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Public Understanding of Different Kinds of Voice-Hearing Experiences: Causal Beliefs, Perceptions of Mental Illness, and Stigma

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Objective: Voice-hearers tend to face a high degree of stigma that can impact subjective well-being and social functioning. However, researchers have hypothesized that the content of the voice-hearing experience and its cultural context are relevant to stigma responses. This study experimentally tested how perceptions of voice-hearing experiences change as a function of the voice's content and the perceiver's characteristics. ***Method:*** In total, 143 nonclinical participants were presented with vignettes describing people who heard voices that were attributed to either "God" or "Abraham Lincoln" and were described as either complimentary/encouraging or insulting/threatening. For each vignette, participants were asked about the likelihood that the voice-hearer had schizophrenia or mental illness. The Causal Beliefs Questionnaire was also delivered, with two new subscales added to test for belief in positive and negative religious causes for the voices. Stigma was measured by perceived dangerousness and desire for social distance. ***Results:*** Voice-hearing experiences elicited greater stigma from participants who endorsed greater likelihood that the voice-hearer was mentally ill, greater belief in biological causes of the voice-hearing, negative religious causes, psychosocial causes, socialization causes, and causes related to personal responsibility. Endorsing positive religious causes was associated with lower stigma. Participants who were more religious were more likely to attribute voice-hearing experiences to negative religious causes (possession, lack of/misguided faith), except when the target was described as hearing the voice of God saying positive things. ***Conclusions and Implications for Practice:*** The stigma of voice-hearing experiences depends upon what the voice is saying and perceptions about the cause of the voice.

Impact and Implications

This research suggests that public causal models of voice-hearing experiences vary substantially depending upon the specific contents of the voice (positive, negative, religious, nonreligious) and characteristics of the perceiver (religious vs. nonreligious) and that these variations affect stigma reactions. We show that different voice-hearing experiences trigger very different perceptions and reactions from different people. It is important for scientists, clinicians, and voice-hearers to be mindful of these complexities—including the ways in which different cultural frames can shape the third-person perception of voices and, by extension, first-person experience—and their implications for psychoeducation, framing, and explanation within clinical context.

Keywords: voice-hearing, stigma, psychosis, social functioning, schizophrenia

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People with symptoms associated with schizophrenia often face a high degree of stigma (Arkar & Eker, 1992; Marie & Miles, 2008; Socall & Holtgraves, 1992; Warman, Phalen, & Martin, 2015) that tends to negatively impact their functioning and subjective well-being (Ertugrul & Uluğ, 2004; Lysaker, Davis, Warman, Strasburger, & Beattie, 2007; Lysaker, Roe, & Yanos, 2006; Yanos, Roe, Markus, & Lysaker, 2008). Psychosis is usually highly stigmatized, but this varies across individuals, often according to how those symptoms are perceived and understood. For example, members of the public who endorse biogenetic models for symptoms or who believe people are responsible for causing their own symptoms usually endorse more stigmatizing statements (Angermeyer, Holzinger, Carta, & Schomerus, 2011; Jorm, Reavley, & Ross, 2012; Schomerus, Matschinger, & Angermeyer, 2014). Stigmatization is also affected by perceptions about whether a given set of symptoms is a sign of mental illness. For example, surveys suggest that when people are presented with descriptions of someone meeting criteria for schizophrenia, only about 50–60% judge that the person has a mental illness, and those who do perceive a mental illness endorse heightened perceptions of dangerousness and greater desire for social distance (Angermeyer & Matschinger, 2003; Martin, Pescosolido, & Tuch, 2000). Thus, the stigma faced by people with psychotic symptoms depends upon the public's conceptual and causal models of the experiences in question.

One symptom linked with schizophrenia that is often subject to stigma is voice-hearing. Conceptual and causal models of voice-hearing experiences are known to vary widely in the general public. Some cultural groups may view certain voice-hearing experiences as relatively normative and therefore unlikely to reflect mental illness (Larøi et al., 2014; Ritsher, Lucksted, Otilingam, & Grajales, 2004). For example, hallucinations, including voices of the deceased, are common during bereavement in many groups (Castelnovo, Cavallotti, Gambini, & D'Agostino, 2015), and many Christians believe it is within the normal range of experience to hear God's voice on a regular basis (Dein & Littlewood, 2007; Luhrmann, 2012). Distinguishing between psychotic symptoms and normative voice-hearing can lead to ambiguity and difficult judgment calls by mental health professionals (Murray, Cunningham, & Price, 2012; Pierre, 2001).

Studies have not experimentally tested how public understanding of voice-hearing varies with the voice's content (e.g., religious or not) or tested the hypothesis that voice-hearing experiences are perceived differentially by people who are more or less religious. People who attribute voice-hearing to psychosis tend to hold higher stigma attitudes, with concomitant differential effects on voice-hearers (Angermeyer et al., 2011; Angermeyer & Matschinger, 2003; Arkar & Eker, 1994; Phelan & Basow, 2007; Phelan & Link, 1998). Therefore, a better understanding of how different voice-hearing experiences are understood within different groups would improve our understanding of risk factors for the development of stigma and the social landscape faced by voice-hearers.

The purpose of this study was to determine how public perceptions of the causes for a voice-hearing experience depend upon personal beliefs and characteristics of the voice being heard and the relationship between those causal beliefs and stigma. To explore these issues, we presented a group of nonclinical participants with vignettes describing a person who hears a positive voice or a negative voice, with the voice described as coming from "God" or from "Abraham Lincoln." We then queried participants about their belief in various potential causes for the voice-hearing experience, about their perceptions of the mental health of the voice-hearer, and the level of stigma (social distance and perceived dangerousness) they endorsed toward the voice-hearer.

Because of likely greater perceptions of normativity (Dein & Littlewood, 2007; Luhrmann, 2012; McCarthy-Jones, Waegeli, & Watkins, 2013), we hypothesized that positive God-hearing experiences would be judged as particularly unlikely to be due to schizophrenia or mental illness and that this effect would be strongest among participants who were more religious. We hypothesized that these positive God-hearing experiences also would be viewed as less likely due to biogenetic or negative religious causes and more likely due to positive religious causes and that this relationship would again be strongest for participants who were more religious. Finally, we hypothesized that measures of perceived mental illness likelihood, belief in biogenetic causes, causes related to personal responsibility, and belief in negative religious causes would be associated with heightened levels of stigmatizing of the voice-hearer as measured by perceived dangerousness and desire for social distance, whereas belief in positive religious causes and psychosocial stress as causes for the voice would be associated with lower scores on the same measures.

Method

Participants and Procedures

In total, 143 participants were recruited from among students at two universities in the American Midwest for a study of the stigma of different kinds of voice-hearing experiences among people who are more or less religious (other findings reported in Phalen, Warman, Martin, & Lysaker, 2018). Participants had to be over 18 and speak English fluently. There were no other exclusion criteria. The resulting sample was 82.5% female, 16.8% male, 0.7% transgender, and 84.6% Caucasian, with a mean age of 20 ($SD = 1.38$). Students received course credit for participating. Each participant provided informed consent and voluntarily agreed to participate. The present study was approved by the institutions' institutional review boards.

All participants were presented with vignettes describing a person who hears positive voices and a person who hears negative voices with order of presentation randomly counterbalanced between participants. Participants were randomized such that half of participants read vignettes that described the person as hearing "God," whereas the other half read vignettes that replaced the word *God* with the words *Abraham Lincoln.* The vignettes read as follows:

Positive voice.

> Nancy often hears the voice of [God/Abraham Lincoln] giving her guidance and advice. The voice says comforting things, and once told her that she has been chosen to spread the word of [God/Abraham Lincoln]. She recently went through some hardships at work, but felt she was able to persevere in part because of the voice's presence in her life.

Negative voice.

> Jessica often hears the voice of [God/Abraham Lincoln] talking to her. He often says insulting things and once ordered her to murder some-

one. She recently quit her job, believing she was acting in accordance with [God's/Abraham Lincoln's] wishes.

After each vignette, participants were assessed on measures of social distance, perceived dangerousness, perceived likelihood that the person had schizophrenia or "mental illness," and their causal beliefs about the person's experiences. Participants were also assessed using the above measures for their own degree of religiousness and previous level of contact with mental illness. Randomization and data collection were performed online using the Qualtrics software.

Instruments

Causal Belief Questionnaire–Revised/Religion. A scale constructed by Dietrich et al. (2004) was adapted and extended to measure causal attributions. Participants were asked to indicate their level of endorsement for a list of possible causes for the experiences of the person in the vignette, with responses ranging from 1 (*definitely not a cause*) to 5 (*definitely a cause*). The original measure consisted of four two-item subscales: psychosocial stress (life event, stress at work), biological causes (brain disease, heredity), conditions of socialization (broken home, lack of parental affection), and causes the individual can influence himself or herself (lack of willpower, immoral lifestyle). Given the purposes of the present study, we constructed two additional subscales to measure belief in religious causes: positive religious causes (strong faith, close relationship with God) and negative religious causes (possession, lack of/misguided faith). The full measure used is provided in the online supplemental materials.

Participant impression of mental illness. Following Link, Phelan, Bresnahan, Stueve, and Pescosolido (1999), participant labeling was measured using a Likert scale. Participants were asked, "How likely do you think it is that [vignette character] is experiencing a mental illness?" and also, "How likely do you think it is that [vignette character] is experiencing schizophrenia?" Participants were asked to make their ratings on a Likert scale ranging from 1 (*very unlikely*) to 4 (*very likely*).

Santa Clara Strength of Religious Faith Questionnaire. The Santa Clara Strength of Religious Faith Questionnaire is a self-report measure of religiousness (both actions and beliefs) consisting of 10 statements (e.g., "I pray daily," "My relationship with God is very important to me," "I consider myself active in my faith or church," "My faith is an important part of who I am as a person"), which the participant rates on a 4-point Likert scale yielding a total score ranging from 10 to 40. Higher scores indicate stronger religious faith (Plante, Yancey, Sherman, Guertin, & Pardini, 1999). When tested on university student samples, the scale has been shown to exhibit excellent validity and reliability (Cronbach's alpha: .94–.97, split-half reliability: .90–.96; Freiheit, Sonstegard, Schmitt, & Vye, 2006; Plante et al., 1999) with two independent factor analyses confirming a one-factor structure (Freiheit et al., 2006; Lewis, Shevlin, McGuckin, & Navrátil, 2001). In the present sample, Cronbach's alpha for this scale was excellent: .975.

Social Distance Scale. The Social Distance Scale (e.g., Link, Cullen, Frank, & Wozniak, 1987) is a seven-item Likert-style scale used to determine the extent to which a person is unwilling to accept a social relationship (neighbor, friend, spouse, etc.) with a target individual, with high scores indicating a desire for greater social distance. The measure has excellent internal consistency reliability (0.97 in Link et al., 1987; 0.90 in Angermeyer, Matschinger, & Corrigan, 2004) and construct validity (Link, Yang, Phelan, & Collins, 2004), and it shows resistance to social desirability effects (Norman, Sorrentino, Windell, & Manchanda, 2008).

Perceived Dangerousness Scale. The Perceived Dangerousness Scale is an eight-item Likert-style measure of how dangerous a target individual is perceived to be, with high scores indicating greater perceptions of dangerousness. The measure has been shown to have a strong relationship with labeling and stigma (e.g., Link et al., 1987) and good internal consistency (0.85 in Link et al., 1987; 0.88 in Angermeyer et al., 2004).

Level-of-contact report. Level of contact with people with mental illness was measured for use as a covariate given consistent findings that the construct tends to be related to lower levels of stigma (Alexander & Link, 2003; Corrigan, Green, Lundin, Kubiak, & Penn, 2001; Link et al., 1999). The level-of-contact report (Holmes, Corrigan, Williams, Canar, & Kubiak, 1999) is composed of 12 items describing various levels of exposure to severe mental illness (e.g., "I have a severe mental illness," "A friend of the family has a severe mental illness," etc.), with each item ranked by degree of intimacy. Score on the measure is indexed to the rank order of the most intimate situation endorsed by the participant. This scale has shown good reliability and validity in studies of attitudes toward schizophrenia and severe mental illness (Corrigan, Edwards, Green, Diwan, & Penn, 2001; Corrigan, Green, et al., 2001; Holmes et al., 1999).

Statistical Analysis

Linear mixed-effects models (multilevel models) were fitted using the "nlme" package in R in order to test for the effect of vignette voice source, voice valence, and participant religiousness on the outcome measures of mental illness likelihood ratings and causal beliefs. Participant gender (male vs. nonmale), age, race (White vs. non-White), and level of contact with severe mental illness were included in each model as covariates. Vignette voice source, voice valence, participant religiousness, and all two- and three-way interactions between these three variables were included as predictors. Varying intercepts were included for each participant in order to account for the within-subjects design. Thus, the regression equation for observations $i = 1 \ldots, n$ clustered within subjects $j = 1 \ldots, J$ reads as follows:

$$\begin{aligned} y_i = {} & \alpha_{j[i]} + \beta X_i + \beta_1\, voice_i + \beta_2\, valence_i + \beta_3\, relig_i \\ & + \beta_4\, voice_i \times valence_i + \beta_5\, voice_i \times relig_i \\ & + \beta_6\, relig_i \times valence_i + \beta_7\, voice_i \times valence_i \times relig_i + \epsilon_i \end{aligned}$$

where i is the ith observation, X is a vector representing covariate values with their coefficients in vector β, and intercepts α are nested within each subject j (cf. Gelman & Hill, 2006).

To test for unique relationships between causal beliefs and stigma, linear mixed-effects models were also fitted incorporating the aforementioned covariates as well as the causal belief subscales entered as fixed effects and social distance and perceived dangerousness as outcome measures. A separate regression was fitted to test mental illness and schizophrenia ratings as predictors of social distance and perceived dangerousness.

Results

Mental Illness Ratings by Voice-Hearing Condition

Table 1 displays results of the multilevel model predicting schizophrenia and "mental illness" ratings. Positive voices were generally viewed as less indicative of schizophrenia than negative voices ($p < .05$). According to model estimates, voice-hearers with negative voices were viewed as "likely" or "very likely" to have schizophrenia (3.4; 95% CI [3.3, 3.5] on the Likert scale where 1 = *very unlikely,* 2 = *unlikely,* 3 = *likely,* 4 = *very likely*), whereas characters with positive voices were viewed as between "likely" and "unlikely" to be experiencing schizophrenia (2.4; 95% CI [2.3, 2.5]). A trend-level ($p = .08$, two-tailed) three-way interaction (see Figure 1) suggests that when voice valence is positive, more religious participants may endorse particularly low schizophrenia likelihood ratings for the God-hearer as compared to the Lincoln-hearer: The model suggests that, after controlling for other variables, more religious people (+1 *SD*) rated positive God-hearers as "unlikely" or "very unlikely" (1.6; 95% CI [1.4, 1.9]) to be experiencing schizophrenia while rating positive Lincoln-hearers as "likely" (2.9; 95% CI [2.7, 3.2]) to have schizophrenia. In contrast, less religious people (−1 *SD*) rated positive God-hearers as "unlikely" to be experiencing schizophrenia (2; 95% CI [1.8, 2.3]) while positive Lincoln-hearers were rated as "likely" (3.1; 95% CI [2.8, 3.3]). There was no significant two-way interaction for schizophrenia ratings.

Results for participant ratings of the likelihood that the target had "mental illness" followed a similar visual pattern (see Figure 1). The two-way interaction between voice valence and label ($p = .09$, two-tailed) suggests that positive voices may be viewed as less indicative of mental illness than negative voices. The average participant viewed voice-hearers who heard positive voices as between "likely" and "unlikely" having a mental illness (2.4; 95% CI [2.3, 2.5]), whereas people who heard negative voices were viewed as between "likely" and "very likely" having a mental illness (3.4; 95% CI [3.3, 3.5]).

Causal Beliefs by Voice-Hearing Condition

Raw participant responses for all causal belief categories are plotted in Figure 2 with fitted simple linear regression lines to illustrate general trends. For belief in negative religious causes, there was a significant main effect of participant religiousness ($p = .04$) and a significant three-way interaction between voice source, valence, and participant religiousness ($p = .03$). Specifically, participant religiousness was associated ($p < .05$) with increased belief in negative religious causes for voice-hearing experiences in every condition other than positive God-hearing ($p = .9$). There was also a trend-level ($p = .06$) effect of voice source on positive religious causal beliefs about voice-hearing, such that participants were more likely to endorse positive religious causes (strong faith/close relationship with God) for the God-hearing experiences than the Lincoln-hearing experiences. The effects of vignette conditions on other causal subscales were $p > .06$.

Relationship Between Causal Beliefs, Mental Illness Ratings, and Stigma

Linear mixed-effects models incorporating participant ratings of likelihood of mental illness and schizophrenia suggested that both variables showed unique associations with heightened perceptions of dangerousness and increased desires for social distance from the voice-hearer (all *p*s $< .05$). Regressions incorporating the causal belief subscales suggested that increased social distance and increased perceptions of dangerousness were associated ($p < .01$) with endorsing psychosocial stress, biological causes, conditions of socialization, personal responsibility, and negative religious causes, while endorsing positive religious causes was associated ($p < .01$) with decreased desires for social distance and decreased perceptions of dangerousness.

Discussion

The present study investigated how people with different levels of religiousness understood voice-hearing experiences that varied

Table 1
Multilevel Regression Predicting Schizophrenia and "Mental Illness" Ratings

Variable	β	*SE*	*t* value	*p*
Multilevel regression predicting schizophrenia				
Voice	−.515	.341	−1.51	.13
Valence	−.666	.328	−2.03	.04
Religiousness	−.012	.009	−1.25	.21
Voice × Valence	−.274	.438	−.62	.53
Voice × Religiousness	.012	.012	.99	.32
Religiousness × Valence	.006	.012	.54	.59
Voice × Valence × Religiousness	−.028	.016	−1.74	.08
Multilevel regression predicting "mental illness" ratings				
Voice	−.149	.348	−.43	.67
Valence	−.308	.339	−.91	.37
Religiousness	.003	.009	.29	.78
Voice × Valence	−.751	.453	−1.66	.09
Voice × Religiousness	−.001	.013	−.06	.95
Religiousness × Valence	−.005	.012	−.43	.67
Voice × Valence × Religiousness	−.015	.016	−.9	.37

Note. Covariates excluded from table for readability. Betas are set with reference to vignette Voice as God and Valence as positive. Thus, for example, a negative coefficient for Voice indicates that God-hearers were perceived as less likely suffering from mental illness.

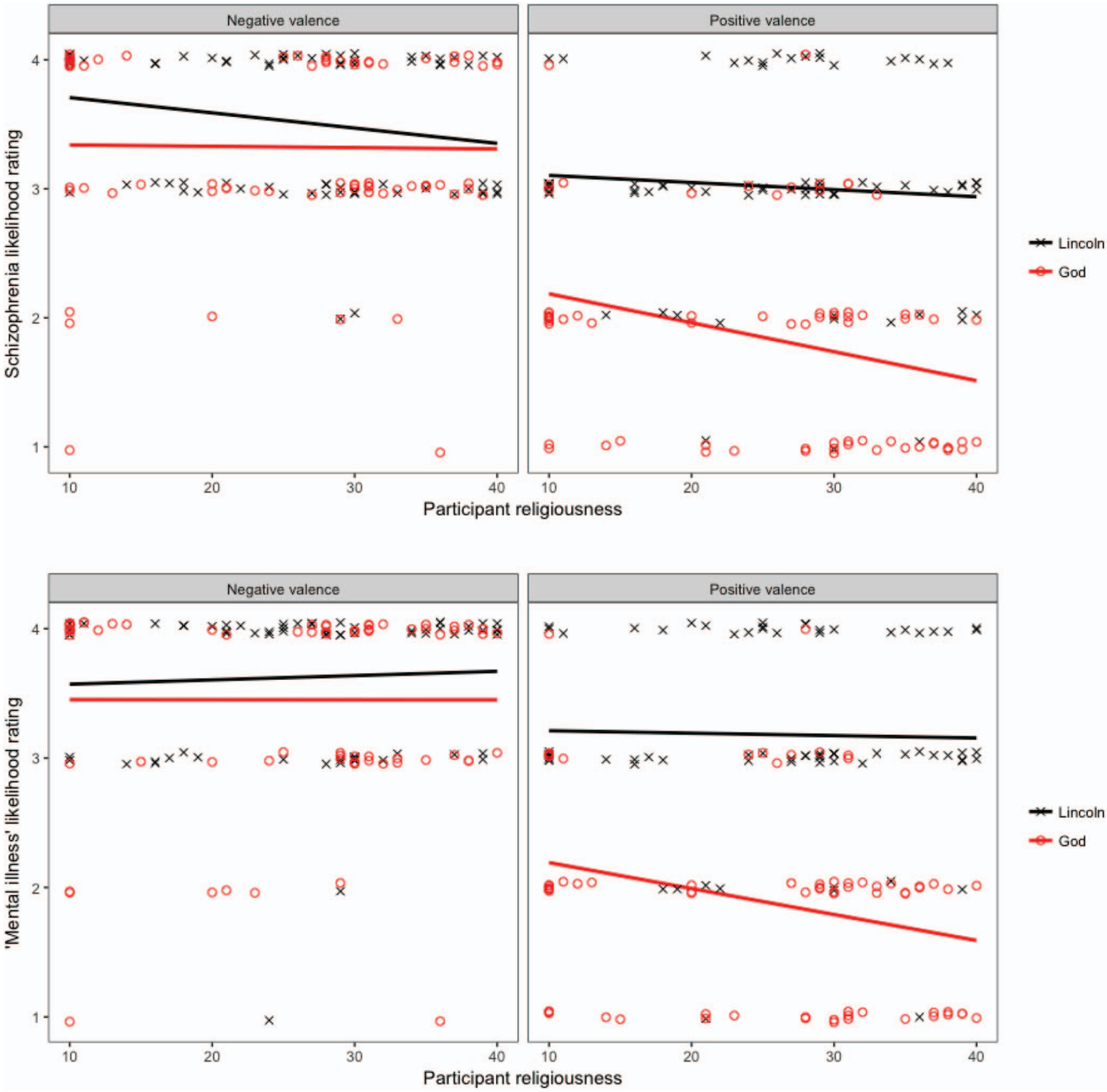

Figure 1. Scatterplots of participant likelihood ratings for schizophrenia and "mental illness," with fitted simple regression lines. 1 = *very unlikely;* 2 = *unlikely;* 3 = *likely;* 4 = *very likely.* See the online article for the color version of this figure.

in terms of their positive or negative content and their attributed source (God vs. Abraham Lincoln). Results suggested that participants were generally wary of assigning mental health labels to people with positive voice-hearing experiences, whereas these same participants (as the manipulation was within-subject) were confident in ascribing mental health labels ("schizophrenia" or "mental illness") to people with negative voice-hearing experiences. Participants higher in religiousness appeared particularly skeptical that a person hearing God's voice saying positive things was experiencing schizophrenia. Participants higher in religiousness were also unlikely to endorse negative religious causes (lack of/misguided faith, possession) for the positive God-hearing experience, despite a stronger overall tendency to do so for other types of voice-hearing experiences.

Further, results suggested that dimensions of causal belief and perceptions of mental illness were relevant to stigma reactions. Belief in the presence of schizophrenia or mental illness, biogenetic causes, causes related to socialization, stress, or personal

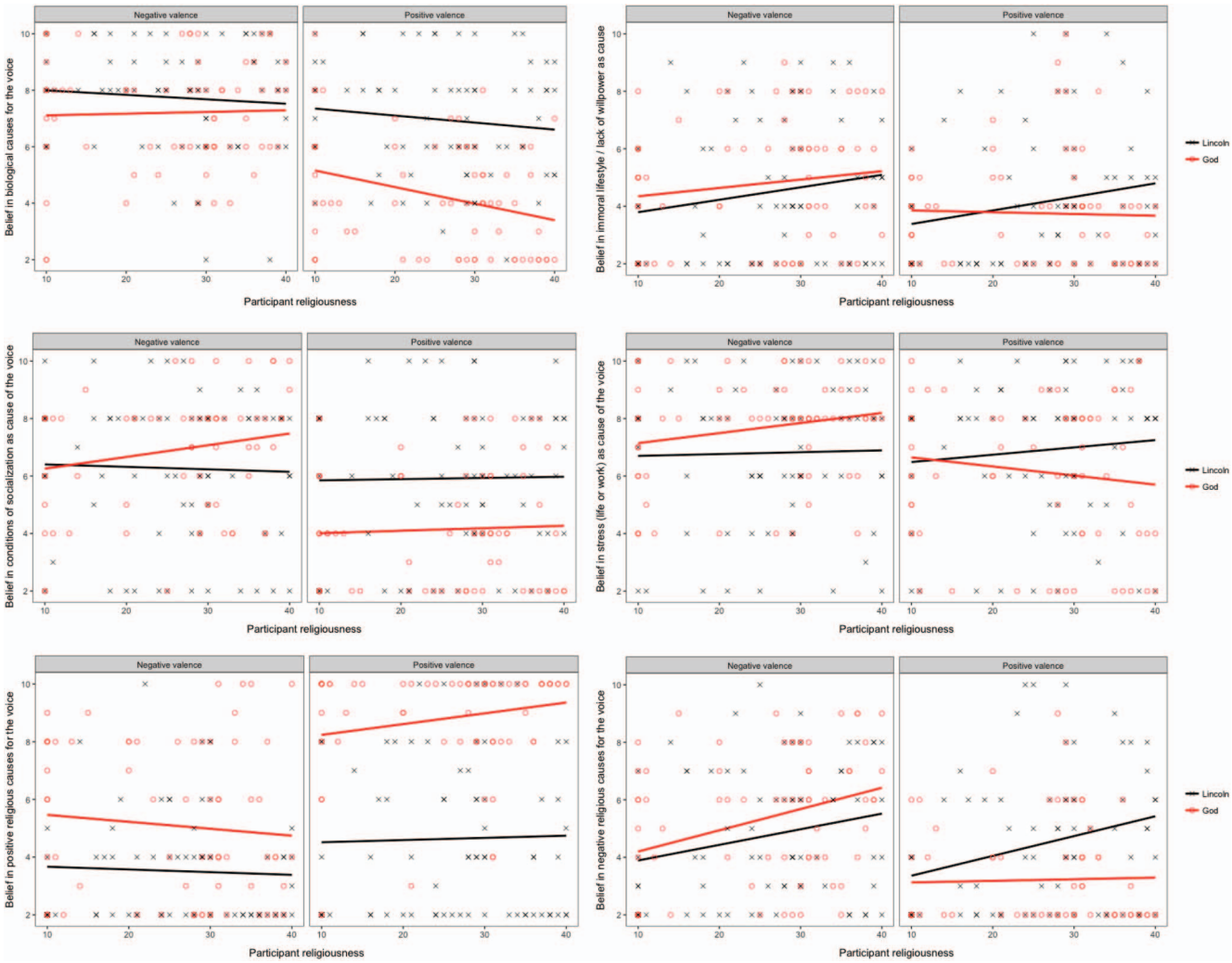

Figure 2. Scatterplots of participant ratings for likely causes of the voice. 1 = *definitely not a cause* and 5 = *definitely a cause*. Minimum possible score on each subscale is 2 and maximum is 10. See the online article for the color version of this figure.

responsibility and negative religious causes were all associated with greater stigma (social distance and dangerousness ratings), whereas participants' beliefs in positive religious causes for the voice-hearing (strong faith, close relationship with God) were associated with lower perceptions of dangerousness and desires for social distance. Participant ratings of mental illness likelihood and schizophrenia likelihood were both associated with increased perceptions of dangerousness and desires for social distance.

The present findings, which suggest that positive voice-hearing experiences are less likely to be considered a sign of mental illness, in combination with current and past research documenting a strong association between mental health labeling and stigma (e.g., Angermeyer & Matschinger, 2003; Arkar & Eker, 1994; Phelan & Basow, 2007; Phelan & Link, 1998), suggest the possibility that people with primarily positive voice-hearing experiences could face less stigma or public discriminatory experiences than people with primarily negative voice-hearing experiences (holding other factors constant). This possibility is clinically relevant as positive voice-hearing experiences are common (between 30% and 60% of voice-hearers; Jenner, Rutten, Beuckens, Boonstra, & Sytema, 2008; Woods, Jones, Alderson-Day, Callard, & Fernyhough, 2015) and affect treatment engagement (Moritz et al., 2013). Rates of nonclinical voices are also substantial (Johns et al., 2014) and, besides valence and controllability, often phenomenologically indistinguishable from clinical hallucinations (Larøi et al., 2012; Sommer et al., 2008). For many people, positive voice-hearing experiences may be relatively unproblematic not only subjectively but also interpersonally (Corstens et al., 2014; Woods et al., 2015). Psychosocial treatment methods that empower patients to decide which of their symptoms to target (e.g., negative rather than positive voices) or that target broader aspects of recovery may yield better outcomes and greater adherence than methods that treat voice-hearing as inherently problematic.

Interpretation of our results is complicated by the fact that our measure of religiousness was unidimensional and did not clearly distinguish between religiousness and spirituality (Cummings et

al., 2015). However, these findings provide preliminary experimental evidence that public understanding of the reasons for different voice-hearing experiences is in some respects determined by the faith of the perceiver and that these differences in understanding are relevant to social stigma. Studies have suggested that people who are more religious may adopt different causal models for schizophrenia (Smolak et al., 2013). The present findings indicate that such variations in belief likely depend upon the specific symptom in question. Our data are consistent with the hypothesis that people who score higher on a measure of religiousness are less likely to view positive religious voice-hearing experiences as a sign of schizophrenia and tend to withhold potentially stigmatizing religious causal models from these voice-hearing experiences despite being otherwise more likely to endorse negative religious causes. In other words, observed variations in causal and conceptual models of voice-hearing experiences endorsed by people who are more versus less religious may be better understood not as an omnibus effect but as the product of an interaction between the specific content of the voice-hearing experience and the person's own beliefs. This result is consistent with Luhrmann's (2012) anthropological study of voice-hearing among evangelical Christians: Voice-hearing experiences are not categorically accepted or rejected by religious groups. Some theologically consistent voice-hearing experiences appear to yield respect and social esteem, others are understood as uncomplicatedly due to mental illness, and still other voice-hearing experiences fall into a gray area of uncertainty about their theological origin (Luhrmann, 2012).

The relationship of religiousness to voice-hearing judgments is important because it may impact the social functioning of voice-hearers. In the present study, belief in positive and negative religious causes for a voice-hearing experience predicted stigma toward the voice-hearer, with positive religious etiologies predicting lower perceptions of dangerousness and desires for social distance, and belief in negative religious causes predicting greater perceptions of dangerousness and desires for social distance. This result suggests the importance of caution in assuming a negative functional impact of voice-hearing experiences barring supplementary information such as prevailing beliefs in the person's social circle. Voice-hearing experiences that are normative in one's cultural milieu may have unproblematic or even positive consequences. However, even voice-hearing experiences that have a culturally coherent religious or spiritual interpretation can be highly distressing (e.g., possession), and in our sample, such negative religious etiological perceptions were associated with heightened stigma. Future studies should test public perceptions of voice-hearing experiences that have negative contents but are also theologically consistent for many religious groups, such as hearing demons or the Devil. It should also be recognized that voice-hearing experiences that are normative in the social group with which a person most closely identifies may nevertheless be strongly stigmatized by society at large.

Unexpectedly, the decreased "mental illness" likelihood ratings observed with respect to positive God-hearers were not significantly moderated by participant religiousness. It is possible that this null finding was a matter of statistical power: Although there was no statistically significant three-way interaction between voice source, voice valence, and participants' religiousness, visual analysis (see Figure 1) and pairwise comparison of the positive God-hearing condition does suggest that more religious participants rated the voice-hearer as less likely to be mentally ill than less religious participants ($p = .03$), whereas the same effect did not appear in any other condition ($ps > .7$). However, the possibility remains that the null finding is real, and this should be explored. Future studies would perhaps benefit from being more careful in their wording of the question: We asked participants about their perceived likelihood that the voice-hearer had a mental illness in general rather than due to the voice-hearing experience per se, which may have added ambiguity to participant responses and to our results. Additionally, we cannot be certain about how participants interpreted the voice-hearing experiences. Future studies would ideally include a manipulation check to see if participants were interpreting "voices" the same way across different conditions or if the positive God vignette was more likely to engender an inner voice interpretation. Qualitative or mixed-methods research may also provide better insight into perceptions of different kinds of voice-hearing experiences. While one interpretation of our findings is that the source and content of auditory hallucinations that are otherwise similar influence perceived social stigma, an alternative interpretation is that religious and clinical voice hearing reflect fundamentally different etiologies, cultural referents, and ultimately subjective experiences—differences that participants recognize (and which participants' own religiosity may further sensitize them to). Given the different clinical and cultural implications of these two lines of interpretation, research designed to unpack the course and etiology of religious and clinical work should be prioritized, some of which is already under way (e.g., Mohr et al., 2011; Singh et al., 2015).

There were several additional limitations to this study that limit generalizability. The sample was primarily young, White, and female; all were university students; and most identified as "Christian" (37.8%), Protestant (18.9%), or Catholic (17.5%). Different religious denominations have been shown to endorse differing levels of stigma toward people with mental illness (Wesselmann & Graziano, 2010); therefore, the present results may not generalize well to other religious groups. Stigma of mental illness has been shown not to vary consistently by gender (Jorm & Oh, 2009; Jorm et al., 2012), but younger (Jorm & Oh, 2009; Lauber, Nordt, Falcato, & Rössler, 2004) and more educated (Corrigan, Edwards, et al., 2001) people may endorse lower stigma toward psychotic disorders (although these findings have been inconsistent; e.g., Anglin, Link, & Phelan, 2006; Gureje, Lasebikan, Ephraim-Oluwanuga, Olley, & Kola, 2005; Kirmayer, Fletcher, & Boothroyd, 1997; Phelan, Link, Stueve, & Pescosolido, 2000; Wolff, Pathare, Craig, & Leff, 1996). Race has also been shown to affect stigma reactions (Anglin et al., 2006; Eisenberg, Downs, Golberstein, & Zivin, 2009), and the effect may interact with religiousness (Alvidrez, Snowden, & Kaiser, 2008). While we controlled for demographic variables in our regression analyses, statistical methods cannot compensate for the lack of more diverse observations.

Another major limitation of the present study is that our measure of religiousness was uni- rather multidimensional, and we did not directly ask participants about their beliefs regarding the normativity of hearing religious themed voices. It would be possible for two participants to have equally high scores on this measure while maintaining very different views about the normativity of hearing the voice of God. This may explain some of our null findings and

generally renders any causal interpretation of statistically significant findings difficult. Follow-up studies should include a more fine-grained measure or qualitative analysis of participants' religiousness (e.g., specifically asking participants about the normativity of the voice-hearing experience).

Future studies should also explore perceptions of a wider spectrum of voice-hearing experiences. Approximately 80% of people with schizophrenia have both positive and negative voice-hearing experiences (Honig et al., 1998), and voice-hearing experiences are for many people relatively neutral (Cottam et al., 2011). In addition, patients who hear voices with religious content very often report hearing voices other than God's, such as angels or demons (Cottam et al., 2011). Voice-hearing experiences exist on continuums between positive and negative, religious and nonreligious, and future research should try to better represent the true range of experiences.

References

Alexander, L., & Link, B. (2003). The impact of contact on stigmatizing attitudes toward people with mental illness. *Journal of Mental Health, 12,* 271–289. http://dx.doi.org/10.1080/0963823031000118267

Alvidrez, J., Snowden, L. R., & Kaiser, D. M. (2008). The experience of stigma among Black mental health consumers. *Journal of Health Care for the Poor and Underserved, 19,* 874–893. http://dx.doi.org/10.1353/hpu.0.0058

Angermeyer, M. C., Holzinger, A., Carta, M. G., & Schomerus, G. (2011). Biogenetic explanations and public acceptance of mental illness: Systematic review of population studies. *British Journal of Psychiatry, 199,* 367–372. http://dx.doi.org/10.1192/bjp.bp.110.085563

Angermeyer, M. C., & Matschinger, H. (2003). The stigma of mental illness: Effects of labelling on public attitudes towards people with mental disorder. *Acta Psychiatrica Scandinavica, 108,* 304–309. http://dx.doi.org/10.1034/j.1600-0447.2003.00150.x

Angermeyer, M. C., Matschinger, H., & Corrigan, P. W. (2004). Familiarity with mental illness and social distance from people with schizophrenia and major depression: Testing a model using data from a representative population survey. *Schizophrenia Research, 69,* 175–182. http://dx.doi.org/10.1016/S0920-9964(03)00186-5

Anglin, D. M., Link, B. G., & Phelan, J. C. (2006). Racial differences in stigmatizing attitudes toward people with mental illness. *Psychiatric Services, 57,* 857–862. http://dx.doi.org/10.1176/ps.2006.57.6.857

Arkar, H., & Eker, D. (1992). Influence of having a hospitalized mentally ill member in the family on attitudes toward mental patients in Turkey. *Social Psychiatry and Psychiatric Epidemiology: The International Journal for Research in Social and Genetic Epidemiology and Mental Health Services, 27,* 151–155. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/1621141

Arkar, H., & Eker, D. (1994). Effect of psychiatric labels on attitudes toward mental illness in a Turkish sample. *International Journal of Social Psychiatry, 40,* 205–213. http://dx.doi.org/10.1177/002076409404000306

Castelnovo, A., Cavallotti, S., Gambini, O., & D'Agostino, A. (2015). Post-bereavement hallucinatory experiences: A critical overview of population and clinical studies. *Journal of Affective Disorders, 186,* 266–274. http://dx.doi.org/10.1016/j.jad.2015.07.032

Corrigan, P. W., Edwards, A. B., Green, A., Diwan, S. L., & Penn, D. L. (2001). Prejudice, social distance, and familiarity with mental illness. *Schizophrenia Bulletin, 27,* 219–225. http://dx.doi.org/10.1093/oxfordjournals.schbul.a006868

Corrigan, P. W., Green, A., Lundin, R., Kubiak, M., & Penn, D. L. (2001). Familiarity with and social distance from people who have serious mental illness. *Psychiatric Services, 52,* 953–958. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/11433114

Corstens, D., Longden, E., McCarthy-Jones, S., Waddingham, R., & Thomas, N. (2014). Emerging perspectives from the hearing voices movement: Implications for research and practice. *Schizophrenia Bulletin, 40*(Suppl. 4), S285–S294.

Cottam, S., Paul, S. N., Doughty, O. J., Carpenter, L., Al-Mousawi, A., Karvounis, S., & Done, D. J. (2011). Does religious belief enable positive interpretation of auditory hallucinations? A comparison of religious voice hearers with and without psychosis. *Cognitive Neuropsychiatry, 16,* 403–421. http://dx.doi.org/10.1080/13546805.2010.548543

Cummings, J. P., Carson, C. S., Shrestha, S., Kunik, M. E., Armento, M. E., Stanley, M. A., & Amspoker, A. B. (2015). Santa Clara Strength of Religious Faith Questionnaire: Psychometric analysis in older adults. *Aging & Mental Health, 19,* 86–97. http://dx.doi.org/10.1080/13607863.2014.917606

Dein, S., & Littlewood, R. (2007). The voice of God. *Anthropology & Medicine, 14,* 213–228. http://dx.doi.org/10.1080/13648470701381515

Dietrich, S., Beck, M., Bujantugs, B., Kenzine, D., Matschinger, H., & Angermeyer, M. C. (2004). The relationship between public causal beliefs and social distance toward mentally ill people. *Australian and New Zealand Journal of Psychiatry, 38,* 348–354.

Eisenberg, D., Downs, M. F., Golberstein, E., & Zivin, K. (2009). Stigma and help seeking for mental health among college students. *Medical Care Research and Review, 66,* 522–541. http://dx.doi.org/10.1177/1077558709335173

Ertugrul, A., & Uluğ, B. (2004). Perception of stigma among patients with schizophrenia. *Social Psychiatry and Psychiatric Epidemiology: The International Journal for Research in Social and Genetic Epidemiology and Mental Health Services, 39,* 73–77. http://dx.doi.org/10.1007/s00127-004-0697-9

Freiheit, S. R., Sonstegard, K., Schmitt, A., & Vye, C. (2006). Religiosity and spirituality: A psychometric evaluation of the Santa Clara strength of religious faith questionnaire. *Pastoral Psychology, 55,* 27–33. http://dx.doi.org/10.1007/s11089-006-0029-y

Gelman, A., & Hill, J. (2006). *Data analysis using regression and multilevel/hierarchical models*. Cambridge, United Kingdom: Cambridge university press.

Gureje, O., Lasebikan, V. O., Ephraim-Oluwanuga, O., Olley, B. O., & Kola, L. (2005). Community study of knowledge of and attitude to mental illness in Nigeria. *British Journal of Psychiatry, 186,* 436–441. http://dx.doi.org/10.1192/bjp.186.5.436

Holmes, E. P., Corrigan, P. W., Williams, P., Canar, J., & Kubiak, M. A. (1999). Changing attitudes about schizophrenia. *Schizophrenia Bulletin, 25,* 447–456. http://dx.doi.org/10.1093/oxfordjournals.schbul.a033392

Honig, A., Romme, M. A. J., Ensink, B. J., Escher, S. D. M. A. C., Pennings, M. H. A., & deVries, M. W. (1998). Auditory hallucinations: A comparison between patients and nonpatients. *Journal of Nervous and Mental Disease, 186,* 646–651. http://dx.doi.org/10.1097/00005053-199810000-00009

Jenner, J. A., Rutten, S., Beuckens, J., Boonstra, N., & Sytema, S. (2008). Positive and useful auditory vocal hallucinations: Prevalence, characteristics, attributions, and implications for treatment. *Acta Psychiatrica Scandinavica, 118,* 238–245. http://dx.doi.org/10.1111/j.1600-0447.2008.01226.x

Johns, L. C., Kompus, K., Connell, M., Humpston, C., Lincoln, T. M., Longden, E., . . . Fernyhough, C. (2014). Auditory verbal hallucinations in persons with and without a need for care. *Schizophrenia Bulletin, 40*(Suppl. 4), S255–S264.

Jorm, A. F., & Oh, E. (2009). Desire for social distance from people with mental disorders. *Australian and New Zealand Journal of Psychiatry, 43,* 183–200. http://dx.doi.org/10.1080/00048670802653349

Jorm, A. F., Reavley, N. J., & Ross, A. M. (2012). Belief in the dangerousness of people with mental disorders: A review. *Australian and New Zealand Journal of Psychiatry, 46,* 1029–1045. http://dx.doi.org/10.1177/0004867412442406

Kirmayer, L. J., Fletcher, C. M., & Boothroyd, L. J. (1997). Inuit attitudes toward deviant behavior: A vignette study. *Journal of Nervous and Mental Disease, 185,* 78–86. http://dx.doi.org/10.1097/00005053-199702000-00003

Larøi, F., Luhrmann, T. M., Bell, V., Christian, W., Deshpande, S., Fernyhough, C., . . . Woods, A. (2014). Culture and hallucinations: Overview and future directions. *Schizophrenia Bulletin, 40*(Suppl. 4), S213–S220. http://dx.doi.org/10.1093/schbul/sbu012

Larøi, F., Sommer, I. E., Blom, J. D., Fernyhough, C., Ffytche, D. H., Hugdahl, K., . . . Slotema, C. W. (2012). The characteristic features of auditory verbal hallucinations in clinical and nonclinical groups: State-of-the-art overview and future directions. *Schizophrenia Bulletin, 38,* 724–733.

Lauber, C., Nordt, C., Falcato, L., & Rössler, W. (2004). Factors influencing social distance toward people with mental illness. *Community Mental Health Journal, 40,* 265–274. http://dx.doi.org/10.1023/B:COMH.0000026999.87728.2d

Lewis, C., Shevlin, M., McGuckin, C., & Navrátil, M. (2001). The Santa Clara Strength of Religious Faith Questionnaire: Confirmatory factor analysis. *Pastoral Psychology, 49,* 379–385. http://dx.doi.org/10.1023/A:1010370728546

Link, B., Cullen, F., Frank, J., & Wozniak, J. (1987). The social rejection of former mental patients: Understanding why labels matter. *American Journal of Sociology, 92,* 1461–1500. http://dx.doi.org/10.1086/228672

Link, B. G., Phelan, J. C., Bresnahan, M., Stueve, A., & Pescosolido, B. A. (1999). Public conceptions of mental illness: Labels, causes, dangerousness, and social distance. *American Journal of Public Health, 89,* 1328–1333. http://dx.doi.org/10.2105/AJPH.89.9.1328

Link, B. G., Yang, L. H., Phelan, J. C., & Collins, P. Y. (2004). Measuring mental illness stigma. *Schizophrenia Bulletin, 30,* 511–541. http://dx.doi.org/10.1093/oxfordjournals.schbul.a007098

Luhrmann, T. M. (2012). *When God talks back: Understanding the American evangelical relationship with God.* New York, NY: Random House. Retrieved from http://books.google.com/books/about/When_God_Talks_Back.html?id=Q9C2UDECM1kC&pgis=1

Lysaker, P. H., Davis, L. W., Warman, D. M., Strasburger, A., & Beattie, N. (2007). Stigma, social function and symptoms in schizophrenia and schizoaffective disorder: Associations across 6 months. *Psychiatry Research, 149,* 89–95. http://dx.doi.org/10.1016/j.psychres.2006.03.007

Lysaker, P. H., Roe, D., & Yanos, P. T. (2006). Toward understanding the insight paradox: Internalized stigma moderates the association between insight and social functioning, hope, and self-esteem among people with schizophrenia spectrum disorders. *Schizophrenia Bulletin, 33,* 192–199. http://dx.doi.org/10.1093/schbul/sbl016

Marie, D., & Miles, B. (2008). Social distance and perceived dangerousness across four diagnostic categories of mental disorder. *Australian and New Zealand Journal of Psychiatry, 42,* 126–133. http://dx.doi.org/10.1080/00048670701787545

Martin, J., Pescosolido, B., & Tuch, S. (2000). Of fear and loathing: The role of "disturbing behavior" labels, and causal attributions in shaping public attitudes toward people with mental illness. *Journal of Health and Social Behavior, 41,* 208–223. http://dx.doi.org/10.2307/2676306

McCarthy-Jones, S., Waegeli, A., & Watkins, J. (2013). Spirituality and hearing voices: Considering the relation. *Psychosis, 5,* 247–258.

Mohr, S., Perroud, N., Gillieron, C., Brandt, P. Y., Rieben, I., Borras, L., & Huguelet, P. (2011). Spirituality and religiousness as predictive factors of outcome in schizophrenia and schizo-affective disorders. *Psychiatry Research, 186*(2–3), 177–182.

Moritz, S., Favrod, J., Andreou, C., Morrison, A. P., Bohn, F., Veckenstedt, R., . . . Karow, A. (2013). Beyond the usual suspects: Positive attitudes towards positive symptoms is associated with medication noncompliance in psychosis. *Schizophrenia Bulletin, 39,* 917–922. http://dx.doi.org/10.1093/schbul/sbs005

Murray, E. D., Cunningham, M. G., & Price, B. H. (2012). The role of psychotic disorders in religious history considered. *Journal of Neuropsychiatry and Clinical Neurosciences, 24,* 410–426. http://dx.doi.org/10.1176/appi.neuropsych.11090214

Norman, R. M., Sorrentino, R. M., Windell, D., & Manchanda, R. (2008). The role of perceived norms in the stigmatization of mental illness. *Social Psychiatry and Psychiatric Epidemiology: The International Journal for Research in Social and Genetic Epidemiology and Mental Health Services, 43,* 851–859. http://dx.doi.org/10.1007/s00127-008-0375-4

Phalen, P. L., Warman, D. M., Martin, J. M., & Lysaker, P. H. (2018). The stigma of voice-hearing experiences: Religiousness and voice-hearing contents matter. *Stigma and Health, 3,* 77.

Phelan, J., & Basow, S. (2007). College students' attitudes toward mental illness: An examination of the stigma process. *Journal of Applied Social Psychology, 37,* 2877–2902. http://dx.doi.org/10.1111/j.1559-1816.2007.00286.x

Phelan, J. C., & Link, B. G. (1998). The growing belief that people with mental illnesses are violent: The role of the dangerousness criterion for civil commitment. *Social Psychiatry and Psychiatric Epidemiology: The International Journal for Research in Social and Genetic Epidemiology and Mental Health Services, 33*(Suppl. 1), S7–S12. http://dx.doi.org/10.1007/s001270050204

Phelan, J., Link, B., Stueve, A., & Pescosolido, B. A. (2000). Public conceptions of mental illness in 1950 and 1996: What is mental illness and is it to be feared? *Journal of Health and Social Behavior, 41,* 188–207. http://dx.doi.org/10.2307/2676305

Pierre, J. M. (2001). Faith or delusion? At the crossroads of religion and psychosis. *Journal of Psychiatric Practice, 7,* 163–172. http://dx.doi.org/10.1097/00131746-200105000-00004

Plante, T. G., Yancey, S., Sherman, A., Guertin, M., & Pardini, D. (1999). Further validation for the Santa Clara Strength of Religious Faith Questionnaire. *Pastoral Psychology, 48,* 11–21. http://dx.doi.org/10.1023/A:1021950628088

Ritsher, J. B., Lucksted, A., Otilingam, P. G., & Grajales, M. (2004). Hearing voices: Explanations and implications. *Psychiatric Rehabilitation Journal, 27,* 219–227. http://dx.doi.org/10.2975/27.2004.219.227

Schomerus, G., Matschinger, H., & Angermeyer, M. C. (2014). Causal beliefs of the public and social acceptance of persons with mental illness: A comparative analysis of schizophrenia, depression and alcohol dependence. *Psychological Medicine, 44,* 303–314. http://dx.doi.org/10.1017/S003329171300072X

Singh, S. P., Brown, L., Winsper, C., Gajwani, R., Islam, Z., Jasani, R., . . . Birchwood, M. (2015). Ethnicity and pathways to care during first episode psychosis: The role of cultural illness attributions. *BMC Psychiatry, 15,* 287.

Smolak, A., Gearing, R. E., Alonzo, D., Baldwin, S., Harmon, S., & McHugh, K. (2013). Social support and religion: Mental health service use and treatment of schizophrenia. *Community Mental Health Journal, 49,* 444–450. http://dx.doi.org/10.1007/s10597-012-9536-8

Socall, D. W., & Holtgraves, T. (1992). Attitudes toward the mentally ill: The effects of label and beliefs. *The Sociological Quarterly, 33,* 435–445. http://dx.doi.org/10.1111/j.1533-8525.1992.tb00383.x

Sommer, I. E., Daalman, K., Rietkerk, T., Diederen, K. M., Bakker, S., Wijkstra, J., & Boks, M. P. (2008). Healthy individuals with auditory verbal hallucinations; who are they? Psychiatric assessments of a selected sample of 103 subjects. *Schizophrenia Bulletin, 36,* 633–641.

Warman, D. M., Phalen, P. L., & Martin, J. M. (2015). Impact of a brief education about mental illness on stigma of OCD and violent thoughts. *Journal of Obsessive–Compulsive and Related Disorders, 5,* 16–23. http://dx.doi.org/10.1016/j.jocrd.2015.01.003

Wesselmann, E., & Graziano, W. (2010). Sinful and/or possessed? Religious beliefs and mental illness stigma. *Journal of Social and Clinical Psychology, 29,* 402–437. http://dx.doi.org/10.1521/jscp.2010.29.4.402

Wolff, G., Pathare, S., Craig, T., & Leff, J. (1996). Community knowledge of mental illness and reaction to mentally ill people. *British Journal of Psychiatry, 168,* 191–198. http://dx.doi.org/10.1192/bjp.168.2.191

Woods, A., Jones, N., Alderson-Day, B., Callard, F., & Fernyhough, C. (2015). Experiences of hearing voices: Analysis of a novel phenomenological survey. *The Lancet Psychiatry, 2,* 323–331. http://dx.doi.org/10.1016/S2215-0366(15)00006-1

Yanos, P. T., Roe, D., Markus, K., & Lysaker, P. H. (2008). Pathways between internalized stigma and outcomes related to recovery in schizophrenia spectrum disorders. *Psychiatric Services, 59,* 1437–1442. http://dx.doi.org/10.1176/ps.2008.59.12.1437

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