Clinical High Risk for Psychosis: Stigma in an Undergraduate Population

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Abstract

Background: Schizophrenia labels elicit more negative stigma than other mental illnesses. Identifying youth as being at “clinical high risk for psychosis” (CHR), sometimes called attenuated psychosis syndrome (APS), can allow for earlier treatment and may positively impact outcomes. However, since most individuals at CHR do not develop a full threshold psychotic disorder, there are concerns that this early identification may also have the negative impact of subjecting youth to unnecessary stigma. We directly compared levels of stigma elicited by schizophrenia, CHR, and APS to a control label of normative adolescent development (“a bad breakup”) and an additional control condition without a label. Methods: Seventy-six undergraduates (age 18.8 ± 1.1, range 18-22) and 99 adults on Amazon Mechanical Turk (age 27.2 ± 6.7, range 2-51) read a vignette describing an adolescent experiencing symptoms of clinical risk for psychosis. The accompanying diagnostic label (APS, CHR, schizophrenia, went through a bad breakup, or no label) was counterbalanced between participants. Participants answered questions assessing their stigma toward the individual and their prior knowledge of and familiarity with psychosis. Results: The breakup label elicited significantly higher ratings of personal responsibility (e.g., it is his fault he’s in this condition) than did the schizophrenia label (p<.05). Overall stigma did not significantly differ across conditions. More prior knowledge about, and higher familiarity with, psychotic symptoms predicted lower overall stigma. Conclusion: Surprisingly, we did not find that schizophrenia, CHR, and APS labels were associated with higher stigma in this sample relative to both control conditions. As greater levels of knowledge about and familiarity with psychosis were associated with lower stigma, the lack of reported stigma related to psychosis labels may reflect a greater awareness about psychosis in the group studied. Further exploration of stigmatizing attitudes about psychotic disorders among
college students is warranted, as well as the possible impact of education about mental illness in this population.
Mental Illness Stigma

Many who suffer from mental illness not only face challenges in dealing with their symptoms but also struggle with stigma. The three main components of stigma are stereotypes, prejudice, and discrimination (Corrigan & Watson, 2002). Stereotypes, or “collectively agreed upon” opinions of a group, lead to personal prejudice, in which a person supports these negative stereotypes, then leading to behavioral discrimination (Corrigan & Watson, 2002). Stigma can either be public stigma, which is defined as the “reaction that the general population has to people with mental illness,” or self-stigma, which is defined as prejudice that people with mental illness have towards themselves (Corrigan & Watson, 2002). Both types of stigma are particularly damaging to those who battle with mental illness on both a societal and individual level. People are more stigmatizing towards people with mental illness than people with a physical illness, with attitudes including perceiving them as more dangerous (Parcesepe & Cabassa, 2013; Pescosolido, Fettes, & Martin, 2007). This perception that individuals with mental illness are dangerous has gotten worse over time (Parcesepe & Cabassa, 2013). The public also tends to be more stigmatizing when the individual in question is an adolescent (Martin, Pescosolido, & Olafsdottir, 2007).

Diagnostic labels of mental illness often evoke stigma and avoidance behaviors. The public is more likely to avoid, withhold help, and support legally mandated treatment of someone when their mental illness is perceived to be under the individual’s control (Corrigan, Markowitz, Watson, Rowan, & Kubiak, 2003). In addition, the public is more likely to withhold help, avoid, and endorse coercive treatment of those with mental illness when they are labeled as dangerous (Corrigan et al., 2003). Labeling a participant as having a previous hospitalization also fosters
high avoidance in those who already perceive people with mental illness to be dangerous (Link, Cullen, Frank, & Wozniak, 1987). Personal accounts have described this stigma as well. For example, Elyn Saks, an accomplished lawyer and professor living with chronic schizophrenia, was once told by a law professor while discussing the immorality of restraining psychiatric patients that people with psychosis would not experience restraints as others would because they are fundamentally different (Saks, 2007).

Individuals with mental illness are also perceived as more dangerous if the cause of mental illness is noted as being genetic or caused by a chemical imbalance (Pescosolido et al., 2010). In addition to greater perceived dangerousness, there is a perception that the mental illness is more persistent when it is attributed to genetic causes (Phelan, 2005). Genetic attributions of mental illness can also affect social distance, not to the individual directly but rather to their family members, especially in the context of intimate relationships and having children (Phelan, 2005). While perception that a mental disorder is genetic causes people to suggest more extreme and biologically-oriented treatment, there is greater pessimism that the treatments will not work (Phelan, Yang, & Cruz-Rojas, 2006). As new biological mental health treatments are developed, it is important to consider the effects of genetic and biological essentialism both public and private stigma.

This public stigma against people with mental illness, particularly psychotic disorders, has a large impact on self-stigma; individuals who experience psychosis are likely to report high levels of perceived discrimination (Oh, Yang, Anglin, & DeVylder, 2014). Beyond the stigma of the public, an individual’s self-perception can be harmed by self-stigma (Corrigan & Watson, 2002; Livingston & Boyd, 2010). Self-stigma has a clinical effect as well as it relates to higher symptom severity and lower treatment adherence (Livingston & Boyd, 2010). Adolescents who
exhibit self-labeling by using psychiatric terms to describe their problems report higher ratings of depression (Moses, 2009). There is evidence to believe stigma related to mental illness is linked to suicidality and suicidal ideation but there must be more research in this area to confidently assert this association (Rusch, Zlati, Black, & Thornicroft, 2014).

**Stigma and psychotic disorders.** In relation to other mental illnesses, stigma is particularly severe towards people with schizophrenia or psychotic illnesses, since people perceive them as being especially dangerous (Link, Phelan, Bresnahan, Stueve, & Pescosolido, 1999; A. H. Thompson et al., 2014; Wright, Jorm, & Mackinnon, 2011), particularly when personal contact is likely (Angermeyer & Matschinger, 2003; A. H. Thompson et al., 2014). People living with schizophrenia or other psychotic illness are believed to be dangerous or unpredictable - especially soon after there is an unfortunate violent attack by individuals with schizophrenia covered in the media (Angermeyer & Matschinger, 1996). This stigma and fear persists notwithstanding the fact that people with mental illness are more likely to be the victims than offenders of crimes (Hiroeh, Appleby, Mortensen, & Dunn, 2001) and is perpetuated by the media’s negative portrayal and sensationalization of people with mental illness (Coverdale, Nairn, & Claasen, 2002; Nawkova et al., 2012). These perceptions translate into social interactions, as people are more likely to distance themselves or not complete a favor request for a person with schizophrenia than a person with depression or no mental illness (Imai & Dailey, 2016). Additionally, mass shootings in the United States are often attributed to mental illness. After a mass shooting, it is frequently assumed that citizens should fear the mentally ill because mental illness causes gun violence, and gun control “won’t prevent” another mass shooting because of the psychiatric attributes of mass shooters (Metzl & MacLeish, 2015). The media often sensationalizes mental illness or places it in a negatively biased light throughout the world.
(Coverdale et al., 2002; Nawkova et al., 2012) despite evidence that the majority of people suffering from mental illness do not commit violent acts (Swanson, McGinty, Fazel, & Mays, 2015). This public stigma is particularly severe for those who suffer from psychotic disorders.

**Reducing stigma.** The Framework Integrating Normative Influences on Stigma (FINIS) model states that stigma is a complex interaction of “micro,” or individual factors, “meso,” or social and organizational factors, and “macro,” or society wide factors (Pescosolido, Martin, Lang, & Olafsdottir, 2008). Given the detrimental effects of stigma on the individual, a major goal for public mental health is to seek out ways to reduce stigma at the macro or societal level.

Reducing public stigma is difficult but achievable. Individuals who report previous interactions with individuals with a mental illness or, to a lesser degree, those who receive information about mental illness in general exhibit less stigma, particularly in regards to dangerousness (Penn et al., 1994; Penn, Kommanna, & Mansfield, 1999). Those who have been exposed to more people with mental illness (Corrigan et al., 2003; Corrigan & Watson, 2002) or who have relatives with mental illness (Smith, Reddy, Foster, Asbury, & Brooks, 2011) are less likely to demonstrate discrimination and stigmatizing attitudes. However, individuals who have a family member with mental illness are likely to endorse greater social distance from those with mental illness, potentially because of a large caregiver burden (Smith et al., 2011). Those who are more knowledgeable about mental illness are more likely to exhibit less stigma and more benevolent attitudes towards people with mental illness (Holmes, Corrigan, Williams, Canar, & Kubiak, 1999; Smith et al., 2011), suggesting that contact and education are possible interventions to combat stigma. On the other hand, if an individual has a social interaction with an individual with mental illness that is negatively perceived, this contact will likely have a negative impact on stigma (Pescosolido et al., 2008).
Early Intervention and Clinical High Risk

In treatment of psychotic disorders, it is possible to intervene before the first episode of psychosis, but a question remains of whether or not negative effects such as stigma are worth the potential treatment improvements. Services that provide comprehensive early intervention treatment have shown great promise in improving long-term outcome in schizophrenia (Srihari, Shah, & Keshavan, 2012). It is important to intervene as early as possible as longer duration of untreated psychosis (DUP) is associated with negative outcomes such as lower rate of symptom remission, lower rate of employment, higher substance use, and generally poorer functional outcomes (Addington, 2007; Keshavan et al., 2003; Schimmelmann et al., 2008).

Clinicians can intervene even before the first episode of psychosis for youth exhibiting signs of clinical high risk (CHR) for psychosis, referring to a set of symptoms or changes that may identify individuals as being at increased risk for developing a psychotic illness. People who develop psychotic illnesses often have a period of functional and cognitive difficulties and non-specific or mild, psychotic-like symptoms that begin months to years before the onset of fully psychotic symptoms. This period is known as the prodromal period of psychotic illness. (Fusar-Poli et al., 2013; E. Thompson et al., 2015)

As evidence has increased for poor outcomes associated with long DUP, the field has begun to place greater emphasis on providing early detection and intervention in psychosis (Addington & Heinssen, 2012; McGorry, Yung, & Phillips, 2003). Several assessments have been developed to identify individuals who may be in the prodrome to psychosis by identifying characteristics that are associated with clinical high risk. The most common measures for assessing CHR are the Comprehensive Assessment of At-Risk Mental States (CAARMS), which originated in Australia, the Bonn Scale for the Assessment of Basic Symptoms, which originated
in Germany (Klosterkotter, Hellmich, Steinmeyer, & Schultze-Lutter, 2001), and the Structured Interview for Prodromal Syndromes (SIPS) (Miller, McGlashan, & Rosen, 2003), which originated in the United States. For the purposes of this study the SIPS criteria was used as it is the most common assessment for CHR in the United States.

In the United States, CHR is typically defined as either *Attenuated Psychotic Symptoms (APS)*: new or worsening psychotic-like symptoms causing distress and/or impairment, but differing from psychotic symptoms in severity, frequency, and insight, *Genetic Risk and Deterioration (GRD)*: genetic risk for psychosis combined with a sudden, recent decline in functioning, or *Brief Intermittent Psychotic Symptoms (BIPS)*: recent onset full psychotic symptoms that are present intermittently for a brief period (Fusar-Poli et al., 2013; E. Thompson et al., 2015).

There are two main aims of early intervention in psychotic disorders, first to help prevent transition to full-threshold psychotic disorder and to treat symptoms such as depression and anxiety, but also to ensure an individual is engaged with targeted treatment should a first episode of psychosis occur (A. Yung & Nelson, 2011). Through targeted CHR treatment, patients can have functional and symptomatic recovery, decreased suicide rates, fewer relapses (Addington, 2007), and possible prevention of conversion to full-threshold psychotic disorder (McGorry et al., 2003). Progress in research and treatment continues in CHR through improved assessment, longitudinal examination of symptom changes, and developing interventions to prevent conversion to psychosis (Woodberry, Shapiro, Bryant, & Seidman, 2016).

In the most recent version of the Diagnostic and Statistical Manual of Mental Disorders – Fifth Edition (DSM-5, American Psychiatric Association, 2013; Reddy, 2014), inclusion of a psychosis risk diagnosis was considered, specifically the APS syndrome. It would be included as
a “transitional” diagnosis to be used for a short time, later to be replaced by another diagnosis (A. Yung & Nelson, 2011). Advocates of its inclusion described possible benefits including early recognition, case identification, and treatment (Corcoran, First, & Cornblatt, 2010; Tsuang et al., 2013). However, it was ultimately excluded. Many assert that the diagnosis of CHR or APS needs more information about reliability and predictive utility and also say that it may not enhance therapeutic information (Tsuang et al., 2013). A major argument for excluding APS as a diagnosis has been the concern that this label may result in false positive diagnoses, stigma, discrimination, overmedication, and harm (Corcoran et al., 2010; A. R. Yung et al., 2012), especially considering about 65% of those identified as CHR (APS, GRD, or BIPS) do not convert to full psychosis (Cannon et al., 2008; Nelson et al., 2013; Woodberry et al., 2016).

**Clinical High Risk and Stigma**

Both labels of schizophrenia and CHR have been found to be stigmatizing, evoking less willingness to socialize with and help the individual (Yang et al., 2013). Further, a psychosis-related label of a vignette of an individual with CHR evokes more stigmatizing attributions of fear than a label of depression and other mental disorders (Anglin, Greenspoon, Lighty, Corcoran, & Yang, 2014).

This public stigma can also have an effect on self-stigma. Youth who are at CHR often associate shame and depression related to their symptoms, such as the psychotic-like positive and negative symptoms they experience, and anxiety related to the risk label (Yang et al., 2015). Self-stigma associated with the label can elicit negative emotional reactions and induce harmful behavioral coping strategies (Yang, Wonpat-Borja, Opler, & Corcoran, 2010). In one study of adolescents at high risk for psychosis, self-labeling and stigma stress, mediated by social isolation, were linked with suicidal ideation (Xu et al., 2016). Stigma-related perceived harm and
stress may even be predictors of reduced well-being and transition to schizophrenia for those at risk for psychosis (Rusch, Corrigan, et al., 2014; Rusch et al., 2015).

Stigma is still an under researched area, particularly in regards to the CHR risk label. Yang et al. (2013) have made some important contributions by sparking this area of research and investigating stigma and self-stigma towards individuals who are told they are CHR. However, these studies have not investigated whether the term “clinical high risk” may sound inherently dangerous to someone who is does not have previous knowledge about psychosis risk labels. Investigating whether “attenuated psychosis symptoms” may be a less inherently stigmatizing term than “clinical high risk” may be helpful for determining how best to help young people experiencing these symptoms to understand these experiences. To date, there is no research on stigma surrounding the APS label even though this is the diagnosis that was most strongly considered for inclusion in the DSM-5 and will be considered for future versions of the DSM (Tsuang et al., 2013). Additionally, there is a lack of research studying stigma of an individual experiencing CHR symptoms without any diagnostic label. GRD and BIPS, the other psychosis risk syndromes, were not included as labels in this study because they were not considered for inclusion in the DSM-5 (Tsuang et al., 2013).

The present study compared stigma surrounding psychosis risk labels, schizophrenia labels, and two control labels using a vignette methodology. Experiment 1 was in an undergraduate population at a large American university. Experiment 2 was a larger adult population through Amazon Mechanical Turk.

**Experiment 1**

The goal of the present study was to compare stigma associated with the APS label and the CHR label with that of schizophrenia, normal adolescent development, and no label in an
undergraduate population. The study also tested whether prior knowledge about psychotic symptoms and familiarity with people with psychotic symptoms predicted levels of stigma. Contact with people who have mental illness in relation to stigma has been tested in past studies but prior knowledge about symptoms in relation to stigma has not been tested in relation to CHR.

**Hypotheses**

**General stigma.** Though there is no current research on stigma elicited by the APS label, we hypothesized that it would evoke similar levels of general stigma to the CHR label. Based on prior research, we would also expect there would be no difference in general stigma between the CHR and schizophrenia labels. We expect that the APS, CHR, and schizophrenia labels would elicit more general stigma than the control conditions (breakup or no label).

**Stigma dimensions.** We hypothesized that the schizophrenia label would elicit more negative stereotyping (fear) (Yang et al., 2013) and less willingness to help (Imai & Dailey, 2016) and the CHR and APS labels will evoke greater social distance and less willingness to help (Yang et al., 2013) than the control labels (breakup or no label). Other dimensions of stigma measured (personal responsibility, pity, anger, and coercion-segregation) were expected not to differ between the schizophrenia, CHR, and APS labels, but to reflect more stigma than the control conditions (breakup or no label).

**Previous experience/knowledge.** The amount of contact participants had with people with mental illness was expected to impact participants’ feelings of the vignette character’s responsibility, the emotions associated with their reactions (pity, anger, and fear), and helping or rejecting behaviors (Penn et al., 1994; Penn et al., 1999; Smith et al., 2011). Previous knowledge of psychotic symptoms would be associated with less stigma and greater tolerance (Penn et al.,
Additionally, participants who demonstrated more previous knowledge of psychosis would likely display more helpful attitudes towards the vignette character (Holmes et al., 1999).

**Demographic variables.** Exploratory analyses were performed on demographic variables. There is evidence to suggest that gender is not significantly associated with stigma (Penn et al., 1999), but there is also evidence to suggest that females stigmatize less than males (Penn & Nowlin-Drummond, 2001). We had no a priori prediction for the influence of race, ethnicity, or education.

**Qualitative data.** Qualitative data was analyzed in an exploratory manner. Based on schizophrenia and psychotic disorders being more stigmatized than other disorders (Link et al., 1999; A. H. Thompson et al., 2014; Wright et al., 2011), participants who mention more positive symptoms (e.g., John hearing his name in the wind) would endorse more stigma. Additionally, participants who endorse the genetic component of John’s disorder (e.g., his mother was diagnosed with a mental illness but recovered) would have higher stigma, notably in the fear dimension (Pescosolido et al., 2010).

**Method**

**Participants.** Participants were college students between the ages of 18 and 22 enrolled in an introductory psychology course at Northeastern University. Participants were recruited through PsyLink, Northeastern’s online system for recruiting psychology study participants.

128 participants from Northeastern University participated in the study. For the CHR, APS, and schizophrenia conditions, a manipulation check was included in order to confirm that participants were paying attention to the provided label. 29 participants (22.7% of the sample) failed this check and thus were excluded from analysis (6 participants in the schizophrenia
condition, 8 participants in the CHR condition, 11 participants in the APS condition, and 4 participants in the breakup condition). Participants were also asked to provide a qualitative description of John’s problems. One participant (.8% of the sample) did not provide this and thus was excluded from analysis. Two other participants said that their age was over 22, so they were also excluded from the analysis (1.6% of the sample). The final sample from Northeastern University was 96 participants.

Among the 96 participants, the mean ± SD age was 18.9±1.1. The participants were 67.7% female (n=65). 53.1% of participants self-identified as White (n=51), 29.2% of participants self-identified as Asian (n=28), 9.4% of participants self-identified as mixed race (n=9), 5.2% of participants self-identified as Black or African American (n=5), and 3.1% of participants did not provide their racial identification (n=3). 87.5% of participants identified their ethnicity as not Hispanic or Latino (n=84), 10.4% of participants identified their ethnicity as Hispanic or Latino (n=10), and 2.1% of participants did not provide their ethnicity (n=2). 62.5% of participants endorsed that they had completed some college (n=60), 28.1% of participants endorsed that they had completed high school or obtained a GED (n=27), 7.3% of participants said they had completed some high school (n=7), and 2.1% of participants said they had a college degree (n=2).

**Materials.**

**Vignette.** We used a vignette by Anglin et al., 2014, which describes a young adult ("John") experiencing attenuated psychotic symptoms consistent with CHR (see appendix A).

**Stigma measure.** The stigma measure (Corrigan et al., 2003; Holmes et al., 1999) assessed personal responsibility beliefs, or how much participants believe the individual’s symptoms are under their control, emotional responses, as well as helping and rejecting
responses (see appendix A). The measure was designed to assess for 6 dimensions of stigma and includes 3 questions about personal responsibility beliefs, 3 questions about pity, 3 questions about anger, 4 questions about fear, 4 questions about helping, and 4 questions about coercion/segregation, bringing the total number of questions to 21 questions. Items were slightly edited from the original version for clarity.

Question responses ranged from 1 – not at all/not likely to 9 – very much/very likely. Total stigma measure scores ranged from 21-189, with 21 being the least stigmatizing and 189 being the most stigmatizing. Analysis was performed on each section of the measure separately in order to differentiate between different aspects of stigma.

Confirmatory factor analyses from previous studies show that the dimensions of help and avoidance and the indicators of coercion and segregation are highly correlated (r= .68 and r= .74, respectively) (Corrigan et al., 2003). In addition, each of the individual scales demonstrates high reliability (alpha coefficients: personal responsibility = .70; pity = .74; anger = .89; fear= .96; helping= .88; and coercion/segregation = .89) (Corrigan et al., 2003).

**Familiarity measure.** We prepared a 12-item measure of familiarity with people who have experienced psychotic symptoms (see appendix B (Corrigan et al., 2003; Holmes et al., 1999). The original measure asked participants about their familiarity with people who have mental illness. We adapted this measure for this project to specifically ask questions about participants’ familiarity with psychosis, and items were slightly edited from the original for clarity. Items that reflect a closer relationship with an individual with psychotic symptoms (e.g., “I have a relative who has psychotic symptoms,” which received a score of 10) received a higher score than items that reflect a more peripheral relationship with an individual with psychotic symptoms (e.g., “I have watched a movie or television show in which a character depicted a
person with psychotic symptoms,” which received a score of 3). Participants’ responses were scored from 1-132, with 1 being the least familiar with people with psychosis and 132 being the most familiar with people with psychosis. The mean of rank order correlations on the original measure for inter-rater reliability is 0.83 (Holmes et al., 1999).

**Knowledge questionnaire.** The knowledge measure (see appendix C, adapted from (Collins & Holmshaw, 2008; Friedman-Yakoobian, 2005)) contained 20 true or false questions. The measure was designed based on factual information about psychotic symptoms and psychotic risk syndromes, as well as symptoms that people may think could be indicative of psychosis based on a lack of knowledge. The measure was presented in lay terms in order to be understood by the average undergraduate student. In order to get a large amount of variability, each item was scored from definitely true to definitely false on a -10 to 10 scale, with 10 being a correct answer with certainty and -10 being an incorrect answer with certainty. The measure was scored from -200 to 200, with -200 being the worst possible score (all items incorrect with absolute certainty) and 200 being the best possible score (all items correct with absolute certainty).

Content validity of the knowledge measure was pre-assessed by asking six experts at the Center for Early Detection, Assessment, and Response to Risk (CEDAR) Clinic, a center in Boston, Massachusetts specialized in the treatment of CHR, to take the questionnaire and provide feedback on it. All experts were highly trained in assessing for psychosis and attenuated psychosis and were previously vetted as reliable raters on the Structured Interview for Psychosis Risk Syndromes (SIPS; (Miller et al., 2003), an assessment tool specifically designed for CHR syndromes, for the North American Prodromal Longitudinal Study (NAPLS; (Addington et al., 2012). The questionnaire was modified according to their feedback.
Students were receiving information about mental illness in their introductory psychology course at some point in the semester but were able to sign up for the study at any time. Because of this, the knowledge measure also included questions to see if students had covered information about mental illness, schizophrenia, and psychosis in their introductory psychology course (yes/no, 3 items). In addition, students who were interested in pursuing a career in mental health may be less stigmatizing than those who do not, so the knowledge measure included an item to assess this (yes/no, 1 item). These items were referred to as “exposure” and were not included in the total calculation for the knowledge questionnaire. Instead, exposure was a separate score with scores ranging from 0-4.

At the end of the study participants were presented with information about psychosis and psychosis risk syndromes (see appendix D; (CEDAR, 2016; Farlex Partner Medical Dictionary, 2012) for educational and debriefing purposes.

**Procedure**

Participants voluntarily selected the study via PsyLink, Northeastern University’s internal program for psychological studies. The study was presented on Qualtrics survey software (Qualtrics, Provo, UT). Demographic information was collected from participants including age, gender, race, ethnicity, and education level (year in college). Participants completed the study in a room at Northeastern University with a research assistant present. The research assistant walked the participant through the informed consent, explained the study, and sat with the participant while they completed the measures.

The current study is a between-subjects design. All of the participants read a paragraph long vignette of an adolescent with APS (see appendix A). The vignette was presented to participants with one of five labels: schizophrenia (N=20), CHR (N=19), APS (N=19),
experiencing things in the realm of normal adolescent development (“He just went through a very difficult breakup,” control 1, N=18), or were given no label (control 2, N=20). The vignette was identical for all participants excluding the label the character was assigned. In order to ensure the label was salient, participants indicated that they understood what John’s diagnostic label was in a multiple choice format (see appendix A). Those participants who did not identify the correct label were excluded from the analysis\(^1\). Participants were also asked to paraphrase the information in the vignette in their own words. Two independent raters coded the qualitative answers for content, such as labels used to describe the participant, mention of general characteristics, genetic influence, positive symptoms, negative / functioning symptoms, and general behavioral change. The coding for the labels (psychotic, non-psychotic, and psychiatric) was modeled off of Anglin et al., 2014. NVivo qualitative data analysis software was used to analyze this data (QSR, 2015). See appendix E for a full list of the coding structure. Participants in the no label (control 2) condition were not asked to perform the manipulation check, they were only asked to describe what was happening with John in their own words.

All participants were presented with a measure of stigma and familiarity with psychotic symptoms (see appendix B). When the stigma measure was presented to the participant, question categories were randomized.

\(^1\) After 24 people participated and 7 of them got the manipulation check wrong, the words “see above” were added after the manipulation check text to encourage participants to look at the clearly defined label. The remaining participants were run through the study with this “see above” modification. Additionally, they were asked to summarize the information about John in their own words (see appendix A). After 85 participants were run in the study and 12 additional participants got the manipulation check wrong, the text including the label was marked red in order to make it more salient. After 89 participants were run and 3 additional participants got the manipulation check wrong, extra clarification text was added in order to make sure the question was clear.
After randomization all participants were presented with a psychosis knowledge questionnaire (see appendix C; adapted from (Collins & Holmshaw, 2008; Friedman-Yakoobian, 2005)).

All participants were debriefed about the purpose of the study and received partial course credit. In total the study took about fifteen minutes.

Results Experiment 1

There were 32 participants who failed the manipulation check and thus were excluded from the study. However, there are no differences in the findings between the entire sample and the smaller included sample. Thus, the results only highlight the included sample (n=96) because it is confirmed they recognized the label manipulation.

Reliability of measures. In the current sample, each of the individual scales also demonstrated high reliability (alpha coefficients: personal responsibility = .88; pity = .61; anger = .84; fear= .92; helping= .84; and coercion/segregation = .76). The only dimension that did not demonstrate high reliability is pity (alpha coefficient = .61), and this may be because participants perceived the emotions assessed (pity, sympathy, and concern) to be different constructs.

In the current sample, the knowledge measure has high reliability (alpha coefficient = .73).

Overall stigma. Overall stigma was calculated by adding the total scores from every stigma dimension (personal responsibility beliefs, pity, anger, fear, helping, and coercion/segregation). Two of the dimensions (pity and helping) were reverse coded in order to obtain a correct score. A one-way ANOVA was performed to determine if overall stigma ratings were affected by the label provided. There was no significant effect of label on overall stigma, F(4,91)=.229, p=.921. See table 1 for means and standard deviations.
**Individual stigma dimensions.** A total score was calculated for each stigma dimension (personal responsibility beliefs, pity, anger, fear, helping, and coercion/segregation). The pity and helping dimensions were reverse coded in order to be in line with the other four dimensions. A one-way ANOVA was performed to determine if each stigma dimension was affected by the label provided. There was a significant effect of label on personal responsibility stigma, \(F(4,91)=4.118, p=.004, \eta^2=0.153\). A post hoc Tukey test showed that people in the breakup condition (\(M=11.7, SD=5.7\)) displayed significantly more personal responsibility stigma than those in the schizophrenia condition (\(M=5.3, SD=2.8\)), \(p<.05\). Levene’s test indicated unequal variances for the personal responsibility dimension (\(F = 2.962, p = .024\)). There was no other effect of condition on any of the other stigma dimensions (all \(p’s > .05\)). See table 1 for all means and standard deviations.

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<thead>
<tr>
<th>Table 1</th>
<th>Experiment 1 Means and Standard Deviations - Stigma</th>
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<tr>
<td>Dimension and Condition</td>
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<tr>
<td>Overall Stigma (Possible Score Range 21-189)</td>
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<tr>
<td>Schizophrenia</td>
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<td>Personal Responsibility (Possible Score Range 3-27)</td>
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</table>
Familiarity and knowledge. Overall stigma was calculated by adding the total scores from every stigma dimension. Familiarity was calculated by adding the scaled values of each of the items in the familiarity measure. Knowledge was scored by determining the accuracy and degree of certainty for each question, then adding all of the scores together to get a total score. Exposure was calculated by creating a score based on participant’s yes/no answers to questions.
about if they had learned about mental illness previously. See table 2 for full descriptive statistics.

Table 2

<table>
<thead>
<tr>
<th>Measure</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge (Possible Score Range -200 to 200)</td>
<td>87.6</td>
<td>33.1</td>
</tr>
<tr>
<td>Familiarity (Possible Score Range 1 to 132)</td>
<td>14.6</td>
<td>11.8</td>
</tr>
<tr>
<td>Exposure (Possible Score Range 0 to 4)</td>
<td>1.3</td>
<td>1.3</td>
</tr>
</tbody>
</table>

Multiple regression analysis was used to test if knowledge, familiarity, and exposure predicted participants’ ratings of stigma. Knowledge and familiarity were included in the first level of the model and exposure was included at the second level of the model. The results of the regression indicated the two predictors explained 17.7% of the variance ($R^2 = .195$, $F(2,89) = 10.763$, $p < .001$). Knowledge alone significantly predicted overall stigma, such that the more knowledge they had, the less stigma they reported ($\beta = -.394$, $p < .001$). Familiarity alone did not predict stigma at the $p < .05$ level ($p = .269$). Exposure, which was included in the second level of the model, did not significantly predict overall stigma at the $p < .05$ level. See table 3 for all values.

Table 3

<table>
<thead>
<tr>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
<td>B</td>
</tr>
<tr>
<td>Knowledge</td>
<td>-0.236</td>
</tr>
<tr>
<td>Familiarity</td>
<td>-0.186</td>
</tr>
<tr>
<td>Exposure</td>
<td>-1.429</td>
</tr>
<tr>
<td>R2</td>
<td>0.195</td>
</tr>
</tbody>
</table>
Influence of demographic variables. Overall stigma was calculated by adding the total scores from every stigma dimension (personal responsibility beliefs, pity, anger, fear, helping, and coercion/segregation). An independent samples t-test was performed to determine if overall stigma differed based on self-identified gender. This revealed that overall stigma did not differ based on gender (p=.476). Contrary to our hypothesis that female participants would endorse less stigma than male participants, an independent samples t-test revealed that the anger stigma dimension was significantly higher for women (M=8.9, SD=5.1) than for men (M=7.9, SD=4.0), t(93)=-0.990, p=.024.

Race was self-identified by participants on a demographic questionnaire at the end of the survey. A one-way ANOVA was run on self-reported race and overall stigma, calculated by adding the total scores from every stigma dimension (personal responsibility beliefs, pity, anger, fear, helping, and coercion/segregation). There was a significant effect of race on personal responsibility stigma, F(4, 91)=6.861, p<.001. A post hoc Tukey test showed that people who self-identified as Asian (M=12.1, SD=5.9) displayed significantly more personal responsibility stigma than people who identified as white (M=6.5, SD=4.2, p=.000) or mixed racial identification (M=6.1, SD=5.3, p=.012).

Exploratory qualitative analysis. See table 4 for full exploratory qualitative analysis data. Many participants (34.4%) described John with a label related to psychosis, while some (21.9%) described him using another diagnostic label such as depression. A portion of the sample (14.6%) used non-psychiatric terms to describe him, which could often be construed as stigmatizing (e.g., “loner,” “weird,” “on edge”). Only 36.8% of participants in a label condition
(excluding the true control condition, n=28) used the label provided (either schizophrenia, CHR, APS, or breakup) to describe John.

As far as the symptoms people mentioned, positive symptoms were often mentioned (61.5% of participants). This makes sense, as a person experiencing hallucinations and delusions is very out of the norm. Negative symptoms and functioning (77.1% of participants) were also among the most mentioned aspects of the vignette, with the most common symptom mentioned being social withdrawal and isolation. 69.8% of participants mentioned that John had a general behavioral change, for example, “he was fine until about 6 months ago but now he is different.”

<table>
<thead>
<tr>
<th>Table 4</th>
<th>Exploratory Qualitative Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content</td>
<td>% of participants</td>
</tr>
<tr>
<td>Psychosis-related label (e.g. paranoid, mentally unstable, psychotic symptoms)</td>
<td>35.4</td>
</tr>
<tr>
<td>Non psychosis-related diagnostic label (e.g. anxiety, depression, bipolar)</td>
<td>21.9</td>
</tr>
<tr>
<td>Non-psychiatric label (e.g. afraid, loner, weird, isolated)</td>
<td>14.6</td>
</tr>
<tr>
<td>Used label provided (schizophrenia, CHR, APS, or breakup conditions, excluding no label condition)</td>
<td>36.8</td>
</tr>
<tr>
<td>Behavioral change</td>
<td>69.8</td>
</tr>
<tr>
<td>General characteristics</td>
<td>36.5</td>
</tr>
<tr>
<td>Previous circumstances</td>
<td>54.2</td>
</tr>
<tr>
<td>Genetic influence</td>
<td>34.4</td>
</tr>
<tr>
<td>Positive symptoms</td>
<td>61.5</td>
</tr>
<tr>
<td>Negative or functioning-related symptoms</td>
<td>77.1</td>
</tr>
<tr>
<td>Information not included in vignette</td>
<td>8.3</td>
</tr>
<tr>
<td>Needs medication or treatment</td>
<td>1</td>
</tr>
</tbody>
</table>

A univariate ANOVA was performed to determine if any of the qualitative factors (labels, behavior change, general characteristics, previous circumstances, genetic influence, positive symptoms, negative/functioning symptoms, information not included) influenced the overall stigma along with condition. There were no significant effects of the qualitative labels on
overall stigma (all p’s > .05). However, the positive symptoms had a trending influence on overall stigma (p = .086), suggesting that the more positive symptoms mentioned in the qualitative portion, the more stigma was endorsed.

**Discussion Experiment 1**

As hypothesized, there was no difference in overall stigma between the three diagnostic labels (APS, CHR, and schizophrenia). Contrary to what was hypothesized, we did not find evidence that the two control conditions had less stigma than the diagnostic labels as there was no significant difference in stigma between the three groups.

Surprisingly, the only stigma dimension that differed between labels was personal responsibility, which was higher for the breakup condition than the schizophrenia condition. Perhaps this is because participants perceived the diagnostic label as explaining the symptoms, whereas for the breakup condition John had an irregular reaction to a typical event. They may believe that he should have been able to handle a breakup, and that it was his fault he dated the previous partner in the first place. Additionally, this may be consistent with previous research that states labels higher in political correctness (“consumer of mental health services”) are associated with attributing greater personal responsibility than less politically correct but more diagnostic labels (“schizophrenic”) (Penn & Nowlin-Drummond, 2001). Perhaps if a label is more developmentally typical, individuals are less likely to put blame on the participant. There were no other significant differences in individual stigma dimensions.

As predicted, greater knowledge about psychotic disorders is significantly associated with less overall stigma. This evidence suggests that educational interventions about psychosis and CHR may be effective in reducing stigma. In this sample, we did not find that decreased familiarity with people who have experienced psychosis was associated with increased stigma.
This may be because of a lack of knowledge for what psychosis means, as a few participants expressed confusion over the definition of “psychosis,” asking if it meant major depression or other mental illnesses. This also may be because there were not very many participants who had a high degree of familiarity with people with psychosis, making it difficult to pick up on differences between participants based on this factor.

Contrary to previous literature stating that there is either no gender difference in stigma (Penn et al., 1999) or that females are less stigmatizing than males (Penn & Nowlin-Drummond, 2001), we found that females endorsed more anger-related stigma items than males. We examined this question further in a follow up study (experiment 2, below). We also found that people who self-identified as Asian endorsed more personal responsibility stigma than those who identified as white. It is possible that this is supported in the literature, as there is a relative lack of acceptance of mental illness among Asian Americans (Kramer, Kwong, Lee, & Chung, 2002). Some older Asian Americans believe that mental health concerns in the present life are related to sins committed in a past life (Kramer et al., 2002). Additionally, some Korean Americans believe that mental illness is a consequence of poor past behavior (Kramer et al., 2002). While it is impossible to make generalizations about Asian American culture as a whole since there are so many diverse cultures included under this label, increased emphasis on personal responsibility in these specific groups mentioned partially supports our findings.

Positive symptoms, negative symptoms, and symptoms related to functioning were among the most frequently mentioned features in the open ended portion of the study. We did not find that more stigma was related to more mention of genetic features of the illness. While those participants who mentioned more positive symptoms, such as John hearing his name in the
wind, had a tendency to endorse more stigmatizing attitudes, this relationship was not statistically significant.

A significant strength of this study is the age of the participants. The onset of schizophrenia is between ages 16 to 25 in males and slightly later in females (Sham, MacLean, & Kendler, 1994). The prodromal phase of schizophrenia starts earlier, sometimes starting as young as 12 (McGlashan, Walsh, & Woods, 2010). Because the participants are at the age when early symptoms may appear they may observe the emergence of symptoms with friends, classmates, or even themselves, making investigating stigma in this population particularly important.

It is possible that this sample is less stigmatized toward mental disorders because they are undergraduates in a psychology class, perhaps reflecting a greater awareness about psychosis in the group studied. As the APS and CHR labels are not discussed in introduction to psychology courses, the impact of class material on reported stigma may be minimal. This relative lack of stigma may also be specific to Northeastern as a university and it may not generalize to other higher education settings. Also, social desirability may have played a role in participant responses. That is, students answered the surveys in the presence of a research assistant which may have led them to choose more socially desirable (i.e., less stigmatizing) responses. In order to better understand whether our results were due to the sample itself or a lack of effect of diagnostic label, we ran the study in a general adult population to determine if there is a difference in overall stigma between diagnostic labels.

**Experiment 2**

The results from experiment 1 were contrary to our hypotheses and the previous literature, as there was no effect of label on total stigma. There was also no effect of label on different stigma dimensions besides for the personal responsibility condition, in which there was
less reported stigma for the breakup condition than the schizophrenia condition. It is possible that
these findings are unique to a Northeastern sample, as there is a relatively good awareness about
mental illness in the psychology classes. There are also several clubs and events on the
Northeastern campus related to mental health awareness and advocacy. In order to determine if
such findings were unique to the undergraduate sample at Northeastern, we sought to recruit
adults from the general population on Amazon Mechanical Turk (MTurk).

**Hypotheses**

The hypotheses for general stigma, individual stigma dimensions, knowledge/familiarity, and
demographic variables were the same as in experiment 1, above. Qualitative analyses were
not performed on this sample as we did not find anything significant in the previous PsyLink
sample.

**Participants**

Participants were recruited through MTurk and were paid $.75 for completing the study. The
vignette was randomly presented to participants with one of five labels (approximately 20
participants per condition): schizophrenia (N=19), CHR (N=20), APS (N=19), normal adolescent
development (they went through a “difficult breakup,” N=21), and no label (N=20).

Initially, the recruitment for MTurk was focused on college students as we wanted to
determine if the result was specific just to Northeastern University or college students more
broadly. 311 participants were recruited for the MTurk version of the study but many were
screened out. 199 participants did not indicate that they were currently in college and 1
participant indicated that they did not currently live in the US, and these participants were not
able to complete the study. Thus, the remaining sample was 110. 12 participants did not finish
the survey or did not have any useable data due to closing out of the study before completion, so their materials were excluded from the analysis. Thus, final included sample is 99 participants.

Among the 99 MTurk participants, the mean ± SD age was 27.19±6.7. The participants were 33.3% female (n=33). 49.5% of participants self-identified as White (n=49), 19.2% of participants self-identified as Asian (n=19), 5.1% of participants self-identified as mixed race (n=5), 8.1% of participants self-identified as Black or African American (n=8), 11.1% of participants identified as American Indian or Alaska Native (n=11), and 7.1% of participants did not provide their racial identification (n=7). 72.7% of participants identified their ethnicity as not Hispanic or Latino (n=72), 18.2% of participants identified their ethnicity as Hispanic or Latino (n=18), and 9.1% of participants did not provide their ethnicity (n=9).

The screening criterion of being currently in college was included in order to get a potentially matched sample to the Northeastern undergraduate sample. However, participants reported a large range of education in the later demographic questionnaire. 45.5% of participants reported already having a college degree (n=45), 41.4% of participants reported some college education (n=41), 8.1% said they had a college degree (n=8), 3.0% of participants completed high school or a GED (n=3), 1.0% said they completed some high school (n=1), and 1.0% of participants declined to provide their educational attainment (n=1). Therefore, the MTurk sample cannot be used as a direct undergraduate comparison to the PsyLink population. However, it is still meaningful to examine as an outside adult population.

**Materials**

Materials were identical to experiment 1, above. The only difference in this sample was with the demographics questionnaire, as participants were asked if they had ever taken a psychology class (yes/no).
Procedure

With the exception of the manipulation check, the procedure was identical for experiments 1 and 2. The manipulation check was changed so that participants needed to select the correct label (either schizophrenia, CHR, APS, or breakup) in order to move on to the next screen. If they selected an incorrect label, they were told it was incorrect in a pop up prompt and asked to select the label they were given.

Results Experiment 2

Reliability of measures. The stigma measure (appendix A) also demonstrated high reliability in this sample (alpha coefficients: personal responsibility = .85; pity = .76; anger = .86; fear= .94; helping= .78; and coercion/segregation = .88). The knowledge measure (appendix C) also demonstrated high reliability in this sample (alpha coefficient = .85).

Overall stigma. Overall stigma was calculated by adding the total scores from every stigma dimension (personal responsibility beliefs, pity, anger, fear, helping, and coercion/segregation). Two of the dimensions (pity and helping) were reverse coded in order to obtain a correct score. A one-way ANOVA was performed to determine if overall stigma ratings were affected by the label provided. There was no significant effect of label on overall stigma, F(4,95)=.436, p=.782. For means and standard deviations see table 5.

Individual stigma dimensions. A total score was calculated for each stigma dimension (personal responsibility beliefs, pity, anger, fear, helping, and coercion/segregation). The pity and helping dimensions were reverse coded in order to be in line with the other four dimensions. A one-way ANOVA was performed to determine if each stigma dimension was affected by the label provided. There were no significant effects of label on stigma dimensions (all p’s>.05). For means and standard deviations see table 5.
<table>
<thead>
<tr>
<th>Dimension and Condition</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall Stigma (Possible Score Range 21-189)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schizophrenia</td>
<td>82.8</td>
<td>24.1</td>
</tr>
<tr>
<td>CHR</td>
<td>82.4</td>
<td>26.6</td>
</tr>
<tr>
<td>APS</td>
<td>75.6</td>
<td>28.4</td>
</tr>
<tr>
<td>Breakup (Control 1)</td>
<td>87.0</td>
<td>25.2</td>
</tr>
<tr>
<td>No Label (Control 2)</td>
<td>80.7</td>
<td>35.6</td>
</tr>
<tr>
<td>All Conditions</td>
<td>81.8</td>
<td>27.9</td>
</tr>
<tr>
<td><strong>Personal Responsibility (Possible Score Range 3-27)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schizophrenia</td>
<td>12.6</td>
<td>6.1</td>
</tr>
<tr>
<td>CHR</td>
<td>11.9</td>
<td>6.1</td>
</tr>
<tr>
<td>APS</td>
<td>11.1</td>
<td>5.9</td>
</tr>
<tr>
<td>Breakup (Control 1)</td>
<td>13.8</td>
<td>5.7</td>
</tr>
<tr>
<td>No Label (Control 2)</td>
<td>12.1</td>
<td>5.8</td>
</tr>
<tr>
<td>All Conditions</td>
<td>12.3</td>
<td>5.9</td>
</tr>
<tr>
<td><strong>Pity (Possible Score Range 3-27)</strong></td>
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<td></td>
</tr>
<tr>
<td>Schizophrenia</td>
<td>9.4</td>
<td>5.0</td>
</tr>
<tr>
<td>CHR</td>
<td>9.4</td>
<td>5.5</td>
</tr>
<tr>
<td>APS</td>
<td>8.2</td>
<td>3.5</td>
</tr>
<tr>
<td>Breakup (Control 1)</td>
<td>12.0</td>
<td>6.1</td>
</tr>
<tr>
<td>No Label (Control 2)</td>
<td>9.2</td>
<td>5.8</td>
</tr>
<tr>
<td>All Conditions</td>
<td>9.7</td>
<td>5.3</td>
</tr>
<tr>
<td><strong>Anger (Possible Score Range 3-27)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schizophrenia</td>
<td>11.1</td>
<td>5.8</td>
</tr>
<tr>
<td>CHR</td>
<td>11.2</td>
<td>6.9</td>
</tr>
<tr>
<td>APS</td>
<td>9.5</td>
<td>5.8</td>
</tr>
<tr>
<td>Breakup (Control 1)</td>
<td>10.9</td>
<td>6.4</td>
</tr>
<tr>
<td>No Label (Control 2)</td>
<td>9.0</td>
<td>6.4</td>
</tr>
<tr>
<td>All Conditions</td>
<td>10.3</td>
<td>6.2</td>
</tr>
<tr>
<td><strong>Fear (Possible Score Range 4-36)</strong></td>
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<td></td>
</tr>
<tr>
<td>Schizophrenia</td>
<td>15.4</td>
<td>6.3</td>
</tr>
<tr>
<td>CHR</td>
<td>16.0</td>
<td>9.0</td>
</tr>
<tr>
<td>APS</td>
<td>15.2</td>
<td>9.0</td>
</tr>
<tr>
<td>Breakup (Control 1)</td>
<td>16.3</td>
<td>7.6</td>
</tr>
<tr>
<td>No Label (Control 2)</td>
<td>15.4</td>
<td>9.4</td>
</tr>
<tr>
<td>All Conditions</td>
<td>15.7</td>
<td>8.2</td>
</tr>
<tr>
<td><strong>Helping (Possible Score Range 4-36)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schizophrenia</td>
<td>17.9</td>
<td>5.7</td>
</tr>
<tr>
<td>CHR</td>
<td>16.2</td>
<td>6.4</td>
</tr>
<tr>
<td>APS</td>
<td>16.9</td>
<td>6.5</td>
</tr>
</tbody>
</table>
**Familiarity and knowledge.** Overall stigma was calculated by adding the total scores from every stigma dimension. Familiarity was calculated by adding the scaled values of each of the items in the familiarity measure. Knowledge was scored by determining the accuracy and degree of certainty for each question, then adding all of the scores together to get a total score. Exposure was calculated by creating a score based on participant’s yes/no answers to questions about if they had learned about mental illness previously. See table 6 for full descriptive statistics.

<table>
<thead>
<tr>
<th>Measure</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge (Possible Score Range -200 to 200)</td>
<td>50.6</td>
<td>50.2</td>
</tr>
<tr>
<td>Familiarity (Possible Score Range 1 to 132)</td>
<td>24.8</td>
<td>17.0</td>
</tr>
<tr>
<td>Exposure (Possible Score Range 0 to 4)</td>
<td>1.8</td>
<td>1.5</td>
</tr>
</tbody>
</table>

Multiple regression analysis was used to test if knowledge, familiarity, and exposure predicted participants’ ratings of stigma. Knowledge and familiarity were included in the first level of the model and exposure was included at the second level of the model. The results of the regression indicated the two main predictors (knowledge and familiarity) explained 41.2% of the variance ($R^2=.412$, $F(2,95)=33.216$, p<.001). It was found that knowledge significantly predicted...
overall stigma ($\beta=-.544$, $p<.001$), as did familiarity ($\beta=.241$, $p=.004$). Exposure was included in the second level of the model. It did not significantly predict overall stigma at the $p<.05$ level ($p=.323$). See table 7 for all values.

Table 7
Summary of Multiple Regression Experiment 2

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>SE B</td>
</tr>
<tr>
<td>Knowledge</td>
<td>-0.301</td>
<td>0.045</td>
</tr>
<tr>
<td>Familiarity</td>
<td>0.394</td>
<td>0.132</td>
</tr>
<tr>
<td>Exposure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R2</td>
<td>0.412</td>
<td></td>
</tr>
<tr>
<td>F for change in R2</td>
<td>33.216**</td>
<td></td>
</tr>
</tbody>
</table>

* $p<.05$ ** $p<.01$

**Influence of psychology education.** Whether or not participants had ever taken a psychology class was determined by a yes/no question in the demographics questionnaire. An independent samples t-test was run to determine if psychology education had an effect on overall stigma or any of the six stigma dimensions. There was no significant effect of psychology education on overall stigma or any of the stigma dimensions (all $p$’s $>.096$).

**Influence of demographic variables.** An independent samples t-test was performed to determine if gender affected overall stigma or any of the stigma dimensions. Consistent with previous literature (Penn & Nowlin-Drummond, 2001), the independent samples t-test revealed that total stigma was significantly higher for men ($M=86.6$, $SD=23.8$) than for women ($M=72.3$, $SD=33.4$), $t(96)=2.442$, $p=.016$. This test also revealed that the personal responsibility stigma
dimension was significantly higher for men (M=13.4, SD=5.1) than for women (M=10.2, SD=6.7), t(96)=2.675, p=.009. The anger stigma dimension was also significantly higher for men (M=11.5, SD=5.9) than for women (M=8.2, SD=6.6), t(96)=2.478, p=.015.

Race was self-identified by participants on a demographic questionnaire at the end of the survey. A one-way ANOVA was performed to determine if self-identified race had an effect on overall stigma and any of the stigma dimensions. There was a significant effect of race on several dimensions of stigma, including personal responsibility (F(5,93)=4.296, p=.001), coercion segregation (F(5,93)=2.534, p=.034), and overall stigma (F(5,93)=3.023, p=.014). A post hoc Tukey test showed that people who self-identified as Asian (M=15.6, SD=5.7) displayed significantly more personal responsibility stigma than people who identified as white (M=10.5, SD=5.6, p=.008). A post hoc Tukey test showed that people who self-identified as American Indian or Alaska Native (M=20.6, SD=4.5) displayed significantly more coercion segregation stigma than people who identified as mixed racial identification (M=6.8, SD=4.2, p=.020). A post hoc Tukey test showed that people who self-identified as American Indian or Alaska Native (M=101.9, SD=17.4) displayed significantly more overall stigma than people who identified as mixed racial identification (M=49.6, SD=6.9, p=.006). There were no other significant effects of race on the sample (all p’s>.05).

Total Sample

Next, we examined the entire population (PsyLink and MTurk) together. In total, there were 39 participants in the schizophrenia condition, 39 in the CHR condition, 38 in the APS condition, 39 in the breakup condition, and 40 in the no label condition.

For the total sample (n=195) the mean ± SD age was 22.8±6.2. The participants were 50.3% female (n=98). 51.3% of participants self-identified as White (n=100), 24.1% of
participants self-identified as Asian (n=47), 7.2% of participants self-identified as mixed race (n=14), 6.7% of participants self-identified as Black or African American (n=13), 5.6% of participants identified as American Indian or Alaska Native (n=11), and 5.1% of participants did not provide their racial identification (n=10). 80.0% of participants identified their ethnicity as not Hispanic or Latino (n=156), 14.4% of participants identified their ethnicity as Hispanic or Latino (n=28), and 5.6% of participants did not provide their ethnicity (n=11). 51.8% of participants reported some college education (n=101), 24.1% of participants reported having a college degree (n=47), 15.4% said they had a high school degree or GED (n=30), 4.1% said they completed some high school (n=8), 4.1% said they had a post graduate degree (n=8), and 0.5% of participants declined to provide their educational attainment (n=1).

Results Total Sample

Effect of data source. A univariate ANOVA was performed with condition and data source (PsyLink or MTurk) as fixed factors to determine whether there was an interaction. There was a main effect of data source on stigma, F(1)=24.425, p<.001, as participants from the MTurk sample were more stigmatizing than those from the PsyLink sample. There was no main effect of condition and no interaction of data source and condition, all F’s<.55, all p’s>.70.

An independent samples t-test revealed that knowledge was significantly lower for the MTurk sample (M=50.6, SD=50.2) than for the PsyLink sample (M=87.6, SD=33.1), t(168.870)=6.019, p<.001. However, another independent samples t-test revealed that familiarity was significantly higher for the MTurk sample (M=24.9, SD=16.9) than for the PsyLink sample (M=14.9, SD=12.0), t(177.130)=-4.744, p<.001.

Overall stigma. Overall stigma was calculated by adding the total scores from every stigma dimension (personal responsibility beliefs, pity, anger, fear, helping, and
coercion/segregation). A one-way ANOVA was performed to determine if overall stigma ratings were affected by the label provided. There was no significant effect of label on overall stigma, \( F(4,190) = .585, p = .674 \). See table 8 for means and standard deviations.

**Individual stigma dimensions.** A total score was calculated for each stigma dimension (personal responsibility beliefs, pity, anger, fear, helping, and coercion/segregation). The pity and helping dimensions were reverse coded in order to be in line with the other four dimensions. A one-way ANOVA was performed to determine if each stigma dimension was affected by the label provided. There was a significant effect of label on personal responsibility stigma, \( F(4,190) = 2.626, p = .036, \eta^2 = .052 \). A post hoc Tukey test showed that the breakup condition (M=12.8, SD=5.7) displayed significantly more personal responsibility stigma than the schizophrenia (M=8.9, SD=5.9) label, \( p = .026 \). There was no other effect of condition on other stigma dimensions (all \( p \)'s > .05). See table 8 for means and standard deviations.

<table>
<thead>
<tr>
<th>Dimension and Condition</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall Stigma (Possible Score Range 21-189)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schizophrenia</td>
<td>73.2</td>
<td>22.8</td>
</tr>
<tr>
<td>CHR</td>
<td>72.9</td>
<td>24.0</td>
</tr>
<tr>
<td>APS</td>
<td>68.5</td>
<td>25.2</td>
</tr>
<tr>
<td>Breakup (Control 1)</td>
<td>77.5</td>
<td>26.6</td>
</tr>
<tr>
<td>No Label (Control 2)</td>
<td>73.6</td>
<td>29.8</td>
</tr>
<tr>
<td>All Conditions</td>
<td>73.2</td>
<td>25.7</td>
</tr>
<tr>
<td><strong>Personal Responsibility (Possible Score Range 3-27)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schizophrenia</td>
<td>8.8</td>
<td>5.9</td>
</tr>
<tr>
<td>CHR</td>
<td>9.5</td>
<td>5.6</td>
</tr>
<tr>
<td>APS</td>
<td>9.8</td>
<td>6.2</td>
</tr>
<tr>
<td>Breakup (Control 1)</td>
<td>12.8</td>
<td>5.7</td>
</tr>
<tr>
<td>No Label (Control 2)</td>
<td>10.3</td>
<td>5.9</td>
</tr>
<tr>
<td>All Conditions</td>
<td>10.3</td>
<td>6.0</td>
</tr>
<tr>
<td><strong>Pity (Possible Score Range 3-27)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schizophrenia</td>
<td>8.8</td>
<td>4.2</td>
</tr>
<tr>
<td>CHR</td>
<td>9.5</td>
<td>4.4</td>
</tr>
<tr>
<td>APS</td>
<td>8.9</td>
<td>3.8</td>
</tr>
</tbody>
</table>
Familiarity and knowledge. Overall stigma, familiarity, knowledge, and exposure were calculated in the same way as in previous experiments. See table 9 for full descriptive statistics.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Schizophrenia</th>
<th>CHR</th>
<th>APS</th>
<th>Breakup (Control 1)</th>
<th>No Label (Control 2)</th>
<th>All Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anger (Possible Score Range 3-27)</td>
<td>10.1</td>
<td>10.2</td>
<td>8.5</td>
<td>9.7</td>
<td>9.0</td>
<td>9.5</td>
</tr>
<tr>
<td>Schizophrenia</td>
<td>13.8</td>
<td>13.3</td>
<td>12.3</td>
<td>13.8</td>
<td>12.9</td>
<td>13.2</td>
</tr>
<tr>
<td>Helping (Possible Score Range 4-36)</td>
<td>18.8</td>
<td>17.4</td>
<td>17.2</td>
<td>18.3</td>
<td>19.4</td>
<td>18.2</td>
</tr>
<tr>
<td>Coercion Segregation (Possible Score Range 4-36)</td>
<td>12.9</td>
<td>13.1</td>
<td>11.6</td>
<td>12.3</td>
<td>12.8</td>
<td>12.5</td>
</tr>
</tbody>
</table>

Table 9
Total Sample Means and Standard Deviations – Knowledge, Familiarity, Exposure
Multiple regression analysis was used to test if knowledge, familiarity, and exposure significantly predicted participants’ ratings of stigma. The results of the regression indicated that knowledge and familiarity explained 39.4% of the variance ($R^2=.394$, $F(2,187)=60.693$, $p<.001$). It was found that knowledge significantly predicted overall stigma ($\beta=-.579$, $p<.001$), as did familiarity ($\beta=.157$, $p=.007$). Exposure was included in the second level of the model which did not significantly predict overall stigma at the $p<.05$ level. See table 10 for all values.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>SE B</td>
</tr>
<tr>
<td>Knowledge</td>
<td>-0.015</td>
<td>0.002</td>
</tr>
<tr>
<td>Familiarity</td>
<td>0.012</td>
<td>0.005</td>
</tr>
<tr>
<td>Exposure</td>
<td></td>
<td>-0.05</td>
</tr>
<tr>
<td>R2</td>
<td>0.394</td>
<td></td>
</tr>
<tr>
<td>F for change in R2</td>
<td>60.693**</td>
<td></td>
</tr>
</tbody>
</table>

*p<.05 **p<.01

**Influence of demographic variables.** An independent samples t-test was performed to determine if gender affected overall stigma or any of the stigma dimensions. Consistent with previous literature (Penn & Nowlin-Drummond, 2001), an independent samples t-test revealed that total stigma was significantly higher for men ($M=80.0$, $SD=24.5$) than for women ($M=66.7$, $SD=25.4$), $t(191)=3.693$, $p<.001$. Independent t-tests also revealed that men had higher stigma...
than women in the personal responsibility stigma dimension \((t(191)=4.238, p<.001)\), the anger stigma dimension \((t(191)=2.041, p=.043)\), and the coercion segregation stigma dimension \((t(191)=4.503, p<.001)\).

Race was self-identified by participants on a demographic questionnaire at the end of the survey. A one-way ANOVA was performed to determine if self-identified race had an effect on overall stigma and any of the stigma dimensions. There was a significant effect of race on several dimensions of stigma, including personal responsibility \((F(5,189)=9.259, p<.001)\), anger \((F(5,189)=2.436, p=.036)\), fear \((F(5,189)=2.353, p=.042)\), coercion segregation \((F(5,189)=4.744, p<.001)\), and overall stigma \((F(5,189)=5.023, p<.001)\). A post hoc Tukey test reported several differences in the individual stigma dimensions and overall stigma, particularly for participants who self-identified as American Indian or Alaska Native. However, the sample of participants who identified as American Indian or Alaska Native was only 11 participants (5.6% of participants). Due to the small sample size, these findings are not meaningful to report in detail\(^2\).

\(^2\) A post hoc Tukey test showed that those who self-identified as American Indian or Alaska Native \((M=15.6, SD=3.64)\) displayed significantly more personal responsibility stigma than those who identified as white \((M=8.5, SD=5.3, p=.001)\) or a mixed racial identification \((M=6.7, SD=4.6, p=.001)\). A post hoc Tukey test showed that those who self-identified as Asian \((M=13.5, SD=6.1)\) displayed significantly more personal responsibility stigma than those who identified as white \((M=8.5, SD=5.3, p<.001)\) or a mixed racial identification \((M=6.7, SD=4.6, p=.001)\). A post hoc Tukey test showed that those who self-identified as American Indian or Alaska Native \((M=14.3, SD=5.4)\) displayed significantly more anger stigma than those who identified as white \((M=8.9, SD=5.0, p=.029)\). A post hoc Tukey test showed that those who self-identified as American Indian or Alaska Native \((M=19.0, SD=5.3)\) displayed significantly more fear stigma than those who had a mixed racial identification \((M=8.8, SD=5.8, p=.011)\). A post hoc Tukey test showed that those who self-identified as American Indian or Alaska Native \((M=20.6, SD=4.5)\) displayed significantly more coercion segregation stigma than those who identified as Asian \((M=13.3, SD=7.0, p=.032)\), white \((M=11.6, SD=7.5, p=.002)\), or who had a mixed racial identification \((M=7.8, SD=4.6, p<.001)\). A post hoc Tukey test showed that those who self-identified as American Indian or Alaska Native \((M=101.9, SD=17.4)\) displayed significantly more total stigma than those who self-identified as black or African American \((M=71.5, SD=28.8, p=.033)\), white \((M=69.5, SD=25.0, p=.001)\), or had a mixed racial identification \((M=58.2, SD=18.3, p<.001)\).
Discussion Experiment 2 and Total Sample

It is challenging to make any assumptions about education in the MTurk sample. In the beginning of the study, participants were screened out if they were not currently in college. However, their reported highest level of educational attainment was variable, with many participants reporting they already had a college degree (45.5%) or even a post-college degree (8.1%). Additionally, their reported age was as high as 51. Therefore, it is impossible to compare this sample as a comparable undergraduate sample and thus we will discuss this sample as general adults.

Overall, stigma was higher in the MTurk sample than in the PsyLink sample. This may be due to higher knowledge about psychosis in the PsyLink sample, as we found in both experiments 1 and 2 that higher knowledge predicts lower total stigma. The PsyLink sample is currently in an introductory psychology class, so the increased knowledge about psychosis is consistent with their demographic information. However, we did not find that those who took a psychology class in the MTurk condition reported significantly lower stigma than those who did not take a psychology class, so other factors may also influence the difference in stigma between the samples.

Additionally, there was a difference in methodology between the two samples that may account for this difference. For the PsyLink sample, a research assistant sat with the participant while they took the data. For the MTurk sample, participants took the survey on their home computers or smart phones. There may be a social desirability component for the PsyLink sample that caused them to endorse decreased stigmatizing attitudes since another person was present. Individuals may express more stigma at a distance (i.e., the MTurk sample) than they do
in person when someone else is present. Perhaps individuals with mental illness may perceive more stigma online than they would actually experience in the real world because of this social desirability component.

As with experiment 1, the only stigma dimension in experiment 2 that differed between labels was the personal responsibility dimension, in which the breakup condition displayed significantly more personal responsibility than the schizophrenia condition. Similarly to experiment 1, this may be because participants believed John should have been able to handle the consequences of his breakup, whereas a schizophrenia diagnosis is something he cannot change.

Again, as with experiment 1, there were no other differences in individual stigma dimensions in the total sample. Previous research found that, compared to non-psychotic disorders, those labeled as CHR had higher status loss and discrimination, and those labeled as having schizophrenia had higher negative stereotyping (Yang et al., 2013). This differing finding may be because of a different stigma measure or because of differing non-diagnostic labels, both discussed below in the general discussion. Additionally, it may reflect a greater knowledge and awareness surrounding psychotic disorders in both samples.

In the combined experiment 1 and 2 sample we found that greater knowledge is predictive of lower stigma, suggesting that educational interventions to reduce stigma surrounding psychotic risk syndromes may be effective. Unlike in the PsyLink sample, in the total sample we found that greater familiarity predicted decreased stigma. This may be because the MTurk sample had overall higher familiarity than the PsyLink sample. Additionally, women were significantly less stigmatizing than men over several dimensions, which is consistent with some previous literature (Penn & Nowlin-Drummond, 2001).

**General Discussion**
Our hypothesis that stigma would be higher for schizophrenia and psychosis risk labels relative to controls was not supported. Additionally, our hypothesis that the schizophrenia label will elicit more negative stereotyping (fear) (Yang et al., 2013) and less willingness to help (Imai & Dailey, 2016) and the clinical high risk label will evoke greater social distance and less willingness to help (Yang et al., 2013) than other labels was not supported by this data. The only difference across all stigma dimensions in both samples (PsyLink and MTurk) was that personal responsibility stigma was higher for those who received a breakup label than the schizophrenia label.

There were no other differences in individual stigma dimensions. This lack of difference on individual stigma dimensions between the CHR and schizophrenia labels is contrary to previous research which found that, compared to non-psychotic disorders, those labeled at CHR had higher status loss and discrimination, and those labeled as having schizophrenia had higher negative stereotyping (Yang et al., 2013). This may be because the previous study used a different stigma measure. The Yang study included two main stigma dimensions: stereotyping (broken down into illness course, violence toward others, and violence toward self) and status loss & discrimination (broken down into casual social distance, intimate social distance, unwillingness to help, and treatment coercion). A major difference is that the Yang study includes more questions on personal relationships, such as “How willing are you to allow a child of yours to date John?” or “How willing are you to be close friends with someone like John?” While our measure included social distance behaviors in the helping dimension (e.g., sharing a carpool, interviewing John for a job, etc.) they were not as personal as the other measure. Additionally, the Yang measure asked specifically if participants believed John is a danger to himself or others, while our measure asked if they think he is dangerous (in general) and if they
are afraid of him. Since these constructs and measure items were not identical to the present study, it is possible that the different measures we used may be less sensitive to labeling than those used by Yang et al., 2013. Future studies using the same scenario with Yang’s stigma measure could help determine if this is a factor in the current results.

However, this differing finding may also be because Yang et al.’s 2013 study did not compare risk labels to non-diagnostic labels. The five conditions they included were major depressive disorder, anxiety, schizophrenia, a state of high risk for psychosis, and a state of high risk for psychosis with an accompanying informational insert. Perhaps the non-psychotic labels they provided, MDD and anxiety, were able to explain the symptoms John was experiencing in a more diagnostic way. When John was given either the label of the breakup or no label in our study, he still experienced symptoms such as hearing his name in the wind or withdrawing from school without a medical label (e.g., depression) to explain why he was experiencing these strange things. Therefore, levels of stigma were similar to levels reported for the schizophrenia and CHR labels.

Generally, levels of stigma were very low regardless of condition, as the means for total stigma were around 70 and the maximum score on the stigma measure is 189. This may be because of greater reduced stigma surrounding psychotic illness in the United States today. Or, it may be because the stigma measure was not sensitive to intimate personal relationships with individuals with mental illness. Additionally, this could be because participants wanted to seem accepting, so they did not endorse their real levels of stigma in the measure. It is important to investigate the reasons why stigma may be so low.

It is possible that the risk labels (CHR and APS) or even the risk symptoms themselves are perceived as being non-biologically based, or that since the risk symptoms are less severe
than the symptoms of full threshold schizophrenia, people perceive them as having the ability to be improved with effective treatments. Perhaps a reason why stigma is so low in this study is because individuals perceived the symptoms not to be biologically based. Previous literature shows that when an illness is perceived to be biologically or genetically based, there is greater stigma including pessimism that treatments will not work, that the person is more dangerous (Pescosolido et al., 2010; Phelan, 2005; Phelan et al., 2006). Another possible explanation is that they perceived the symptoms to be treatable. For example, a previous study found that regardless of whether a vignette was presented as biologically or non-biologically caused, participants endorsed social distance from a fictional participant. However, when participants were provided with information that the person was undergoing effective mental health treatment, participants endorsed more positive attitudes toward the fictional individual (Lebowitz & Ahn, 2012).

This study has the potential to inform a major debate about the inclusion of psychosis risk syndromes in future versions of the DSM. Although inclusion of the diagnosis has several benefits such as are early recognition, case identification, and treatment, it is important to consider the potential for unintended negative consequences associated with being labeled as having APS or CHR such as false positive diagnoses, stigma, and overmedication (Corcoran et al., 2010). The results of this study suggest that the labels may not evoke as much stigma relative to control or no labeling as previously thought, arguing for the inclusion of the syndromes in future versions of the DSM. However, these results have several limitations, so they require further study and examination before any action is taken.

**Limitations.** A major limitation of this study is social desirability, as many participants may not have disclosed their true feelings about those suffering from mental illness for fear of
being perceived as non-accepting. This is particularly relevant for the PsyLink population because a research assistant was present in the room while participants were taking the study.

The online survey methodology of the study may also affect findings as people may hold different attitudes about mental illness in the outside world. They may not endorse ideas of stigma such as social distance of fear, but in their daily lives they may be prejudiced or discriminatory. Future studies should aim to have a more naturalistic setting in order to combat this limitation.

Additionally, when filling out the familiarity measure participants may have been confused about the definition of psychotic symptoms. We decided not to include a definition about psychotic symptoms because participants filled out a knowledge questionnaire directly after the familiarity measure. While taking the study, one participant in the PsyLink condition asked if clinical depression is considered a psychotic symptom. Other participants may have had similar confusion surrounding the definition and may have not answered the familiarity measure with total accuracy.

The study was advertised as a study about adolescents and mental illness even if participants were in the control condition. This may have primed participants in the no label control condition to believe that John had a mental illness even though they were not explicitly told this during the experiment.

**Future directions.** A recent study showed that youth who were identified as having At Risk Mental State (ARMS), another term for CHR, reported limited stigmatization from others, valued their treatment, and said that the label helped to normalize their experiences (Welsh & Tiffin, 2012). Another recent study found that those identified at ultra-high risk (UHR) for psychosis or ARMS, both alternate names for CHR labels, were less likely to report stigma than
their mental health providers (Kim et al., 2017). This suggests that perhaps mental health providers who work with this at risk population perceive more stigma than clients actually experience. However, clients who had later transitioned to full threshold psychosis or who had relatives who had experienced psychotic disorder reported higher stigma than other clients (Kim et al., 2017). Future research should examine differences between labels for risk used in other countries – for example, the difference between UHR, CHR, ARMS, and APS. Future studies should also consider stigma perceived by mental health providers and families, which can contribute to both public and self-stigma.

While this study adds information to literature surrounding public stigma, it does not address self-stigma that many people who experience psychotic risk syndromes experience. Future studies should examine the effects of self-stigma on individuals who are at risk for psychosis, which is especially important as self-stigma can be detrimental for mental health and well-being in adolescence (Moses, 2009). This may include self-fulfilling prophesy, or when a person is told they are at risk and therefore they become overly focused on monitoring themselves for signs of worsening or may be less likely to pursue certain opportunities due to the belief they are in the process of developing a severe mental illness. While interventions to combat self-stigma, especially psychoeducation, seem to be effective for people with severe mental illness (Tsang et al., 2016), specific interventions to combat self-stigma in CHR and early psychosis populations need to be developed. The current study did not explore self-stigma in adolescents who are identified as being at risk for psychosis, so future studies must also examine this.

Additionally, this study can be directly compared with the Yang et al., 2013 study by using the same stigma measure that they used. While the Yang et al., 2013 study had significant
strengths, they did not have a control group (i.e. breakup or no label). Perhaps there would be higher stigma for diagnostic labels using this alternative stigma measure if a control group were added.

Finally, the results of this study indicate that greater knowledge about psychotic symptoms is related to decreased stigma, suggesting that educational interventions may be effective for reducing stigma. There are several examples in the literature that educational interventions can reduce stigma. Based on a large meta-analysis of stigma reduction programs, education and particularly contact are effective anti-stigma interventions (Corrigan, Morris, Michaels, Rafacz, & Rusch, 2012). Some anti-stigma intervention methods such as campaigns for mental illness and schizophrenia target children and adolescents specifically (Corrigan et al., 2012; Economou et al., 2012). In Greece, a two hour schizophrenia anti-stigma lesson for high school students improved negative beliefs and attitudes towards people with schizophrenia, even at a twelve month follow up (Economou et al., 2012). Alternatively, other anti-stigma campaigns target a general community audience, such as the World Psychiatric Association’s “Open the Doors” campaign, which includes a variety of anti-stigma interventions specific to schizophrenia (Gaebel et al., 2008). In Germany, this campaign was found to slightly, but significantly, decrease social distance towards people with schizophrenia 3 years after the program launch (Gaebel et al., 2008). There should be research into educational interventions specifically surrounding psychosis risk labels to determine if these would be effective in reducing stigma.

In conclusion, it is possible that there is less stigma surrounding psychotic risk labels than suspected. There must be more research in this area in order to understand public stigma. Once public stigma is better understood, this research can be applied to reduce stigma in the public and also intervene to reduce self-stigma.
Appendix A: CHR Vignette (Anglin et al., 2014)

Please read the following story depicting an individual with schizophrenia/who is at clinical high risk for psychosis/with attenuated psychotic symptoms/who went through a difficult breakup 6 months ago/named John.

“John is a shy 18-year-old, male high school senior who was doing fine until about 6 months ago. Before then he had close friends, an A to B average in school, and an interest in movies and basketball. In the past 6 months, John began to stay up most of the night and sleep during the day, showering less and withdrawing from friends and family. John began to feel as if people in the neighborhood were looking at him more, which made him uncomfortable. When nervous, John sometimes thought he heard his name in the wind, and late at night he sometimes briefly felt a presence even though no one was there. John is interested in politics and is preoccupied with thoughts about the influence of television and mass marketing on people. In the past month, John has sometimes refused to go to school and spends most of his day alone in his room. In terms of his family, John’s mother was hospitalized 25 years ago for a mental illness, which she promptly recovered from and which has never returned.”

To demonstrate that you have carefully read and understood the materials above, please answer the following questions before you proceed to the main study.

Please indicate which of the following items about John, the individual you read about above, are true or false (see above).

John is an individual with schizophrenia. (T/F)

John is an individual who is at clinical high risk for psychosis. (T/F)

John is an individual with attenuated psychotic symptoms. (T/F)

John is an individual who went through a difficult breakup 6 months ago. (T/F)

In your own words, please briefly summarize the information about John that you just read.

Appendix B: Stigma and Familiarity with Psychotic Symptoms Measure (Corrigan et al., 2003; Holmes et al., 1999)
Stigma Measure

Please answer the following questions about the story as if you knew John.

Personal Responsibility Beliefs

1. I think that it is John’s own fault that he is in the present condition. (1= no, not at all; 9= yes, absolutely so)
2. How controllable, do you think, is the cause of John’s present condition? (1=not at all under personal control; 9=completely under personal control)
3. How responsible, do you think, is John for his present condition? (1=not at all responsible, 9=very much responsible)

Pity

1. I would feel pity for John. (1= none at all; 9= very much)
2. How much sympathy would you feel for John? (1=none at all; 9=very much)
3. How much concern would you feel for John? (1=none at all; 9= very much)

Anger

1. I would feel aggravated by John. (1= not at all; 9= very much)
2. How angry would you feel at John? (1= not at all; 9= very much)
3. How irritated would you feel by John? (1= not at all; 9= very much)

Fear

1. How dangerous would you feel John is to others? (1= none at all; 9= very much)
2. I would feel threatened by John. (1= no, not at all; 9= yes, very much)
3. How scared of John would you feel? (1= none at all; 9= very much)
4. How frightened of John would you feel? (1= none at all; 9= very much)

Helping

1. If I were an employer, I would interview John for a job. (1= not likely; 9= very likely)
2. I would share a car pool with John each day. (1= not likely, 9= very likely)
3. Would you reach out to John to see if he needed help? (1= not at all certain, 9= absolutely certain)
4. If I were a landlord, I probably would rent an apartment to John. (1= not likely; 9= very likely)
Coercion-Segregation

1. I think John poses a risk to his neighbors unless he is hospitalized. (1= not at all; 9= very much)
2. I think it would be best for John’s community if he were put away in a psychiatric hospital. (1= not at all; 9= very much)
3. How much do you think it would be best for everyone if John were in an asylum, where he can be kept away from his neighbors? (1= not at all; 9= very much)
4. If I were in charge of John’s treatment, I would force him to live in a group home. (1= not at all; 9= very much)

Familiarity Measure

Familiarity with psychotic symptoms (Yes/No) (Scored by adding rank scores together)

Please read each of the following statements carefully. After you have read all the statements below, place a check by the statements that best depict your exposure to persons with a psychotic symptoms.

1. I have watched a movie or television show in which a character depicted a person with psychotic symptoms. (3)
2. My past or current job involves providing treatment for persons with psychotic symptoms. (8)
3. I have observed, in passing, a person I believe may have had psychotic symptoms. (2)
4. I have observed persons with psychotic symptoms on a frequent basis. (5)
5. I have experienced psychotic symptoms. (12)
6. I have worked with a person who had psychotic symptoms at my place of employment. (6)
7. I have never observed a person that I was aware had psychotic symptoms. (1)
8. My past or current job includes providing services to persons with psychotic symptoms. (7)
9. A friend of the family has psychotic symptoms. (9)
10. I have a relative who has psychotic symptoms. (10)
11. I have watched a documentary on the television about psychotic symptoms. (4)
12. I live with a person who has psychotic symptoms. (11)
Appendix C: Knowledge Questionnaire (adapted from (Collins & Holmshaw, 2008; Friedman-Yakoobian, 2005)

For the following questions, please rate how certain you are that the statement is true or false. If you do not know, slide the bar to the middle ("unsure").

<table>
<thead>
<tr>
<th>Definitely True</th>
<th>Unsure</th>
<th>Definitely False</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Psychosis means that a person has two or more different personalities. False</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Antipsychotics affect the action of neurotransmitters in the brain. True</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. If a person develops psychosis they need to be institutionalized and have most things done for them. False</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Two people who are diagnosed with psychosis can have completely different symptoms. True</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. The only known indicator of increased risk for psychosis is genetics. False</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. If a person with psychosis shows little emotion on his/her face, speaks very little, and appears indifferent to activities and situations that he/she used to enjoy, this is probably caused by taking too much medication. False</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. If a person hears a voice that others can’t hear, it means they have schizophrenia. False</td>
<td></td>
<td></td>
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<tr>
<td>8. A person who has experienced a psychotic episode can have a fulfilling personal life. True</td>
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<td>9. It is possible to identify people who are at risk for developing psychosis. True</td>
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<td>10. Most people who experience psychotic symptoms are violent. False</td>
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<td>11. Psychotic symptoms can be related to many diagnoses including schizophrenia, depression, and substance use disorders. True</td>
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<td>12. Psychosis occurs across all cultures and sociodemographic groups. True</td>
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<td>13. The first three years following the onset of psychosis are a critical period for treatment. True</td>
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<td>14. Psychosis can be associated with significant impairment of thinking skills such as memory or attention. True</td>
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<td>15. There are no effective treatments for schizophrenia. False</td>
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<td>16. The number of people in the population who have experienced psychosis is very rare (less than 1%). False</td>
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<td>17. Someone can have one psychotic episode and never have another one. True</td>
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<td>18. A person who has experienced psychosis can secure and keep a job. True</td>
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<tr>
<td>19. If you are identified as being at high risk for psychosis, you will most likely develop schizophrenia. False</td>
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<tr>
<td>20. People with psychosis may be suspicious of others. True</td>
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</tbody>
</table>

Have you covered information about mental illness in your introductory psychology course? (YES/NO)
Have you covered information about schizophrenia in your introductory psychology course? (YES/NO)
Have you covered information about psychosis in your introductory psychology course? (YES/NO)
Are you interested in pursuing a career in mental health? (YES/NO)
Appendix D: CHR Informational Paragraph (Adapted from (CEDAR, 2016) and (Farlex Partner Medical Dictionary, 2012)

What is Psychosis?

Psychosis is a set of symptoms that involve a person’s mind “playing tricks on him or her.” The person experiencing psychosis may have difficulty telling the difference between what’s real and what may be coming from inside their own mind and perceptions. Although real to the person experiencing psychosis, psychotic experiences are not experienced as real to others. Psychosis refers to a loss of contact with reality, or difficulty telling what is real from what is not real.

Some examples of psychotic symptoms include:

1) Hallucinations – false perceptions such as seeing, hearing, smelling, tasting, or feeling things that aren’t there.

2) Delusions – a strongly held but false belief, in some cases accompanied by feelings of paranoia

3) Disorganized speech and behavior – rambling with incoherent speech patterns; behavior or activity that is inappropriate to the situation

Psychosis is more common than many people think, occurring in about 3 out of every 100 people (up to 15% of the population may experience mild, attenuated psychotic symptoms at some point in their lifetime). Symptoms may come and go or be relatively constant. It is often associated with mental health disorders like depression, bipolar disorder, and schizophrenia. However, psychosis can also occur for many other reasons, including substance use or neurological conditions.

What is risk for psychosis?
We all probably carry some risk for psychosis, but some factors make people at higher risk than others. We now know that certain types or combinations of symptoms place someone at high risk to develop psychosis within the next year or more. For example, someone at risk may feel that their mind is playing tricks on them, have strongly held and unusual beliefs, experience a decline in their functioning, withdrawal socially, or experience difficulty communicating. People who are at risk are often identified as being at “clinical high risk” or having “attenuated psychosis symptoms.” However, even those at high risk may still be just as likely not to develop psychosis, than to develop psychosis. They are just at higher risk than others.

For some people, the symptoms will get better on their own, while for others, the symptoms may become more intense or problematic. Although we cannot yet predict with certainty who will and will not develop psychosis over time, psychosis is treatable and we may have an opportunity to help someone not develop psychosis if we see him or her early enough.
Appendix E: Coding Structure for Exploratory Qualitative Analyses (adapted from (Anglin et al., 2014))

Labels Associated with Psychosis (expanded from Anglin et al 2014)
Examples: Schizophrenic, inherited mental illness, mentally ill, chronic paranoia, paranoia, paranoid, suffering from mental illness, mentally unstable, crazy, nervous breakdown, mental illness, psychotic symptoms, psychological disorder, nervous, mental disturbance

Labels Associated with other non-psychotic disorders (expanded from Anglin et al 2014)
Examples: Anxiety disorder, anxious depressed, bipolar, depressed, depressed teenager, depression, anxious, nervous, antisocial personality, antisocial, some psychological symptoms, social anxiety, a decline of mental health

Non Psychiatric Labels (expanded from Anglin et al 2014)
Examples: Afraid, a teenager, confused, confused teenager, disturbed, enclosed, isolating from the people around, loneliness, loner, passive, shy, shy/worry about people’s thoughts, thinker, troubled, unlucky, weird, gradually becoming antisocial, a sleepless isolated individual, recluse, lost his sense of dignity, overly self-conscious, introverted, uncomfortable, isolated, hard time, uneasy, on edge, mental discomforts, more self-conscious, less confident, going through a hard time

Used Label Provided to Describe (schizophrenia, CHR, APS, breakup only)

Information not in vignette

Mention of John’s General Characteristics
• Shy
• 18 years old
• White
• Male
• High school senior

Mention of Previous Circumstance (before 6 months ago)
• Had close friends
• Had an A-B average
• Interest in movies
• Interest in basketball

Mention of Symptom – Positive Symptom Related
• Began to feel as if people in the neighborhood were looking at him more
• Felt like he heard his name in the wind when nervous
• Late at night felt a presence though there was nobody there
• Interested in politics, preoccupied with thoughts about the influence of TV and mass marketing on people
• Feeling paranoid
Mention of Symptom – Negative Symptom and/or Functioning Related

- Stays up most of the night, sleep during the day
- Showering less
- Withdrawing from friends and family
- In the past month, has sometimes refused to go to school and spends his day alone in his room
- Trouble with motivation

Mention of Genetic Influence

- John’s mother was hospitalized 25 years ago for a mental illness
- Mention of mother’s recovery OR minimal family history

Behavioral or personality change

Needs medication or treatment
References


CEDAR. (2016). What does "at risk" mean?


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