$), $t(130) = 2.17, p < .05$, to stigmatize the no psychosis character. A between-group one-way ANOVA on the NONE-Questions-Identification factor trended toward, but did not quite reach, significance ($F(2, 217) = 2.71, p = .07$). Post-hoc tests demonstrated significant differences on this factor between the East Asian ($M = .95, SD = .87$) and Hawaiian ($M = .64, SD = .66$) groups, $t(142) = -2.32, p < .05$, indicating that, despite low ratings of agreement to begin with, Hawaiians were even less likely to identify the no psychosis character as mentally ill.

Interactions Between Ethnicity and Factor

To determine whether there were interaction effects between ethnic group and the factors of each questionnaire (i.e., to examine whether any one ethnic group believed a particular factor of causes, types, or sources to be more or less helpful than other factors), a series of factorial ANOVAs was conducted inputting the factors of each questionnaire at each level of psychosis as the within-subjects factor and ethnic groups as the between-subjects factor. No such interaction

was significant at the $p < .05$ level, indicating that ethnic groups did not significantly vary on which causes, types, and sources of help they found to be most/least helpful.

Discussion

The results of the within-subjects ANOVAs provided variable support for hypothesis 1 that participants would endorse different beliefs regarding the causes, treatments, presence, and stigmatization of mental illness based on severity of psychosis exhibited by the vignette character. With regard to identification and stigmatization, hypothesis 1a was supported, as attitudes of participants were in line with psychosis severity, such that schizophrenia was most likely to be identified as mental illness and stigmatized, followed by APS, then no psychosis. Upon closer scrutiny, however, it can be seen that identification and stigmatization ratings of the two psychosis characters fell in the mid-range of the Likert scale, indicating that, overall, participants did not hold strong beliefs that the characters were experiencing mental illness, nor did participants strongly endorse negative attitudes toward either character.

Less linear patterns were observed among certain causes, types, and sources factors. Ratings for both biological causes and spiritual/alternative causes did not significantly differ between APS and schizophrenia characters, whereas psychosocial causes were rated as equally likely for the APS and no psychosis characters. Participants believed that physical types of help would be equally helpful for the APS and no psychosis characters and that spiritual types of help would be equally helpful for the APS and schizophrenia characters. Significant differences were found between all three groups on the psychosocial and psychological factors where psychosocial types of help were rated highest for the no psychosis character and psychological types of help were rated highest for the schizophrenia character. No significant differences were found between the APS and schizophrenia characters on community or alternative/nontraditional

sources of help, yet psychological sources of help were thought to be most beneficial for the schizophrenia character, followed by the APS character, then the no psychosis character. Taken collectively, these results suggest that in some cases, APS symptoms are viewed similarly to schizophrenia symptoms, while in other cases APS is viewed more similarly to no psychosis, thus hypothesis 1b is partially supported.

A qualitative examination of the data may help to better explain these patterns. Participants most strongly agreed that the symptoms exhibited by both the APS and the schizophrenia characters were caused by biological factors, such as brain disorder, but the mean rating for both vignette characters fell slightly below the “neither agree nor disagree” point of the Likert scale. Although spiritual/alternative causes were rated significantly higher for the psychosis characters than the no psychosis character, as a whole, participants disagreed that these factors were causal for any of the three vignette characters. Agreement with psychosocial etiologies did not differ between the APS and the no psychosis characters, but were significantly higher for the schizophrenia character. These results suggest an awareness that physiological abnormalities, as well as psychosocial dysfunction to a lesser extent, can be contributing factors to attenuated psychosis symptoms, but perhaps are not in themselves direct causes of the disorder. However, based on the very low ratings ascribed to spiritual/alternative causes, such as a curse, participants acknowledged that mental illness is unlikely to be attributable to supernatural forces.

Similarly, participants strongly disagreed with the utility of spiritual types of help for all three vignette characters, though these were rated significantly higher for both the APS and schizophrenia character compared to the no psychosis character. This could represent an attitude among the sample that, although spiritual help may not be the most appropriate treatment, some

treatment is better than no treatment for individuals with psychosis. Conversely, participants were most likely to endorse psychological types of help for both psychosis characters, with greater potential benefit to the schizophrenia character. Psychosocial types of help were rated as most useful for the symptoms exhibited by the no psychosis character, which suggests that participants recognized that the no psychosis character was more likely to benefit from activities such as talking to friends or family than either of the psychosis characters. However, the fact that the mean rating on this factor fell in the “neither agree nor disagree” range suggests that participants may not have believed treatment was necessary for the no psychosis character. Mean ratings for physical types of help (e.g., exercise, meditation), while significantly higher for the schizophrenia character, varied only slightly among the three vignettes and fell between “disagree” and “neither agree nor disagree.”

Psychological sources of treatment were similarly rated much higher for both psychosis characters than for the no psychosis character, with the schizophrenia character receiving the highest mean rating. Community sources (e.g., family doctor) and alternative sources (e.g., exorcist) were also rated significantly higher for both psychosis characters than for the no psychosis character, however both factors received mean ratings in the “strongly disagree” to “disagree” range, indicating that these were not regarded as appropriate treatment sources for psychosis symptoms. Ratings on the Social factor were moderate and not significantly different between groups, indicating that friends, family, and self-help, among others, were thought to be reasonably valid sources of help for each character.

In general, the patterns of differences among psychosis levels in the causes, types, and sources questionnaires appeared to vary as a function of proximal distance from mental illness in that factors that are either very clearly related to mental illness (e.g., psychological types and

sources of help) or very clearly not related to mental illness (e.g., spiritual causes, types, and sources of help), as dictated by society, show higher levels of agreement. Factors that are causally implicated in, or confer benefit across, a wide variety of situations were less definitively classified. For example, psychosocial types of help, such as positive thinking, can improve mood, increase self-esteem, or improve motivation: all of which can improve mental health, but have a less direct relationship with psychosis symptoms. This may reflect a sense among participants that, because these factors can be beneficial across a number of different situations, they may to some extent be helpful in treating psychosis. The fact that “medication” and “psychotherapy” loaded highly on the Psychological types of help factor and “psychologist” and “psychiatrist” loaded highly on the Psychological sources of help factor indicate that lay people may not differentiate between the usefulness of these methods of treatment. Although this finding is in line with the results of Jacobs et al. (2011) showing a similar pattern in practitioner perceptions of APS, this attitude is potentially problematic, as the International Early Psychosis Association Writing Group (2005) has specified that medication should be regarded as a last resort in the treatment of APS individuals, whereas psychotherapy is generally warranted and should be initiated as soon as possible after symptoms develop. It is promising, however, that participants in the current study recognized that psychological help was indicated more for the schizophrenia character than for the APS character, as this points to a recognition of the distinction between symptom severity.

The results provided minimal support for hypothesis 2, i.e., that ratings of causal beliefs, treatment recommendations, presence of mental illness, and stigmatizing beliefs for the vignette characters would differ as a function of ethnic identity. Hypothesis 2a was partially supported by the significant results, as Hawaiian and East Asian participants were more likely than Caucasians

to support psychosocial types of treatment; however, this finding was limited to ratings of the APS character and did not extend to the schizophrenia character. In fact, the present results indicated that there were no significant differences between the East Asian group and the Caucasian group when rating the helpfulness of social sources of treatment for the schizophrenia character, but that the Hawaiian group was more likely than both to rate social sources as helpful for the schizophrenia character. There was little evidence to support hypothesis 2b, which predicted that Caucasian participants would be less likely to endorse stigmatizing beliefs, but more likely to identify psychosis symptoms as indicative of mental illness, than East Asian or Hawaiian participants. ANOVAs did not detect significant differences between the three ethnic groups on the Identification factor at any level of psychosis, though this analysis with the no psychosis character trended toward significance ($p = .07$) and a post-hoc analysis revealed that Hawaiians were less likely than East Asians to identify this character as mentally ill. Interestingly, the Hawaiian group had lower stigmatization ratings than the East Asian group with respect to the schizophrenia and the no psychosis characters, and lower stigmatization of the no psychosis character than the Caucasian group.

These findings are largely in line with previous research suggesting that Caucasians tend to endorse social treatments less strongly than individuals from other ethnic backgrounds (e.g., Edman & Johnson, 1999; Narikiyo & Kameoka, 1992). However, the finding that Hawaiians were less likely to endorse stigmatizing beliefs in some instances was in contrast to hypothesis 2b. Without previous research on attitudes toward mental illness in Hawaiian samples, it was unclear whether this group would stigmatize psychosis symptoms, yet the current results suggest that Hawaiians do have slightly less negative opinions of individuals exhibiting schizophrenia symptoms. This could be due to the influence of Hawaiian cultural values on the construct of the

self and how relationships between individuals can promote or maintain psychological health. Hawaiians strongly value the family unit (*'ohana*), which tends to include relationships beyond the “nuclear” family, such as close friends, and it is this concept that binds a group of people together to provide purpose and meaning (Young, 1980). The wording of the stigmatization questions (e.g., “if the person in the story were a family member, I would want them to get help;” “if the person in the story were a friend of mine, I would stop being friends with them”), therefore, may have activated this value to a greater extent in Hawaiian participants and translated to reduced negative judgment of the vignette characters.

Interpretations of the current findings are subject to some limitations. First, the present sample consisted primarily of young, female undergraduates enrolled in a psychology course. Although college students are a population of interest in this research due to an increased likelihood of developing psychosis symptoms at this age and/or having contact with individuals who do, the results of this study may not generalize to non-college educated persons with different demographics. Furthermore, the fact that all participants in this sample were enrolled in a psychology course casts doubt over whether this was truly a sample of lay persons or if somehow participants’ attitudes toward psychosis differ in accordance with a separate construct that promotes interest in psychology. If future research continues to study attitudes toward psychosis in college students, it would be prudent to recruit participants from a wider variety of academic concentrations.

A second limitation concerns the identification of each vignette character with an ethnicity and a traditionally “ethnic” name. Each vignette character was described as being either Japanese, Hawaiian, or Caucasian, however, the presentation of these different ethnicities was not counterbalanced and was not able to be included in the data analysis as a covariate.

Furthermore, due to an error in one of the vignettes, four of the nine potential vignette characters (i.e., 3 ethnicities x 3 psychosis levels) were identified as Hawaiian, leading to an increased number of Hawaiian character presentations. Without being able to analyze the influence of vignette character ethnicity on participant ratings, it is unclear whether this variable is systematically interacting with other variables or otherwise independently affecting the current results. One way to address this in the future would be to ensure that, in addition to receiving one vignette at each level of psychosis, each participant also read three vignettes that identified each of the three characters as a different ethnicity. Ensuring that these presentations were then counterbalanced would allow this variable to be included in analysis. It would be interesting to see whether ethnicity of the vignette character acted as a mediator or moderator of the current results, or if there was some interaction between character ethnicity and participant ethnicity such that participants in the three ethnic groups differentially rated characters that were identified as the same or of a different ethnicity.

Although steps were taken to minimize variance between participants in the three ethnic groups, a third limitation comes from the inherent consequences of categorizing individuals by ethnicity. Because the current study did not include measures to gather information on strength of ethnic identification, acculturation, subjective experience of discrimination, collective self-esteem, or other cultural and ethnic constructs, it is difficult to ascertain whether participants who were categorized in the same ethnic group were sufficiently similar in terms of ethnic identity. Future research could address this limitation by including more fine-grained measures of ethnic identity and culture to increase the homogeneity of variance between participants who identify as the same ethnicity.

Conclusions

In conclusion, these results suggest that college students view psychosis symptoms, whether attenuated or fully-developed, as indicative of mental illness and in need of treatment, specifically professional psychological treatment. Furthermore, college students also recognize that APS symptoms are more likely to be the result of biological causal factors, such as heredity or brain disorder. However, it appears that college students may also be more likely to stigmatize individuals who present with APS. This speaks to the necessity not only of swift intervention to prevent APS symptoms from progressing, but also for integrated psychoeducation on college campuses so that students may more accurately recognize and appropriately respond to psychosis symptoms in themselves or others.

Table 1.

Model Fit Results for Causes Questionnaire

<u>Model name</u>	<u>χ^2 (df)</u>	<u>RMSEA</u>	<u>CFI/TLI</u>	<u>SRMR</u>	<u>χ^2 difference</u>	<u>Sig?</u>
Final measurement model – 3-factor	365.149 (101)	.108	.815/.780	.100		
EFA-identified 4-factor model	357.113 (98)	.108	.821/.781	.103	-8.036	Y*
Initial 4-factor model**	--	--	--	--	--	--
1-factor model	751.392 (104)	.166	.546/.476	.116	386.243	Y
Final model with SCZ data	346.166 (101)	.073	.897/.878	.076		
Final model with NONE data	541.859 (101)	.098	.877/.854	.102		

*Although the four-factor model technically fit the data significantly better than the three-factor model, according to the χ^2 critical value, the magnitude of difference was approximately 0.2, and the three-factor model was found to be a better fit for the other two psychosis levels. As a result, the three-factor model was chosen as the final measurement model.

**Initial 4-factor model failed to converge

Table 2.

Factor Loadings of Causes Items

<u>Items</u>	<u>Psychosocial</u>	<u>Spiritual/Alt</u>	<u>Physical</u>
1. Negative thinking	.777		
2. Work/school pressure	.766		
3. Keeps problems to self	.736		
4. Problems with others	.721		
5. Major change in life	.651		
6. Worrying too much	.649		
7. Bad family	.524		
8. Weak mind	.467		
9. Curse		.991	
10. God		.713	
11. Demons		.685	
12. Punishment for sins		.655	
13. Diet		.252	
14. Hereditary			.828
15. Brain disorder			.717
16. Physical illness			.338

Table 3.

Model Fit Results for Types of Help

<u>Model name</u>	χ^2 (df)	<u>RMSEA</u>	<u>CFI/TLI</u>	<u>SRMR</u>	χ^2 <u>difference</u>	<u>Sig?</u>
Final measurement model – 4-factor	292.272 (98)	.094	.889/.865	.069		
EFA-identified 3-factor model	323.809 (101)	.099	.873/.849	.076	31.537	Y
Initial 4-factor model	715.578 (98)	.118	.810/.767	.099	423.306	Y
1-factor model	769.888 (104)	.169	.621/.563	.109	477.616	Y
Final model with SCZ data	454.216 (98)	.090	.884/.858	.077		
Final model with NONE data	461.399 (98)	.090	.891/.866	.092		

Table 4.

Factor Loadings of Types of Help Items

<u>Items</u>	<u>Physical</u>	<u>Psychosocial</u>	<u>Spiritual</u>	<u>Psychological</u>
1. Meditate/relax	.660			
2. Prayer	.543			
3. Exercise	.374			
4. Change diet	.364			
5. Spend time with others/socialize		.847		
6. Learn social skills		.670		
7. Endure and adjust		.662		
8. Positive thinking		.561		
9. Resolve Disagreements		.555		
10. Talk to family/friends		.54		
11. Remove curse			.869	
12. Please spirits			.808	
13. Confess sins			.612	
14. Surgery			.479	
15. Medication				.706
16. Psychotherapy				.625

Table 5.

Model Fit Results for Sources of Help Questionnaire

<u>Model name</u>	<u>χ^2 (df)</u>	<u>RMSEA</u>	<u>CFI/TLI</u>	<u>SRMR</u>	<u>χ^2 difference</u>	<u>Sig?</u>
Final measurement model – 4-factor	324.311 (98)	.101	.862/.830	.084		
EFA-identified 3-factor model	429.799 (101)	.120	.799/.761	.091	105.488	Y
Initial 4-factor model	722.556 (98)	.118	.798/.753	.093	398.245	Y
1-factor model	740.712 (104)	.165	.610/.550	.121	416.401	Y
Final model with SCZ data	535.093 (98)	.099	.866/.836	.096		
Final model with NONE data	564.193 (98)	.102	.860/.829	.088		

Table 6.

Factor Loadings of Sources of Help Items

<u>Items</u>	<u>Psychological</u>	<u>Community</u>	<u>Social</u>	<u>Alt/Nontraditional</u>
1. Psychologist	.808			
2. Psychiatrist	.696			
3. Faith healer		.882		
4. Minister		.701		
5. Herbalist		.385		
6. Family doctor		.365		
7. Friends			.981	
8. Family			.781	
9. Self-help/support group			.696	
10. Himself			.649	
11. Counselor			.450	
12. Social worker			.352	
13. Fortune teller				.887
14. Hypnotist				.755
15. Exorcist				.487
16. Surgeon				.377

Table 7.

Model Fit Results for Questions Questionnaire

<u>Model name</u>	χ^2 (df)	<u>RMSEA</u>	<u>CFI/TLI</u>	<u>SRMR</u>	χ^2 <u>difference</u>	<u>Sig?</u>
Final measurement model – 3-factor	186.015 (51)	.108	.814/.759	.098		
EFA-identified 2-factor model	227.340 (53)	.121	.760/.701	.106	41.325	Y
Initial 3-factor model	281.661 (51)	.141	.688/.596	.130	95.646	Y
1-factor model	--	--	--	--	--	--
Final model with SCZ data	434.823 (51)	.129	.723/.641	.109		
Final model with NONE data	554.740 (51)	.148	.791/.729	.129		

Table 8.

Factor Loadings of Questions Items

<u>Items</u>	<u>Identification</u>	<u>Stigmatization</u>	<u>Emotional State</u>
1. Mentally ill	.867		
2. Needs psychological help	.818		
3. Needs psychological meds	.594		
4. If friend, would stop being friends		.770	
5. If family, would feel embarrassed		.720	
6. Crazy		.622	
7. If family, would want the person to get help		-.547	
8. If friend, would want to help		-.502	
9. Shameful		.472	
10. Happy			.808
11. Sad			-.371
12. Normal			.296

Table 9.

Repeated-Measures ANOVAs by Psychosis Level

Questionnaire	APS <i>M (SD)</i>	SCZ <i>M (SD)</i>	NONE <i>M (SD)</i>	F*	Partial eta square (η^2p)
Questions					
(F1) Identification	2.79 (.67)	3.01 (.64)	.84 (.82)	1367.359*	.75
(F2) Stigmatization	3.07 (.60)	3.21 (.61)	2.91 (.55)	62.412*	.12
(F3) Emotional State	3.47 (.55)	3.18 (.61)	4.46 (.66)	580.073*	.56
Causes					
(F1) Psychosocial	2.38 ^a (.78)	2.77 (.88)	2.40 ^a (.81)	58.894*	.12
(F2) Spiritual/Alternative	1.44 ^a (.60)	1.45 ^a (.60)	1.24 (.54)	45.267*	.09
(F3) Biological	2.78 ^a (.89)	2.82 ^a (.94)	1.39 (.66)	592.797*	.57
Types					
(F1) Physical	2.27 ^a (.87)	2.42 (.91)	2.24 ^a (.86)	15.165*	.03
(F2) Psychosocial	2.61 (.91)	2.80 (.95)	3.03 (.93)	50.960*	.10
(F3) Spiritual	1.45 ^a (.70)	1.41 ^a (.64)	1.22 (.56)	40.989*	.08
(F4) Psychological	3.07 (1.04)	3.27 (1.01)	1.62 (.77)	594.357*	.57
Sources					
(F1) Psychological	3.64 (1.04)	3.80 (1.04)	2.29 (1.08)	479.051*	.51
(F2) Community	2.03 ^a (.84)	2.03 ^a (.84)	1.57 (.75)	127.660*	.22
(F3) Social	2.95 ^a (.94)	3.03 ^a (.94)	3.01 ^a (.87)	2.128	.01
(F4) Alternative/nontraditional	1.42 ^a (.61)	1.40 ^a (.64)	1.18 (.52)	54.521*	.11

Note. APS=Attenuated Psychosis Syndrome condition; SCZ=schizophrenia condition; NONE= no psychosis condition; convention for interpreting partial eta-squared effect sizes dictates that $\eta^2p > .01$ indicates a small effect, $\eta^2p > .06$ indicates a medium effect, and $\eta^2p > .14$ indicates a large effect

^aMeans sharing a superscript are not significantly different from one another

* $p < .01$

Table 10.

Repeated-Measures ANOVAs Comparing Factors Within Questionnaires for APS character

Questionnaire	Factor 1 <i>M (SD)</i>	Factor 2 <i>M (SD)</i>	Factor 3 <i>M (SD)</i>	Factor 4 <i>M (SD)</i>	F*	Partial eta square (η^2_p)
Causes	Psychosocial 2.38 (.78)	Spiritual/Alt 1.44 (.60)	Biological 2.78 (.89)	--	504.101*	.53
Types	Physical 2.27 (.87)	Psychosocial 2.61 (.91)	Spiritual 1.45 (.70)	Psychological 3.06 (1.04)	409.136*	.47
Sources	Psychological 3.63 (1.05)	Community 2.03 (.83)	Social 3.00 (.94)	Nontraditional 1.42 (.61)	847.317*	.65

Note. APS=Attenuated Psychosis Syndrome condition; SCZ=schizophrenia condition; NONE= no psychosis condition; convention for interpreting partial eta-squared effect sizes dictates that $\eta^2_p > .01$ indicates a small effect, $\eta^2_p > .06$ indicates a medium effect, and $\eta^2_p > .14$ indicates a large effect

^aMeans sharing a superscript are not significantly different from one another

* $p < .01$

Table 11.

Between-Group ANOVAs Showing Ethnic Group Differences and Ethnicity x Factor Interactions

	East Asian (N=89)	Caucasian (N=76)	Hawaiian (N=56)	F	p
<u>APS</u>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>		
Questions					
(F1) Identification	2.87 (.62)	2.73 (.74)	2.72 (.68)	1.246	.29
(F2) Stigmatization	3.13 (.58)	3.01 (.55)	2.93 (.65)	1.963	.14
(F3) Emotional State	3.48 (.53)	3.45 (.59)	3.60 (.50)	1.353	.26
Causes					
(F1) Psychosocial	2.30 (.85)	2.26 (.66)	2.33 (.81)	.143	.87
(F2) Spiritual/Alternative	1.39 (.64)	1.33 (.51)	1.41 (.56)	.352	.70
(F3) Biological	2.73 (.92)	2.78 (.83)	2.71 (.94)	.111	.90
Causes x Ethnicity				.283	.88
Types					
(F1) Physical	2.13 (.88)	2.17 (.78)	2.33 (.77)	1.053	.35
(F2) Psychosocial	2.64 (.95) ^a	2.35 (.75)	2.74 (.97) ^a	3.578	.03*
(F3) Spiritual	1.38 (.62)	1.33 (.51)	1.45 (.84)	.500	.60
(F4) Psychological	3.15 (.95)	3.09 (1.03)	3.05 (1.04)	.155	.86
Types x Ethnicity				1.645	.15
Sources					
(F1) Psychological	3.68 (1.07)	3.67 (1.07)	3.64 (1.00)	.022	.98
(F2) Community	1.92 (.66)	1.94 (.88)	2.09 (.89)	.857	.43
(F3) Social	2.90 (.98)	2.81 (.90)	3.00 (.95)	.625	.54
(F4) Alternative/nontraditional	1.30 (.49)	1.35 (.57)	1.33 (.57)	.168	.85
Sources x Ethnicity				.505	.76
<u>SCZ</u>					
Questions					
(F1) Identification	3.06 (.61)	2.9 (.69)	3.00 (.58)	1.316	.27
(F2) Stigmatization	3.28 (.59) ^a	3.16 (.56) ^{a,b}	3.00 (.59) ^b	4.173	.02*
(F3) Emotional State	3.23 (.59)	3.12 (.67)	3.11 (.54)	.911	.40
Causes					
(F1) Psychosocial	2.67 (.86)	2.61 (.74)	2.89 (.91)	1.948	.15
(F2) Spiritual/Alternative	1.40 (.54)	1.37 (.63)	1.45 (.49)	.293	.75
(F3) Physical	2.71 (.92)	2.88 (.83)	2.80 (.91)	.787	.46
Causes x Ethnicity				1.381	.24
Types					
(F1) Physical	2.19 (.88)	2.33 (.96)	2.42 (.65)	1.34	.26
(F2) Psychosocial	2.70 (1.01)	2.66 (.98)	2.94 (.94)	1.50	.23
(F3) Spiritual	1.32 (.63)	1.33 (.58)	1.43 (.62)	3.122	.50
(F4) Psychological	3.23 (1.01)	3.24 (1.01)	3.33 (.91)	.258	.82

(continued)

Table 11. (continued)

Between-Group ANOVAs Showing Ethnic Group Differences and Ethnicity x Factor Interactions

	East Asian (N=89)	Caucasian (N=76)	Hawaiian (N=56)	F	p
<u>SCZ (cont.)</u>					
Types x Ethnicity				.431	.83
Sources					
(F1) Psychological	3.80 (1.09)	3.71 (1.09)	3.88 (.91)	.45	.64
(F2) Community	1.91 (.80)	1.93 (.87)	2.19 (.93)	2.033	.13
(F3) Social	2.89 (.92) ^a	2.84 (.91) ^a	3.22 (.95)	3.122	.046*
(F4)	1.36 (.71)	1.29 (.56)	1.36 (.57)	.258	.77
Alternative/nontraditional					
Sources x Ethnicity				.921	.46
<u>NONE</u>					
Questions					
(F1) Identification	.95 (.87)	.81 (.79)	.64 (.66)	2.712	.07
(F2) Stigmatization	2.97 (.54) ^a	2.91 (.55) ^a	2.71 (.49)	4.101	.02*
(F3) Emotional State	4.48 (.63)	4.43 (.64)	4.48 (.76)	.128	.88
Causes					
(F1) Psychosocial	2.34 (.80)	2.41 (.79)	2.35 (.63)	.235	.79
(F2) Spiritual/Alternative	1.24 (.64)	1.19 (.45)	1.16 (.42)	.466	.63
(F3) Physical	1.39 (.70)	1.42 (.69)	1.25 (.48)	1.217	.30
Causes x Ethnicity				.759	.51
Types					
(F1) Physical	2.13 (.84)	2.28 (.86)	2.19 (.72)	.726	.49
(F2) Psychosocial	2.97 (.92)	3.07 (.96)	3.04 (.82)	.228	.80
(F3) Spiritual	1.23 (.65)	1.19 (.62)	1.16 (.44)	.245	.78
(F4) Psychological	1.65 (.80)	1.55 (.74)	1.56 (.63)	.430	.65
Types x Ethnicity				.776	.56
Sources					
(F1) Psychological	2.28 (1.09)	2.11 (.90)	2.28 (1.08)	.716	.49
(F2) Community	1.50 (.70)	1.53 (.77)	1.53 (.59)	.051	.95
(F3) Social	3.00 (.86)	2.86 (.83)	3.10 (.85)	1.352	.26
(F4)	1.21 (.60)	1.19 (.56)	1.13 (.44)	.426	.65
Alternative/nontraditional					
Sources x Ethnicity				.997	.42

Note. APS=Attenuated Psychosis Syndrome condition; SCZ=schizophrenia condition; NONE=no psychosis condition

^aMeans sharing a superscript are not significantly different from one another

*p<.05

APPENDIX A - Sample vignettes.

Example of no psychosis vignette

Kai is a 19-year-old Native Hawaiian male, currently enrolled in his freshman year of college. His parents have noticed “odd” behavior that caused them concern. Kai’s father says that Kai has gotten into several fights in the last year and this worried him and Kai’s mother. Kai says that the fights were in self-defense, which other people who saw the fights confirmed. Kai has consistently been a good student (A-B range) and is well-liked by friends and classmates. He recently won a high level chess tournament for which he was given recognition, and his mother says that this caused some of his friends and classmates to tease him. He says that he is taking the situation “in stride”, and doesn’t think he needs any help dealing with it. He has never used drugs or alcohol.

Example of Attenuated Psychosis Syndrome vignette

Haruto is a 19-year-old Japanese Male, currently enrolled in his Freshman year of college. His mother has noticed “odd” behavior that caused her concern. Haruto has an uncle with schizophrenia. His mother reported that Haruto’s strange behavior has been occurring for approximately 5 months. Haruto says that he sometimes hears a whispering voice when he’s in his room alone, but he’s not sure where it comes from or what it is saying. He felt that it was possible that it might be a problem with his hearing, though it sounded real. When talking to Haruto he sometimes needs to be redirected back to the topic and sometimes brings up unrelated issues. His mother says that she was concerned about Haruto because Haruto hardly goes out with his friends at all lately, and they are not calling the house anymore. Haruto says that he thinks his friends gossip about him behind his back, but he is not sure what they are saying. His academic performance has gotten much worse recently, falling from an A average to a C-D average. He has never used drugs or alcohol.

Example of full psychosis vignette

Bill is a 19-year-old Caucasian Male, currently enrolled in his freshman year of college. His mother has noticed odd behavior that caused her concern. His father has lived in a psychiatric hospital for years for “strange” behavior and hearing voices. Bill’s mother says that Bill does not like to talk to anyone about his experiences. She said that recently, he has not spoken much to anyone. She reported that approximately a year ago, he started being particularly picky about his food, and more recently blamed the neighbor of trying to poison him to take him “out of the picture.” His mother says that there is no evidence for this and that the neighbor is a close family friend. She also said that Bill is frequently agitated at school because he feels that other people are plotting against him. Bill talks in a low, soft voice about feeling depressed and that the world is “so cruel,” and that he will “probably die soon” from other people’s actions. However, he cannot say specifically why he thinks this. He finds it very difficult to do anything to express himself to others. Bill’s mother says that he has been in special education classes for several years in high school, and that she is considering withdrawing him from all of his classes as he is not progressing in his work. He very occasionally has one or two alcoholic beverages when with friends.

APPENDIX B - *Questions about the vignette character.*

Each statement was rated on a five point scale from Strongly Agree, Agree, Neither Agree nor Disagree, Disagree to Strongly Disagree.

1. The person in the story is mentally ill.
2. The person in the story is shameful.
3. The person in the story needs psychological help.
4. The person in the story needs medication for psychological problems.
5. The person in the story is normal.
6. The person in the story is happy.
7. The person in the story is sad.
8. If the person in the story were a friend of mine, I would want to help them with their problems.
9. If the person in the story were a friend of mine, I would stop being friends with them.
10. The person in the story is crazy.
11. If the person in the story were a family member, I would feel embarrassed.
12. If the person in the story were a family member, I would want them to get help.

APPENDIX C - Causes, types of help, and sources of help.

Each answer was rated on a five point scale from not at all, possibly, probably, very likely, to certainly [a cause, helpful].

Causes, Types of Help, and Sources of Help

Causes	Types of help	Sources of help
Diet	Psychotherapy	Surgeon
Worrying too much	Resolve disagreements	Psychologist
Demons/spirits	with others	Spiritual/faith healer
Bad family life	Meditation/relaxation	Counselor
Punishment for sins	Prayer	Himself/herself
Problems with other people	Talk to family and/or friends	Herbalist
Brain disorder	Change diet	Minister/priest
Negative thinking	Positive thinking/better attitude	Family doctor
Weak Mind	Confess sins	Exorcist
Major changes in life situation	Spend time/socialize with others	Social worker
Hereditary	Endure and adjust to situation	Friends
Curse	Surgery	Self-help/support group
Work or school pressures	Learn social skills	Psychiatrist
God	Please spirits	Family
Physical illness	Medication	Fortune teller
Keeps problem to himself/herself	Remove curse	Hypnotist
	Exercise	

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