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Beliefs about Life-After-Death, Psychiatric Symptomology and Cognitive Theories of Psychopathology

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The present study examined the association between mental health and pleasant and unpleasant beliefs about life-after-death, using data from a national web-based survey of U.S. adults. Regression analyses were conducted on five pleasant and two unpleasant after-life beliefs using six classes of psychiatric symptoms as dependent variables: anxiety, depression, obsession-compulsion, paranoid ideation, social anxiety and somatization. As hypothesized, pleasant afterlife beliefs were associated with better, and unpleasant beliefs were associated with poorer mental health, controlling for age, gender, education, race, income and marital status, social support, prayer and church attendance. The results are discussed in the context of cognitive theories of psychopathology and psychotherapy that propose that many psychiatric symptoms are caused and moderated by beliefs about the dangerousness of, or threat of harm posed by, various situations. Suggestions are made for future research that differentiates between psychiatric symptoms that may be influenced to varying degrees by cognitive input, and therefore beliefs.

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A 1991 review of the literature on religion and mental health revealed a degree of ambiguity about the association between them, some of which appeared to be attributable to methodological differences in measuring religion (Gartner, Larson, & Allen, 1991). Despite this ambiguity, one clear finding that emerged from methodologically sound studies was a strong positive relationship between religious participation and mental health. Over the years, attendance at religious services—often called "church attendance"—has been one of the most widely used measures of religion in research on religion and physical and mental health, and numerous studies consistently have found that church attendance is positively related to both (Larson & Larson, 2003).

A meta-analysis of recent studies on religion and mental health that were published between 1990 and 2001 provides some very interesting findings (Hackney & Sanders, 2003). In light of the reviews by Larson and his colleagues, the most interesting one may be that measures of institutional religion, such as

"church attendance" show the weakest association with psychological adjustment compared to other measures of religion. Hackney and Sanders (2003) classified the independent variables in 35 studies into three categories: institutional religion, which mainly included participation in public religious services and rituals; ideological religion, which encompassed attitudes and values and the salience of religious beliefs; and personal devotion, which included attachment to God, intrinsic religious orientation, and personal prayer and devotion. Their analysis suggests that institutional religion exerts the least influence on psychological well-being, whereas personal devotion exerts the most influence on well-being, with ideological religion falling somewhere in between.

Hackney and Sanders' (2003) results indicate that the salubrious effects of personal religious conviction and beliefs are greater than the typical association found between well-being and participation in public religious activities. This is a particularly important finding since research on religion and health has tended to ignore religious beliefs (George, Ellison, & Larson, 2002; George, Larson, Koenig, & McCullough, 2000). Indeed, we were able to identify only four studies in Hackney and Sanders' sample that measured specific religious beliefs (Dorahy et al., 1998; Poloma & Pendleton, 1990; Rasmussen & Charman, 1993; Schafer, 1997). All four studies measured beliefs about God and three of the four also asked people if they believed in life-after-death—specifically, heaven and hell (Poloma & Pendleton, 1990; Rasmussen & Charman, 1993; Schafer, 1997). Two other studies in their sample measured participants' strength of religious beliefs, in general, but did not ask about specific beliefs (Blaine & Crocker, 1995; Pressman, Lyons, Larson, & Strain, 1990). Schafer's 1997 study, which was the only one to compare the effects of belief in God and belief in life-after-death, found a significant positive association between psychological well-being and belief in God, but no association between well-being and belief in life-after-death or belief in heaven and hell.

Though Schafer's (1997) study found no relationship between belief in life-after-death and psychological well-being, a recent study by Flannelly, Koenig, Ellison, Galek and Krause (2006) found a significant salubrious association between belief in life-after-death and psychiatric symptoms. Other research also suggests there is a salubrious association between belief in life-after-death and physical and psychological well-being (Ellison, Boardman, Williams, & Jackson, 2001; Krause et al., 2002), but aside from Schafer (1997), none of these have examined the association between specific afterlife beliefs and mental health.

Flannelly et al. (2006) reported that belief in life-after-death was associated with lower levels of symptomology in six psychiatric conditions. The present study tested the association between specific afterlife beliefs and the same six clusters of psychiatric symptoms examined in the Flannelly et al. study. We hypothesized that pleasant beliefs or images about the afterlife would be associated with lower levels of symptomology whereas unpleasant beliefs about the afterlife would be associated with higher levels of symptomology. We discuss theories that link psychiatric disorders to brain mechanisms that assess the dangerousness of the world, and we suggest that religious beliefs can directly affect these brain mechanisms.

Beliefs about Life-After-Death

Belief in an afterlife is widely accepted in the United States. National surveys conducted between 1970 and 1999 have found high levels of belief in life-after-death, with three-quarters of all Americans saying they believe in an afterlife (Greeley & Hout, 1999; Harley & Firebaugh, 1993; Klenow & Bolin, 1989-1990). By taking a closer look at specific beliefs than other studies had done, Greeley and Hout (1999) provide limited but valuable information about the prevalence of various beliefs about life-after-death. They reported that "Nearly all Christians think that union with God, peace and tranquility, and reunion with relatives are very likely or likely to await them in the afterlife" (p. 833). In contrast, very few people endorsed the belief that life-after-death would be "a paradise of pleasures and delights" or "a pale shadowy form of life, hardly life at all." Overall, they found that "Jews rank most of the images the same way Christians do" (p. 833).

How did these and other beliefs about life-after-death arise? In ancient history, afterlife beliefs were most prominent in the Egyptian civilization, but peoples in surrounding areas held various views about life-after-death (Segal, 2004).

Jewish Afterlife Beliefs. The Hebrew Bible says very little about the fate of individuals when they die (Lamm, 1988; Raphael, 1996; Segal, 2004), but the Israelites shared the Babylonian belief that the dead went to dwell in an underground "land of no return," where they lead a shadowy kind of existence. The Bible calls this place Sheol, and refers to

it as "the pit," and "the land of darkness," among other things (Raphael, 1996; Sonsino & Syme, 1990). The concept of resurrections first appears in the writings of Ezekiel in the 6th century, B.C.E. (Raphael, 1996; Sonsino & Syme, 1990). By the 2nd century B.C.E., the widely held view of resurrection in the Jewish faith was that the dead will be united with their bodies at the "end-of-time" to live in a divine kingdom on earth, or "world to come" (Raphael, 1996; Sonsino & Syme, 1990). Some Jewish writings around this time redefined the conception of Sheol from being a neutral place for all the dead to a place for the wicked. Other Jewish writings, called the Apocrypha, extensively described heaven and hell, but they were not included or canonized in the Hebrew Bible (Raphael, 1996), so they had relatively little influence on Jewish belief in the afterlife.

Christian Afterlife Beliefs. The early concepts of heaven and hell depicted in the Apocrypha evolved over time in the Christian tradition. One of those concepts was that heaven was an incredibly pleasant and beautiful paradise (Raphael, 1996), which was reserved for the righteous. The wicked, on the other hand were destined for hell. Although various images of heaven and hell emerged during the Middle Ages, the central theme remained that heaven was a place of eternal reward for the faithful and hell was a place of eternal punishment of sinners (Johnson & McGee, 1998; Obayashi, 1992). Beyond that, however, going to heaven meant to be in God's presence and to be reunited with loved one's who had died (Johnson & McGee, 1998; Obayashi, 1992). Even though current Christian denominations have somewhat different conceptions of heaven, there is a general consensus that it is a place of peace and happiness in the communion with God (Johnson & McGee, 1998).

Islamic Afterlife Beliefs. The day of resurrection and judgment by God is a major theme of the Qur'ān or Koran (Smith & Haddad, 2002). Although the Qur'ān describes two phases of judgment—the first of which occurs immediately after death—the final judgment is considered to be the most important phase. At the final judgment the body will be resurrected and reunited with its soul and every person will be held accountable for how they lived. The good will enter the Garden and the bad will enter the Fire for all eternity (Chittick, 1992; Smith & Haddad, 2002). The Garden is the general term for paradise, where the faithful will be rewarded with the image of God, peace, and physical rewards and pleasures (Smith & Haddad, 2002). Some Islamic traditions teach that families will be re-united in the Garden, but this is not mentioned in the Qur'ān. Historically, some Islamic sects believed in re-incarnation, but this has never been a widely held belief in Islam (Smith & Haddad, 2002).

Hindu and Buddhist Beliefs. Hinduism encompasses a diverse collection of beliefs, not all of which are ascribed to by those who endorse being Hindu. Indeed, there are even non-theistic and theistic forms of Hinduism, the former dating back to 1500 B.C.E., while the latter emerged around the second century B.C.E. (Hopkins, 1992). The concept of re-incarnation, or transmigration—as part of the cycle of life, birth, death and rebirth—emerged around 800 B.C.E., and became the central element of Hinduism (Hopkins, 1992; Pearson, 1998). The goal of humankind in Hinduism is to escape the cycle of life (samasāra) and the suffering which it entails. Like Hinduism, Buddhism seeks liberation from the cycle of life and the pain and suffering that goes with it (Klein, 1998; Reynolds, 1992). Certain Buddhist lineages also teach that one's own actions in this life dictate one's circumstances in the next life. This is achieved by restraining from fueling the desires that contribute to cycle of birth, death and rebirth. Though few humans achieve freedom from the cycle of life and death, and end their worldly existence, all are capable of doing so.

Present Study

The present study was designed to examine the association between specific beliefs in life-after-death and psychiatric symptomology in the general population. We hypothesized: (1) that pleasant beliefs about life-after-death would be associated with lower levels of psychiatric symptomology, and (2) that unpleasant beliefs about life-after-death would be associated with higher levels of psychiatric symptomology.

We tested five pleasant beliefs about the afterlife, including three which are widely accepted in the United States (union with God; peace and tranquility; and reunion with loved ones) according to the General Social Survey (GSS), one which is not widely accepted ("a paradise of pleasures and delights"), and one which is not included in the GSS. The last one is the belief that life-after-death is a world of eternal reward or punishment, which is deeply rooted in both Christianity and Islam (Johnson &

McGee, 1998; Obayashi, 1992). This belief in the afterlife was hypothesized to be negatively associated with psychiatric symptomology because it was assumed that most people would think of themselves as good people and would expect to be rewarded in the afterlife.

Two unpleasant beliefs about life-after-death were also tested. The first was that life-after-death is "a pale shadowy form of life, hardly life at all." This was hypothesized to be positively associated with psychiatric symptomology, since one would not expect such a belief to provide meaning or solace. The second unpleasant belief we tested was that individuals are reincarnated into another form. Even those religions that believe in reincarnation do not view it as being desirable, and this is particularly so if a person is to be reincarnated into another form of life.

METHODS

Procedure

The data for this study were taken from the *Spirituality and Health* 2004 National Study of Religion and Health. The survey questionnaire, which was developed by *Spirituality & Health* magazine and the Research Department of The HealthCare Chaplaincy was placed on a website maintained by Equation Research, a market research firm.

The sample was recruited from a sampling frame (or panel) of 2.6 million individuals throughout the United States compiled by Survey Sampling International (SSI). Panel participants are solicited by banner ads and other on-line recruitment methods at thousands of web-sites, and they receive incentives and small monetary rewards for serving on the panel. The composition of the panel closely reflects the U.S. Census data on gender, race, age, income and state of residence, which helps to assure its representativeness.

The email addresses of a randomly selected sample of 8,500 U.S. adults was purchased from SSI and sent an email inviting them to complete a web-based survey. A total of 1,895 individuals from all 50 states and Washington D.C. completed the survey. This represents a 22% response rate, which is consistent with previous research using a web-based survey and single email solicitation (Kaplowitz, Hadlock, & Levine, 2004; Porter & Whitcomb, 2003; Yun & Trumbo, 2000). Due to missing demographic information, 266 surveys were excluded. The final sample size was further restricted because of missing data on other variables.

Measures

Control Variables. The control variables included six demographic variables, two measures of religious activity and a composite measure of social support. The six demographic variables were age, gender, education, race, income and marital status. Gender, race and marital status were dummy coded, respectively, as 1 = female, 0 = male; 1 = white, 0 = nonwhite; and 1 = married, 0 = not married. Education was measured on an 8-point scale, ranging from "some high school or less" to "doctoral degree." Income was also rated on a scale of 1 through 8, ranging from "under $25,000" to "$200,000 or more." All response categories were labeled.

Institutional religious activity was measured by participants' response' to the question "How often do you attend religious services?" Private religious activity was measured by the question "How often do you pray?" Each question had the same eight response categories, ranging from 0 (*never*) through 7 (*every day)*.

Social support was measured by six items adapted from Zimet, Dahlem, Zimet and Farley (1988). Each of the six items was measured on a 4-point scale, which were summed to form a single score. The Cronbach alpha (α for the scale was .83.

Life-After-Death Beliefs. Participants were asked about seven afterlife beliefs: five pleasant and two unpleasant beliefs. The root for all the items was: "Please rate your belief in the likelihood that life-after-death is." The five pleasant beliefs were: (1) "union with God;" (2) "reunion with loved ones;" (3) "a life of peace and tranquility;" (4) "a paradise of pleasures and delights," and (5) "a life of eternal reward or eternal punishment." As noted above, we considered the last item to be a pleasant afterlife belief because most people probably think of themselves as good people and expect to be rewarded in the afterlife. The two unpleasant beliefs were that life-after-death was (1) "a pale shadowy form of life, hardly life at all;" and (2) "reincarnation into another life form." The response categories for all the items ranged from 0 (*not very likely*) to 4 (*very likely*).

Mental Health Variables. Six subscales of the Symptom Assessment-45 (SA-45) Questionnaire that measure specific diagnostic categories served as dependent variables (Davison et al., 1997; Sitarenios, Rayes, & Morrison, 2000). The SA-45 was developed from the well established SCL-90 (Derogatis & Clearly, 1997; Derogatis, Rickels, & Rock, 1976).

The six SA-45 subscales used in the study were anxiety, depression, obsessive-compulsion, paranoid ideation, phobia anxiety, and somatization. Each subscale included five symptoms, with symptom severity measured on a 4-point scale, in response to the question "How much has this problem bothered you or distressed you in the last seven days?"

The paranoid subscale (α = .80) measures distrust of others, blaming others for one's troubles or stealing credit for one's accomplishments, and being talked about and watched by others. The phobic anxiety subscale (α = .85) captures elements of social phobia and agoraphobia–fear of leaving home, crowded, open, or specific places, or public transportation– so we henceforth refer to it as social phobia. The anxiety subscale (α = .84) measures symptoms related to fearfulness, panic, tension, and restlessness. The depression subscale (α = .88) includes items about recent experiences of feeling lonely, hopeless, worthless and loss of interest in things. The obsessive-compulsive subscale (α = .83) measures problems in concentrating or making decisions, checking to ensure things are done properly or done correctly, and problems with one's mind "going blank." Finally, the somatization scale (α= .81) included items related to vague physical symptoms such as hot or cold spells, numbness, soreness, tingling, and heaviness in the body.

The data were analyzed by ordinary least square (OLS) multiple regression (Cohen & Cohen, 1975) Regression models were tested for each of the seven afterlife beliefs on each of the of the six psychiatric symptom groups. Each model included all of the demographic variables (age, gender, race, income, education, and marital status), social support, and frequency of prayer and religious attendance as control variables. The data set was adjusted for age, income, and race by weighting each participant to further match the 2000 U.S. Census. Because of missing values, the sample size used in the statistical analyses was 1432.

Results

Table 1 gives the means and standard deviations for the seven afterlife beliefs and their inter-correlations. More than half of the participants believed it was "very likely" that life-after-death was union with God, a life of peace and tranquility, and/or reunion with loved ones, with the mean scores being just above "somewhat likely" (scored as = 3). Around 30% believed life-after-death was "very likely" to be a paradise of pleasures and delights or a life of eternal reward or punishment. About 9% believed reincarnation was "very likely," and 1% believed it was "very likely" the afterlife would be a pale, shadowy form of life, hardly life at all.

As seen in Table 1, the correlations among the pleasant afterlife beliefs ranged from .46 to .74. Most of the correlations between the pleasant and unpleasant afterlife beliefs were negative and statistically significant.

Regression analysis showed that age (ß's = -.178 to -.341) and income (ß's = -.077 to -.144) were inversely and significantly related to symptom level in all psychiatry disorders except somatization, and that social support (ß's = -.098 to -.282) was inversely and significantly related to symptom level in all the disorders, including somatization. Frequency of prayer (ß's = 098 to .178) was directly and significant related to symptom levels in all six disorders. No other control variables showed a consistent pattern of relationships with symptomology.

Table 2 shows the estimated net effects of each afterlife belief on each of the six psychiatric clusters examined in the study, as represented by the standardized beta (ß) values for each of the variables in the models. All the pleasant and unpleasant beliefs about the afterlife showed the predicted directions of associations with psychiatric symptomology. The five pleasant afterlife beliefs all were inversely related to level of symptomology and the two unpleasant afterlife beliefs were directly related to symptomology.

Among the pleasant beliefs, Union with God showed the strongest and most consistent relationship with better mental health, having a significant negative association with five of the six classes of symptomology. The beliefs that one would find paradise or peace and tranquility in the afterlife both had significant negative associations with four of the six dependent variables. The belief that life-after-death would be a place of eternal punishment of eternal reward showed a significant negative association only with anxiety.

As already mentioned, both of the unpleasant beliefs about the afterlife were significantly associated with higher levels of psychopathology. However, the association was more pronounced for reincarnation, which was significantly related to all six classes of symptoms.

Table 1
Means, Standard Deviations and Intercorrelations of the Seven Beliefs about Life-After-Death

Afterlife Beliefs	*Mean*	*SD*	1	2	3	4	5	6
1. Union with God	3.08	1.26						
2. Peace and Tranquility	3.09	1.18	.742***					
3. Reunion with Loved Ones	3.05	1.21	.688***	.745***				
4. Paradise	2.39	1.40	.525***	.569***	.526***			
5. Eternal Reward/Punishment	2.40	1.48	.555***	.534***	.462***	.515***		
6. Reincarnation	1.48	1.39	-.079**	-.052*	.050	-.027	-.187**	
7. A Pale, Shadowy Life	0.85	1.05	-.141**	-.139**	-.126**	-.065*	-.075**	.355**

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 2
Net Effects (Standardized Beta's) of Different Afterlife Beliefs on the Symptoms of Six Psychiatric Disorders

Afterlife Beliefs	Anxiety	Social Phobia	Paranoia	Obsession Compulsion	Depression	Somatization
Union with God	-.120**	-.139***	-.086**	-.118**	-.070**	-.042
Peace and Tranquility	-.156***	-.180***	-.111**	-.057	-.076*	-.032
Reunion with Loved Ones	-.103**	-.144***	-.075**	-.040	-.002	-.022
Paradise	-.092***	-.085**	-.058*	-.074**	-.034	-.019
Eternal Reward/Punishment	-.075**	-.035	-.004	-.056	-.005	-.037
Reincarnation	.108***	.060*	.111***	.118***	.100***	.190***
A Pale, Shadowy Life	.106***	.110***	.086***	.065*	.067**	.028

* $p < .05$ ** $p < .01$ *** $p < .001$

Discussion

The present study is unique in the field of religion and health for at least two reasons. First, it examines the associations between specific beliefs about life-after-death and psychopathology, which no other study has done. Only a few studies have examined the relationship between belief in life-after-death and mental health, and most of those have looked only at belief in an afterlife, per se, in relation to general psychological well-being. Second, it compares the differential associations between pleasant and unpleasant afterlife beliefs on specific classes of psychiatric symptomology.

All seven beliefs about life-after-death were found to have a statistically significant relationship with symptomology in a least one of the six disorders. More importantly, the degree of association was always in the predicted direction for the pleasant and the unpleasant afterlife beliefs.

Assuming that the overall association between better mental health and pleasant afterlife beliefs reflects the influence of beliefs upon mental health (and not the influence of mental health on beliefs) the observed results may be attributable to a number of related factors. For example, belief in life-after-death may put one's experiences in a broader context in which one's current life is only a small part of things to come. This, in turn, may make common problems and even major traumas seem merely transitory. Naturally, belief in life after-death has been found to decrease one's anxiety about death, which may also help to reduce other symptomology (Harding, Flannelly, Weaver, & Costa, 2005).

Some authors have suggested that religion arose as means of providing a sense of security to early humans living in a dangerous world (Radin, 1957; Thouless, 1971). Presumably pleasant beliefs about life-after-death provide this sense of security because they assure individuals that life goes on after death and, moreover, that it is a better life. Given this perspective, it is notable that six of the seven afterlife beliefs we tested were most consistently and strongly associated with anxieties and fears (e.g., Anxiety, Social Phobia and Paranoia). Obsessive Compulsive Disorder, which is also an anxiety disorder, had a significant negative relationship with two of the pleasant afterlife beliefs and a significant positive relationship with both of the unpleasant afterlife beliefs.

As already mentioned, unpleasant beliefs about life-after-death were strongly associated with poorer mental health. It should not be surprising, that a pale, shadowy form of life that is hardly life at all would not allay one's concerns about life-after-death. And to the degree that people have fears and anxieties about life one would not want to be born into it again, especially in some other life form. Indeed, the results demonstrate that such beliefs about life-after-death are associated with greater symptomology.

Since no specific predictions were made about the various pleasant beliefs, interpreting the differences in outcomes among them is purely ad hoc exercise. But these interpretations may be useful for developing hypotheses for future research.

Though all pleasant afterlife beliefs had salubrious associations with symptomology in one or more disorders, only union with God was significantly related to lower symptomology in all six disorders. This belief stands out from the other afterlife beliefs we examined in that it combines belief in life-after-death with belief in God. While one might expect a strong relationship between these two beliefs, this relationship is only explicit in this one item. As such, belief in God and belief in life-after-death may have cumulative effects which help account for the scope and strength of the observed associations.

Belief in God may be particularly important for enhancing once sense of security and well-being, especially if you think God looks after you. For that reason, beliefs about God may have a stronger association with mental health.

Believing the afterlife is a paradise of pleasures and delights or a place of peace and tranquility implies one will find a better and presumably safer world in the next life. This may help quell anxiety and fears, although a peaceful and tranquil afterlife appears to have a greater salubrious effect. Reunion with loved ones may have less influence on one's sense of security, since it does not say anything about safety per se. It is notable that reunion with loved ones was unrelated to depression, despite the fact that depression is often triggered by the death of loved ones (Catalano, 2005; Clayton, 1990; Cole & Dendukuri, 2003).

It is interesting that general anxiety was the only disorder that was associated with the belief that the next life would be one of eternal reward or eternal punishment. Freud (1920) thought general anxiety was a reaction to a potential source of threat of harm which was undifferentiated or ill-defined, whereas fear was a reaction to a specific object. This view is still held today, in that anxiety is said to be to be a response to possible future events or danger, whereas fear is a response to present and imminent danger (Barlow, 2000). Since most people probably expect to be rewarded by, than punished by God, this finding suggests that this belief may reduce concerns and fears about the future to some extent.

Although we have interpreted the findings, up to this point, as evidence for the influence of beliefs on psychiatric symptoms, it is quite possible that psychopathology influences beliefs about the afterlife. And, of course, the fact that the associations are in the predicted direction does not speak to the question of causality. It is quite plausible that people who have higher levels of psychiatric symptoms have a more pessimistic view of life-after-death. Thus, depressed or anxious individuals may give less credence to pleasant images and more credence to unpleasant images of life-after-death than other people do. So, their beliefs about the afterlife could be the result, not the cause of their psychiatric symptoms. For example, Seligman's cognitive models of mental health emphasized that one's current affect and thoughts can have a profound influence on views of the future (Seligman, 1975, 1998). This research has shown that depression frequently leads to future thoughts of helplessness, whereas a sense of optimism can lead to feelings of future hopefulness. Such general attitudes and feelings might easily become incorporated into one's beliefs about life-after-death or other beliefs about the world. Since the data for this study present a cross-sectional account, the current design does not allow for us to ascertain the direction of influence.

Nevertheless, our findings are generally consistent with cognitive theories of psychopathology,

whose central tenet is that beliefs can cause and moderate psychopathology (Beck, Emery & Greenberg, 1985; Gilbert, 1984; Newman, Leahy, Beck, Reilly-Harrington, & Gyulai, 2002a). Such beliefs can be very personal—"I can do no wrong."(Newman, Leahy, Beck, Reilly-Harrington, & Gyulai, 2002b, p. 54), or very general—"It is always best to assume the worst," (Beck et al., 1985, p. 63). Most often they are situational—"Any strange situation should be regarded as dangerous," (Beck et al., 1985, p. 63). As Clark (1999, p. S5) puts it: "Cognitive theorists propose that [psychiatric] disorders result from distorted beliefs about the dangerousness of certain situations."

Whatever the rates of clinical disorders in the general population, lower levels of psychiatric symptoms are likely to be common given Gilbert's view about the widespread need to assess potential threats of danger. In Gilbert's (2002, p. 275) words: "humans, like other animals, have to make one essential judgment about nearly all situations, … the degree to which they indicate a threat or are safe." Our results suggest that certain religious beliefs may moderate the range of psychiatric symptoms arising from such everyday concerns.

Theory and practice in cognitive psychotherapy draw heavily on evolutionary concepts that help to explain the functional and dysfunctional nature of psychiatric symptoms (e.g., Hofmann, Moscovitch, & Heinrichs, 2002; Leahy, 2002; Price, Gardner, & Erickson, 2004). Gilbert's theoretical work in this area has been particularly influential (e.g., Gilbert, 1995, 1998a, 2001b; Gilbert, 2006). The distorted beliefs to which Clark (1999) refers are thought to arise, in part, from conflicts between the threat assessments made by different parts of the brain (Gilbert, 1998b, 2002). We recently published a theoretical model (Flannelly, Koenig, Galek, & Ellison, 2007) that takes Gilbert's ideas and related theories a step further by proposing: (1) what specific brain structures are involved in threat assessments; (2) how beliefs interact with emotional and innate reactions to threats; and (3) how threat assessment are directly linked to psychiatric symptomology.

The model complements cognitive theories of psychopathology in recognizing that the potential influence of cognitive input (such as beliefs) may vary among different classes of psychiatric symptoms. Indeed, the observed variation in the strength of the associations among the seven beliefs and the six classes of symptoms in the present study may be partly due to differences in the degree to which cognitions play a role in each disorder. For instance, theories about social phobia and paranoia clearly state that the threat assessments are based on cognitive processes (Gilbert, 2001a; Schlager, 1995), so we would expect a strong association between beliefs and paranoid idea and social anxiety, like that we observed. At the other extreme, some theories suggest that the factors that trigger somatization do not involve cognition (Dantze, 2005), so beliefs should have little or no association with somatic symptoms. However, the fact that somatization was associated with reincarnation suggests that it may have some cognitive component.

A better understanding of the role of beliefs in threat assessment and psychiatric symptomology will require symptom measures that better distinguish between the symptom clusters that are hypothesized to have high and low cognitive involvement. A couple of useful comparisons come to mind, if adequate measures are selected. Social phobia, which is thought to have a major cognitive component, could be compared to specific phobias, which are believed to have little or no cognitive involvement (Mineka & Ohman, 2002; Ohman & Mineka, 2001). Obsessive compulsive disorder might be an ideal case to assess differential cognitive involvement to the degree that some obsessive thoughts and compulsive acts are clinically distinct. It would also be valuable to examine religious beliefs that may be more directly related to concerns about the dangerousness of the world, including beliefs about God, evil, and guardian angels. Further research in this area could help to form the basis for establishing a plausible biological mechanism through which beliefs can directly affect psychiatric symptoms.

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