

Belief in Spiritual Beings Scale (BSBS): Development and Initial Validation

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Abstract: Although belief in spiritual beings can be considered the main characteristic of religiosity/spirituality, a scale focused on specifically assessing this construct while remaining pertinent to people of different religious/spiritual denominations—including atheists and agnostics—is not available. In two studies, we present the process of developing the Belief in Spiritual Beings Scale (BSBS) and identify its psychometric properties. Study 1 designed 24 items, which were subsequently evaluated by a panel of judges and 24 representatives of the target population. In study 2, 1788 Brazilians of different religious/spiritual denominations answered the BSBS and five other related scales. Exploratory factor analysis found a unidimensional solution for the data, with the final version of the scale consisting of 13 items. The BSBS score correlated positively—highly or moderately—with measurements of organizational religious activity, non-organizational religious activity, intrinsic religiosity, and Western and Eastern religious beliefs. The level of belief/disbelief in spiritual beings was different among contrasting groups (i.e., religious spiritualists, non-religious spiritualists, gnostic non-spiritualists or atheists, and agnostic non-spiritualists or agnostics), and incrementally predicted almost all the participants' spiritual denominations. Given this preliminary evidence of validity, the BSBS is an interesting instrument for studies aiming to measure the general level of belief/disbelief in spiritual beings—the “soul” of religiosity/spirituality.

Keywords: Belief in Spiritual Beings Scale, Beliefs, Measurement, Scale Validation, Spirituality.

Escala de Crença em Seres Espirituais (ECSE): Desenvolvimento e Validação Inicial

Resumo: A crença em seres espirituais pode ser considerada a principal característica da religiosidade/espiritualidade. Contudo, parece não haver nenhuma escala que avalie especificamente esse construto e que seja pertinente para pessoas de diferentes denominações religiosas/espirituais – incluindo ateus e agnósticos. Em dois estudos, apresentamos os procedimentos de desenvolvimento da Escala de Crença em Seres Espirituais (ECSE) e a identificação de suas propriedades psicométricas. No estudo 1, 24 itens foram elaborados e posteriormente avaliados por um painel de juízes e 24 representantes da população-alvo. No estudo 2, 1.788 brasileiros de diferentes denominações religiosas/espirituais responderam à ECSE e a cinco outras escalas relacionadas. A análise fatorial exploratória encontrou uma solução unidimensional para os dados, e a versão final da escala apresenta 13 itens. O escore da ECSE correlacionou-se positivamente – de forma alta ou moderada – com as medidas de atividade religiosa organizacional, atividade religiosa não organizacional, religiosidade intrínseca e crenças religiosas ocidentais e orientais. Além disso, o nível de crença/descrença em seres espirituais foi distinto entre grupos contrastantes – i.e., espiritualistas religiosos, espiritualistas não religiosos, não espiritualistas gnósticos (ateus) e não espiritualistas agnósticos (agnósticos) – e predisse, incrementalmente, quase todas as denominações espirituais dos participantes. Em vista dessas evidências preliminares de validade, a ECSE é uma opção interessante para estudos que visam mensurar o nível geral de crença/descrença em seres espirituais – a “alma” da religiosidade/espiritualidade.

Palavras-chave: Crenças, Escala de Crença em Seres Espirituais, Espiritualidade, Medida, Validação de Escala.

Escala de Creencias en Seres Espirituales (ECSE): Desarrollo y validación inicial

Resumen: La creencia en seres espirituales puede considerarse la principal característica de la religiosidad/espiritualidad. Sin embargo, parece no haber una escala que evalúe específicamente este constructo y sea relevante para personas de diferentes denominaciones religiosas/espirituales—incluyendo los ateos y agnósticos. En dos estudios presentamos los procedimientos para desarrollar la Escala de Creencia en Seres Espirituales (ECSE) y la identificación de sus propiedades psicométricas. En el estudio 1, 24 ítems fueron elaborados y posteriormente evaluados por un panel de jueces y 24 representantes de la población objetivo. En el estudio 2, 1788 brasileños de diferentes denominaciones religiosas/espirituales respondieron a ECSE y otras cinco escalas relacionadas. El análisis factorial exploratorio se encontró una solución unidimensional para los datos, y la versión final de la escala presenta 13 ítems. La puntuación ECSE se correlacionó positivamente de forma alta o moderada con medidas de actividad religiosa organizacional, actividad religiosa no organizacional, religiosidad intrínseca y creencias religiosas occidentales y orientales. Además, el nivel de creencia/incredulidad en seres espirituales se distinguió entre grupos contrapuestos (i.e., espiritualistas religiosos, espiritualistas no religiosos, no espiritualistas gnósticos, o ateos, y no espiritualistas agnósticos, o agnósticos), y se predijo, de forma incremental, casi todas las denominaciones espirituales de los participantes. En vista de esta evidencia preliminar de validez, ECSE es una opción interesante para estudios que pretenden medir el nivel general de creencia/incredulidad en seres espirituales—el “alma” de la religiosidad/espiritualidad.

Palabras clave: Creencias, Escala de Creencia en Seres Espirituales, espiritualidad, Medida, Validación de Escala.

Introduction

For some authors, belief in spiritual beings (e.g., God, angels and souls) can be considered the main characteristic of religions (Atran & Norenzayan, 2004; Barrett, 2004; Dennett, 2006) and of religiosity/spirituality (Caldwell-Harris, Wilson, LoTempio, & Beit-Hallahmi, 2011; Lindeman, Blomqvist, & Takada, 2012). However, instruments that measure this kind of belief are relatively scarce. Overall, the existing scales are designed to assess only the belief in God, such as *Degrees of Belief in God Scale* (Maiello, 2005); belief in spiritual beings mixed with other types of belief or religious/spiritual components, for example *Supernatural Belief Scale* (Jong, Bluemke, & Halberstadt, 2013) and *Beliefs and Values Scale* (King et al., 2006), respectively; and belief in spiritual beings typical of a given religion, such as *Christian Orthodoxy Scale* (Fullerton & Hunsberger, 1982). Nonetheless, to our knowledge, the current literature lacks a scale that specifically measures the level of belief/disbelief in spiritual beings while remaining pertinent to people of different religious/spiritual

denominations—including atheists and agnostics. Considering the growing scientific interest in understanding spirituality/religiosity (Oman, 2013), having a scale that evaluates the “soul” of this construct—or, at least, one of its most relevant components—is paramount (Zinnbauer et al., 1997). Such an instrument would be useful for researchers interested in investigating why we become believers or nonbelievers (Norenzayan & Gervais, 2013; Pennycook, Ross, Koehler, & Fugelsang, 2016), as well as the consequences of spiritual/religious beliefs (or disbelief) for mental health (Galen & Kloet, 2011; Moore & Leach, 2016). Thus, this article presents the development and initial validation for the Belief in Spiritual Beings Scale.

To believe or not to believe: conceptual issues

Traditionally, the term “belief” is defined as the attitude of accepting a proposition as true (Schwitzgebel, 2015). Some scholars, such as Hume (1739/2009), use the term “idea” instead of “proposition,” but the

meaning of “attitude” is far from clear or consensual (Cromby, 2012). For our purposes, it is sufficient to define the expression “spiritual belief” as acting as if a spiritual idea were true.¹ Spiritual ideas are imaginative perceptions (Hume, 1739/2009) related to spiritual beings, which are conceived as incorporeal spirits psychologically similar to us, that is, they see, feel and think (Astuti & Harris, 2008; Shtulman, 2008; Shtulman & Lindeman, 2016). Moreover, it is imagined that such beings interact with the world and with us (Atran & Norenzayan, 2004; Barrett, 2004; Dennett, 2006). To claim “We were made by God,” to be afraid of demons, and to reflect on why a spirit is trying to communicate with us are examples of spiritual beliefs. All of these cases illustrate what it means to act—emotionally, intellectually, and/or behaviorally—as if spiritual ideas were true.

But not everything that is imagined is believed. We may reject or at least doubt the ideas conceived (Asp & Tranel, 2013; Connors & Halligan, 2015; Gilbert, 1991). As such, “spiritual unbelief” can be defined as acting as if a spiritual idea were false, doubtful or undecidable. Examples of such acts involve feeling that a spiritual idea is false, saying “I do not believe God would do this,” or thinking it impossible to find out whether spirits exist. Unbelief or—as we prefer—disbelief, therefore, is not simply the absence of belief (Quine & Ullian, 1978), but rather the presence of some kind of reaction (emotional, intellectual and/or behavioral) to an idea, such as denial, doubt or skepticism.

Several authors have already proposed terms or expressions to classify groups of people according to their patterns of belief, disbelief and/or religious/spiritual activities (Martin, 2006; Whitley, 2010; Zinnbauer & Pargament, 2005). Whitley (2010), for example, recommends using the categories “atheists,” “agnostics,” “religious,” and “spiritual, but not religious”. However, the labels “atheist” and “agnostic” are, by definition, reserved for those who do not believe in God (Martin, 2006). To our knowledge, there is no

set of classifications that refer to more general stances regarding spiritual ideas. Hence, we suggest the categories “religious spiritualists” (RSs), “non-religious spiritualists” (NRSs), “agnostic non-spiritualists” (ANSs) and “gnostic non-spiritualists” (GNSs). Specifically, spiritualists² are those who regularly act as if spiritual beings exist (e.g., “There is a hidden battle between angels and demons”). Unlike NRSs, who are also described as “spiritual, but not religious,” RSs participate in a religion (Zinnbauer et al., 1997). Agnostic non-spiritualists, in turn, describe those who claim to be ignorant or to have a marked doubt about spiritual ideas (e.g., “The existence of God is an unfathomable mystery”). The word “agnostic,” from the Greek *ágnostos*, means “unknown.” GNSs would be those who tend to consider all spiritual ideas as false (e.g., “No spiritual being exists”), as the term “gnostic,” from the Greek *gnose*, means “knowledge.” Like atheists, many GNSs are quite staunch (Lanman, 2009) and defend their disbelief with logical and scientific arguments (Bradley, Exline, Uzdavines, Stauner, & Grubbs, 2018; Caldwell-Harris, Wilson, et al., 2011; Martin, 2006). In this sense, many of them probably act as if they know that spiritual beings do not exist.

In speaking with conviction, belief is a dimensional construct, not a categorical one (Connors & Halligan, 2015). Meaning that between two spiritualists, one may be more believing than the other, that is, they may exhibit different *levels* of spiritual belief. Similarly, non-spiritualists may exhibit different levels of spiritual disbelief. Atheists and agnostics, for example, tend to not believe that God exists, but the former are usually *more* confident of this than the latter (Galen & Kloet, 2011). This illustrates how spiritual disbelief can also be understood as dimensional.

To believe or not to believe: theoretical issues

To explain the origins of spiritual belief and disbelief³, Norenzayan and Gervais (2013) proposed a model consisting of four causal pathways, which involve

¹ In this sense, a belief is not an idea—or information, or a representation—*per se*, but a kind of *relationship* we establish with an idea (Moser, Mulder, & Trout, 2009).

² Comte-Sponville (2011) defines “spiritualism” as “every doctrine that affirms the existence of immaterial thought substances,” or “of spirits irreducible to any body” (p. 209, free translation). Thus, spiritualists would be those who believe that body and soul are substantially distinct things.

³ Norenzayan and Gervais (2013) use the terms “religious beliefs” and “supernatural agents,” but their meanings are similar to that of the expressions “spiritual beliefs” and “spiritual beings,” respectively. Specifically, they define “supernatural agents” as “personified beings with beliefs, desires, and intentions, who use their powers to enter into social relationships with humans, relieve existential anxieties, and monitor their social behavior” (p. 21).

cognitive, motivational, and cultural learning mechanisms. First, spiritual beliefs would be based on some assumptions, such as that other people have minds, and that minds and bodies are substantially different. Such assumptions would aid the development of beliefs in spiritual beings, since they (supposedly) have minds, but not bodies. For example, people who are more skilled and/or prone to attribute mental states to other people (and things) tend to believe more in these beings (Caldwell-Harris, Murphy, Velazquez & McNamara, 2011; Norenzayan, Gervais, & Trzesniewski, 2012; Gray, Jenkins, Heberlein, & Wegner, 2011). Regarding the second pathway, our level of spiritual belief seems to increase under existential crisis, such as when we reflect on our death (Vail III, Arndt, & Abdollahi, 2012), when we survive a natural disaster (Sibley & Bulbulia, 2012), or when we experience lack of control or chaos (Kay, Moscovitch, & Laurin, 2010; Rutjens, Pligt, & Harreveld, 2010). Conversely, in countries considered safer and with better “social welfare,” unbelief reaches higher levels (Rees, 2009; Zuckerman, Galen, & Pasquale, 2016). Third, the authors argue that spiritual beliefs are culturally learned. For example, we tend to develop the same types of religious/spiritual beliefs and practices as our parents (Hayes & Pittelkow, 1993), grandparents (Bengtson, Copen, Putney, & Silverstein, 2009), and friends (Patacchini & Zenou, 2016). In contrast, the less parents participate in a religion, the less their children believe in spiritual beings when they become adults (Lanman & Buhrmester, 2016; Turpin, Andersen, & Lanman, 2019). As for the fourth pathway, for spiritual beliefs to be maintained, their underlying assumptions cannot be analytically revised or rejected. Curiously, even when subjected to non-religious/non-spiritual tasks, religious people tend to give more intuitive responses than analytic ones (Pennycook et al., 2016). Thus, people with a more intuitive cognitive style tend to endorse spiritual ideas more, whereas those with a more analytical cognitive style tend to endorse them less.

We may also add a complementary pathway to Norenzayan and Gervais’ (2013) model. Some theories (Asp & Tranel, 2013; Connors & Halligan, 2015; Gilbert, 1991; Quine & Ullian, 1978) argue that to believe or not to believe in an idea depends on whether this idea is coherent or incoherent to our previous repertoire of beliefs. For example, those who believe that body and mind are substantially distinct are

more susceptible to also believe in God (Willard & Norenzayan, 2013). Here, the idea that the mind is independent from the bodies is coherent, compatible with the idea that God—an incorporeal being who possess a mind—exists. Conversely, many atheists claim that their disbelief in God stems mainly from scientific, logical reasons (Bradley et al., 2018; Caldwell-Harris, Wilson, et al., 2011). They are more likely, for example, to agree with statements such as “[There are] scientific reasons for not believing in God,” “The idea of God is full of contradictions,” and “The events of history are inconsistent with the existence of God” (Bradley et al., 2018). In this regard, atheism would partially arise from beliefs incompatible with theism—such as the belief that human beings evolved by natural selection (Dawkins, 2007). Although this “coherentist/incoherentist” process may be intimately related to the intuitive and analytical cognitive styles (Connors & Halligan, 2015; Pennycook, Tranel, Warner, & Asp, 2017), further research is needed to test the nature of this relationship.

Importantly, the aforementioned pathways are probably not implemented “in isolation,” but in interaction with each other. As Norenzayan and Gervais (2013, p. 21) point out, “religious beliefs and behaviors arise from multiple interacting sources and therefore reflect an over-determined complex of tendencies,” and “the same pathways that encourage religious beliefs, if altered or disrupted, yield disbelief instead.”

The present studies

This paper presents the initial stages of development and the evidence of validity for the Belief in Spiritual Beings Scale (BSBS). In Study 1, we developed 24 items based on a literature review (e.g., philosophy and religion dictionaries, articles, and books) and interviews with representatives of the target population (e.g., Christians, agnostics, and atheists). Subsequently, the content of said items were evaluated by specialists and by some of the participants interviewed to assess the validity of the BSBS. We expected the content of the scale to be satisfactorily intelligible, theoretically relevant and pertinent to people of different religious/spiritual denominations, including non-spiritualists. In Study 2, 1788 people from different religious/spiritual denominations answered the BSBS and other theoretically related scales. Here, we expected BSBS to present

a unidimensional solution; that its score would correlate moderately or highly with those of theoretically related scales; that we would detect differences in scores among people from different spiritual denominations; and that, considering the participants' level of religiosity and religious beliefs, these denominations would be predicted by the scale score.

Study 1: Development and content validation of the Belief in Spiritual Beings scale

Method

Participants

A total of 28 people participated in the content evaluation process, of which 24 were representatives of the target population and 4 specialists, who constituted a panel of judges. Participant selection was performed by convenience. The representatives identified themselves as atheists ($n = 4$), agnostics ($n = 4$), Catholic Christians ($n = 4$), Evangelical/Protestant Christians ($n = 4$), Spiritists ($n = 4$), and other religious/spiritual denominations ($n = 4$). The three religious groups specified represent the most prevalent denominations in Brazil (Instituto Brasileiro de Geografia e Estatística [IBGE], 2010). Each group consisted of at least one individual with primary, secondary, tertiary education, and one individual considered an "authority" in their own religious/spiritual denomination. The authorities representing the groups of atheists, agnostics, Catholic Christians, Evangelical/Protestant Christians, and Spiritists were, in order, the editor in chief of a magazine on atheism, a philosopher with experience in epistemology, a priest, a pastor, and a medium. In turn, the "other religious/spiritual denominations" group consisted of an Umbandist, a Buddhist, a panpsychist, and a spiritualist, all of them with at least secondary education. This group was formed to increase the religious/spiritual diversity of the study sample.

The panel of judges consisted of a psychologist expert in psychometrics, a psychologist expert in religious behavior, a psychologist expert in atheism,

and a philosopher expert in philosophy of religion. All of them were master's or PhD holders.

Procedures

To create the instructions and items for the BSBS, we collected information by consulting dictionaries, articles and books on "religiosity/spirituality" and "religion." We sought to identify the main characteristics/attributes of the spiritual beings in which certain religious individuals (e.g., Christians and Spiritists) might believe. Moreover, when interviewed, the representatives of the target population 1) described what they understood by the terms "soul (or spirit)," "angels," "demons," "God," "saints," and "Satan"; 2) assessed if the expression "spiritual beings" adequately defined these beings (response options ranged from "1 – Very good" to "5 – Very bad"); and 3) suggested any familiar expression more appropriate than "spiritual beings."⁴ Eight of the 24 participants (~33%) considered the expression "spiritual beings" as a very good description; seven (~29%) considered the expression good; seven (~29%) neither good nor bad; one (~4%) bad; and one (~4%) very bad. Five participants claimed to know a better expression than "spiritual beings," namely: "cosmos," "spirits," "beings," "metaphysical entities," and "supernatural beings." As the term "supernatural" is used by some studies in the literature (Jong et al., 2013; Lindeman et al., 2012; Norenzayan & Gervais, 2013), in a second moment, we asked the representatives to evaluate the expressions "spiritual beings" and "supernatural beings." The first expression was better evaluated than the second (e.g., 45.8% "very good" or "good" ratings vs. 29.1% "very good" or "good" ratings, respectively). Therefore, we maintained the expression "spiritual beings."

With the information obtained by literature research and interviews, we formulated 24 items for the BSBS (first version). As Jong et al. (2013), we sought to balance the content of these items with "positive," "negative," and "neutral" propositions. Positive propositions ($n = 8$) represent ideas of beneficial relationships between spiritual beings and humans (e.g., "Some spiritual beings try to help us"); negative propositions ($n = 8$) represent ideas of malefic relationships

⁴As the Brazilian population is predominantly composed of Catholic Christians (IBGE, 2010), we expected that using more popular terms attributed to spiritual beings would facilitate information collection for creating the items. However, the scale items were written with the generic expressions "spiritual being" and "spiritual beings," and not, for example, with the terms "Satan" and "saints."

between spiritual beings and humans (e.g., “Some spiritual beings torment us”); and neutral propositions ($n = 8$) represent ideas of relationships or events between spiritual beings and the world that are explicitly neither beneficial nor malefic to human beings (e.g., “A spiritual being rules the world”). While half of the positive and negative propositions were composed by an indefinite subject (e.g., “We are loved by *a* powerful spiritual being”), the other half were composed by indefinite subjects (e.g., “We are harmed by *some* spiritual beings”). Half of the neutral propositions pointed to an indefinite subject representing a popular notion of God (e.g., “A spiritual being created the world”), whereas the other half used an indefinite subject representing a popular notion of soul (e.g., “We think with our spirit”). The items included five types of spiritual beings which are, in Brazil, popularly called “God” ($n = 10$), “angels” or “saints” ($n = 4$), “Satan” ($n = 2$), “demons” ($n = 4$) and “soul” ($n = 4$).

The BSBS (first version) was then evaluated for language clarity (intelligibility), theoretical relevance (importance to evaluate the construct), and practical pertinence (regarding the target population) by the panel of judges (Hernández-Nieto, 2002). For each of its three features, response options ranged from “1 – Very little” to “5 – Very much,” and the judges could write criticisms and/or suggestions for modification next to each item. Using the aforementioned response options, they evaluated the scale instructions based on their intelligibility. They were requested to return the responses within two weeks. Items presenting significant problems were revised and subsequently reassessed (cf. *Data analysis*). Subsequently, we sent the modified BSBS to the representatives of the target population for intelligibility evaluation of its items, following the same evaluation process as the judges.

All these proceedings were carried out via e-mail. Both Study 1 and Study 2 make up a larger research project (CAAE: 62341416.0.1001.5582), which was approved by the Ethics Committee of the Federal University of Rio de Janeiro (report number: 1.871.108).

Data analysis

Evidence of scale content validity was analyzed following the guidelines proposed by Hernández-Nieto (2002). Based on the judges’ and representatives’ evaluations, we calculated some coefficients of content validity (CCVs) for each item. CCV is defined as the “*relative proportion, in relation to the maximum value of the measuring scale, of the*

average score among the judges for each of the items” (p. 184, author’s highlight). Probability of measurement error is also considered when calculating CCV. We calculated three kinds of CCV for each item: one for language clarity (CCV-LC), one for theoretical relevance (CCV-TR), and one for practical pertinence (CCV-PP). Hernández-Nieto (2002) recommends excluding items that obtain CCV values lower than 0.8, whereas other authors suggest relativizing this cutoff point when the judges’ formation is heterogeneous (Cassepp-Borges, Balbinotti, & Teodoro, 2010). Accordingly, an item was excluded if, after reformulation and reassessment, at least one of its CCV obtained a value below 0.7 (Balbinotti, Benetti, & Terra, 2006). We utilized the same method to calculate CCV for the instructions. Finally, we calculated three CCV for the whole scale using the item CCV (i.e., CCV-LC, CCV-TR, and CCV-PP).

Results

Panel of judges: first evaluation

Although all CCVs (whole scale, instructions, items) were greater than 0.7, many items received criticisms and suggestions for modification. For example, two judges recommended that item 3 be rewritten excluding the adjective “powerful.” Regarding item 10, one judge found it too abstract, suggesting it be replaced by “We are spiritual beings.” Another judge highlighted that, given the scale instructions, the soul-type items should describe psychological/behavioral states. Given these notes, we decided to simplify and standardize the terms employed in all items. Specifically, we removed the adjective “powerful” from the implied items (i.e., items 3, 8, 9, 11, 17, and 23) and reworded all soul-type items (i.e., 4, 10, 16, and 22), so that all items would contain the expressions “spiritual being” or “spiritual beings.” Moreover, while one judge found the content of items 5 and 11 redundant, another suggested replacing the expression “spiritual being” of item 8 by “spiritual beings”—presumably considering the belief in saints, angels and/or spiritual mentors. We reworded it as requested and, to maintain the proportion of positive items written in plural and singular, we replaced item 5 with a God-type item. Finally, we rewrote other items (i.e., 3, 9, 11, 15, 20, and 23) and the scale instructions according to other suggestions, submitting this modified

version to a second evaluation. We asked the judges to send us their replies within two weeks.

Panel of judges: second evaluation

All CCVs remained greater than 0.7. The CCV-LC of the entire scale improved, but its CCV-TR and CCV-PP deteriorated. Nonetheless, all CCV remained over 0.9. Regarding the modified items, some CCV-LC (i.e., items 3, 9, and 15) and one CCV-TR (i.e., item 11) increased; some CCV-LC (i.e., items 11 and 17), some CCV-TR (i.e., items 3, 8, 9, 15, 17, 20, and 23) and all CCV-PP (i.e., items 3, 8, 9, 11, 15, 17, 20, and 23) decreased; and some CCV-LC (i.e., items 8, 20, and 23) were maintained. As for the new soul-type items, none of their CCV were under 0.7. Given these results, we decided that further modifications in the items and/or instructions were necessary.

Representatives of the target population: evaluation

Of the 24 representatives who participated in the previous research stage, 11 submitted their evaluations before the requested deadline. To check whether item intelligibility would be affected by the participants' schooling level, we calculated a CCV-LC for the low education group (LE; consisting of those with primary or secondary education, $n = 4$) and one for the high education group (HE; composed of those with tertiary education, $n = 7$). Since CCV calculation uses the evaluation of up to 5 examiners, we had to exclude two participants from this last group. One of the eliminated participants was the last one to submit their evaluation. To make the sample of examiners more diverse, we also excluded one of the two Catholic Christians who submitted their answers (the last one to do so). Thus, the LE group comprised an Evangelical/Protestant Christian (primary education), a Catholic Christian (secondary education), a Spiritist (secondary education) and an atheist (secondary education); and the HE group consisted of a Catholic Christian (post-graduation), a Spiritist (college education), an Evangelical/Protestant Christian (post-graduation), an agnostic (college education), and an atheist (post-graduation).

All CCV-LC of the LE group were greater than those of the HE group (Table 1); however, the CCV-LC of all items and the totals for both groups were greater than 0.9. As such, further modifications were unnecessary.

Table 1

BSBS (first version) CCV: Representatives of the target population.

IN	Item	CCV-LC	
		LE	HE
01	A spiritual being created the world.	0.9961	0.9596
02	Some spiritual beings want us to be well.	0.9961	0.9596
03	Whoever is bad is punished by a spiritual being.	0.9961	0.9596
04	Before we were born, we were spiritual beings.	0.9961	0.9596
05	Thanks to a spiritual being, we will live forever in peace.	0.9961	0.9596
06	Some spiritual beings torment us.	0.9961	0.9596
07	We were created by a spiritual being.	0.9961	0.9596
08	We are protected by some spiritual beings.	0.9961	0.9596
09	A spiritual being is responsible for human suffering.	0.9961	0.9596
10	After death, we will live as spiritual beings.	0.9961	0.9196
11	Our prayers are answered by a spiritual being.	0.9961	0.9596
12	Some spiritual beings want us to suffer.	0.9961	0.9596
13	A spiritual being rules the world.	0.9961	0.9596
14	Some spiritual beings try to help us.	0.9961	0.9596
15	A spiritual being will allow some people to suffer eternally.	0.9961	0.9596
16	We are spiritual beings interacting with the material world.	0.9961	0.9196
17	We are loved by a spiritual being.	0.9961	0.9596
18	Some spiritual beings try to dominate us.	0.9961	0.9596
19	A spiritual being will decide our fate.	0.9961	0.9196
20	Some spiritual beings look after human well-being.	0.9961	0.9596
21	A spiritual being tries to turn us away from good.	0.9961	0.9596
22	We are spiritual beings inhabiting material bodies.	0.9961	0.9596
23	A spiritual being blesses those who do good.	0.9961	0.9196
24	We are harmed by some spiritual beings.	0.9961	0.9596
Total		0.9922	0.9526

Note: IN = item number; CCV = coefficient of content validity; LC = language clarity; LE = low education group; HE = high education group.

Discussion

The experts' evaluation found all CCVs of the BSBS to be adequate. After the first modification of some items, the CCV-LC of the entire scale improved, but the CCV-TR and CCV-PP deteriorated. Nonetheless, all three CCV remained above 0.9. Rewording suggestions made by the judges were essential to simplify and standardize the items. Moreover, the representatives' evaluation found all CCV to be adequate. These results are preliminary evidence that the BSBS presents adequate content for measuring belief/disbelief in spiritual beings. Its content seems to be intelligible, theoretically relevant, and pertinent to (literate) people of different religious/spiritual denominations, including non-spiritualists.

Study 2: Evidence of validity related to the internal structure of the scale and its relations to external variables

Method

Participants

Individuals of at least 18 years of age, Brazilian, who signed the written informed consent form were eligible to participate in this stage. Of the 2841 individuals who agreed to participate, we removed 10 for being minors and 1043 due to incomplete answers, resulting in a final sample of 1788 people. The participants' ages ranged from 18 to 74 years ($M = 37.49$; $SD = 12.75$), with 55.6% being female, 44.0% male and 0.4% not reporting their gender. Regarding marital status, 68.5% were married and 31.5% single, divorced or widowed. As for education, 35.2% had complete secondary education, 31.3% were graduates, 30.6% were post-graduates, 2.6% had complete primary education and 0.4% had incomplete primary education. Regarding economic level, 41.4% of the participants considered themselves "among the average for Brazilians," 26.1% considered themselves "slightly above the average for Brazilians," 14% considered themselves "moderately above the average for Brazilians," 8.1% considered themselves "slightly below the average for Brazilians," 5.4% considered themselves "moderately below the average for Brazilians," 4.1% considered themselves "well above the average for Brazilians" and 0.9% considered themselves "well below the average for Brazilians." Concerning spiritual denomination, 39.9% reported being religious, 27.2% spiritualists, 22% atheists, 9.7% agnostics, and 1.2% reported having another religious/spiritual denomination. As for religious denomination, 47.2% reported not following a religion,

18.9% declared themselves to be Spiritists, 14.8% declared themselves to be Catholic Christians, 10.3% reported following another religion, and 8.7% declared themselves to be Evangelical/Protestant Christians.

Instruments

- *Demographic questionnaire.* Participants were asked to report their age, gender, marital status, schooling level and economic status.
- *Spiritual denomination.* After being informed about what spiritual beings are, the participants reported their spiritual denomination, choosing between the following options: "I am an atheist/I believe that spiritual beings do not exist," "I am agnostic/I don't believe that spiritual beings exist or that they do not exist," "I am a spiritualist/I believe that spiritual beings exist, but I don't follow a religion," "I am religious/I believe that spiritual beings exist, and I follow a religion," or "Other," For data analysis, atheists were reclassified as "gnostic non-spiritualists"; agnostics, as "agnostic non-spiritualists"; spiritualists, as "non-religious spiritualists"; and religious, as "religious spiritualists."
- *Belief in Spiritual Beings Scale (BSBS).* The BSBS assesses the general level of belief/unbelief in spiritual beings, defined as incorporeal spirits psychologically similar to us that interact with the world. Strictly, it measures a particular type of belief act, namely, the tendency to judge spiritual ideas as false or true, using the following scale: "1 – This is definitely false," "2 – This is probably false," "3 – I tend to think this is false," "4 – I can't tell if this is false or true," "5 – I tend to think this is true," "6 – This is probably true," and "7 – This is definitely true". Higher scores indicate a higher level of general spiritual belief (or a lower level of general spiritual unbelief).
- *Religious Beliefs Scale (RBS; Aquino, 2005).* RBS consists of 12 items which assess the level of Western religious beliefs (e.g., "The world was created by God, and will end one day"), and Eastern religious beliefs (e.g., "The soul is cleansed after several cycles of reincarnation"). Response options range from "1 – Strongly disagree" to "5 – strongly agree." A validation study (Alves, 2013) showed that its structure was two-dimensional, with 8 items related to Western religious beliefs (Cronbach's $\alpha = .86$), and 6 to Eastern religious beliefs (Cronbach's $\alpha = .82$).

Moreover, the Cronbach's alpha of the Western and Eastern religious beliefs subscale was .72 and .90, respectively. Items 2 and 10 of the Western religious beliefs subscale showed weak correlations with the others. After their removal, the Cronbach's alpha of this subscale became .91.

- *The Duke Religion Scale* (DUREL; Koenig, Parkerson, & Meador, 1997). Its Brazilian version was adapted and validated by Lucchetti et al. (2012). The DUREL scale measures three components of religiosity: organizational religious activity (ORA), non-organizational religious activity (NORA), and intrinsic religiosity (IR). ORA is evaluated by the item "How often do you attend church, temple or other religious meetings?", and response options range from "1 – More than once a week" to "6 – Never". NORA is evaluated by the item "How often do you spend time in private religious activities, such as prayer, meditation, reading the Bible or other religious texts?", and response options range from "1 – More than once a day" to "6 – Rarely or never". IR is evaluated by three items (e.g., "I try hard to carry my religion over into all other dealings in life"), and response options range from "1 – Definitely true of me" to "5 – It is not true.". In this study, the Cronbach's alpha obtained for the IR was .90.

Procedures

Conducted using the SurveyMonkey online platform, the study was promoted on Facebook by posting the link and a brief description of the study on several pages and groups chosen based on their topics (i.e., religion, religiosity/spirituality, atheism, and agnosticism). To increase our sample, we had four sponsored ads for the research. After reading and accepting the written informed consent form, the participants answered the instruments in the following order: demographic questionnaire, spiritual denomination, the BSBS, the RBS, and the DUREL. Data collection took place from August 27, 2018, to December 29, 2018.

Data analysis

First, BSBS was investigated by exploratory factorial analysis using the robust maximum likelihood estimation method (Satorra & Bentler, 2001), and a parallel analysis was carried out to confirm the number of factors to be retained (Timmerman & Lorenzo-Seva, 2011). Scale reliability was evaluated by composite reliability, considering the magnitude

of the factor loadings of the items (Raykov, 1997). Items with factor loading less than 0.40 were eliminated. Moreover, after inspecting the modification indexes, items that substantially decreased the model fit were also excluded (Brown, 2006).

Spearman's correlation tests verified the evidence of convergent validity between the BSBS score and the RBS and DUREL scores. To check for evidence of validity based on contrasting groups, religious spiritualists, non-religious spiritualists, agnostic non-spiritualists, and gnostic non-spiritualists were compared in relation to their BSBS scores. Moreover, we compared these groups regarding the frequency of their (gnostic) disbelief responses (options 1, 2, and 3), the frequency of their (agnostic) unbelief responses (option 4), and the frequency of their belief responses (options 5, 6, and 7). Group comparison based on their score and response patterns was achieved by analysis of covariance and a multivariate analysis of covariance, inserting the covariates gender (female vs. male), age, marital status, schooling level, and economic status. Bootstrapping procedures (with 1000 resampling and 99% confidence intervals) established greater reliability of the results and controlled biases related to non-normal data distribution (Haukoos & Lewis, 2005). Finally, logistic regressions tested whether, when considering the participants' level of religiosity (DUREL) and religious beliefs (RBS), their level of spiritual belief (BSBS) would still predict their respective spiritual groups.

Results

Evidence of factorial validity

Results from the exploratory factor analysis and parallel analysis suggested a single factor structure for the BSBS. No item presented a factorial load below 0.40. The factorial solution had the following adequacy of fit indexes: RMSEA = 0.117 (90% CI = 0.115 – 0.120), SRMR = 0.082, CFI = 0.832. As these values indicated errors above what is recommended (Brown, 2006; Schreiber, Stage, King, Nora, & Barlow, 2006), we inspected pairs of items with high modification indexes (i.e., values above 100.000). If these items presented overlapping content (e.g., "Some spiritual beings want us to suffer" and "Some spiritual beings torment us"), we excluded the item with the lowest factorial load of each pair (items 1, 3, 4, 9, 12, 15, 16, 18, 19, 22, and 24). Accordingly, the factorial solution presented better adequacy of fit indexes (RMSEA = 0.087 (90% CI = 0.082 – 0.092), SRMR = 0.027, CFI = 0.955), and BSBS (final version) consisted of 13 items (Table 2).

Table 2
Final version and factorial loads of the BSBS items.⁵

IN	Item	Factorial load
02	Some spiritual beings want us to be well.	0.958
05	Thanks to a spiritual being, we will live forever in peace.	0.646
06	Some spiritual beings torment us.	0.883
07	We were created by a spiritual being.	0.907
08	We are protected by some spiritual beings.	0.972
10	After death, we will live as spiritual beings.	0.890
11	Our prayers are answered by a spiritual being.	0.927
13	A spiritual being rules the world.	0.845
14	Some spiritual beings try to help us.	0.967
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IN	Item	Factorial load
17	We are loved by a spiritual being.	0.964
20	Some spiritual beings look after human well-being.	0.923
21	A spiritual being tries to turn us away from good.	0.789
23	A spiritual being blesses those who do good.	0.890

Note: IN = item number.

Evidence of convergent validity

Spearman's correlation tests calculated between the BSBS score and the RBS and DUREL scores showed only positive correlations (Table 3), ranging from 0.678 to 0.831—which can be interpreted as moderate to high (Hinkle, Wiersma, & Jurs, 2003). Such findings highlight the validity of the BSBS.

Table 3
Correlations between the BSBS, RBS, and DUREL.

	1	2	3	4	5	6
1. BSBS	1.000					
2. RBS-W	0.831**	1.000				
3. RBS-E	0.678**	0.544**	1.000			
4. DUREL-ORA	0.741**	0.667**	0.520**	1.000		
5. DUREL-NORA	0.753**	0.678**	0.621**	0.729**	1.000	
6. DUREL-IR	0.820**	0.750**	0.653**	0.751**	0.789**	1.000

Note: BSBS: Belief in spiritual beings; RBS-W: Western religious beliefs; RBS-E: Eastern religious beliefs; DUREL-ORA: organizational religious activity; DUREL-NORA: non-organizational religious activity; DUREL-IR: intrinsic religiosity.

**Significant correlations ($p < .01$).

Evidence of validity based on contrasting groups

Religious spiritualists (RSs), non-religious spiritualists (NRSs), agnostic non-spiritualists (ANSs) and gnostic non-spiritualists (GNSs) showed different levels of belief in spiritual beings [$F(3, 1752) = 2491.972$; $p < .001$; $\eta^2 = 0.810$]. Examining the Bonferroni *post hoc* corrections, RSs presented higher levels of belief than NRSs ($p < .001$), ANSs ($p < .001$) and GNSs ($p < .001$); NRSs had higher levels of belief than ANSs ($p < .001$) and GNSs ($p < .001$); and ANSs presented higher levels of belief than GNSs ($p < .001$) (Table 4).

Table 4

Mean levels of spiritual belief for the total sample and for the spiritualist and non-spiritualist groups.

	M (SD)	CI	N (%)
Total sample	57.23 (28.27)	56.02 – 58.58	1761 (100)
Religious spiritualists	79.39 (10.72)	78.54 – 80.23	714 (40.54)
Non-religious spiritualists	67.01 (14.31)	65.68 – 68.42	483 (27.42)
Agnostic non-spiritualists	32.27 (14.39)	30.35 – 34.37	174 (9.88)
Gnostic non-spiritualists	15.68 (5.57)	15.13 – 16.24	390 (22.14)

Note: M = mean; SD = standard deviation; CI = confidence interval; N = number of participants; % = percentage.

⁵The scale items and instructions, originally written in Portuguese, were translated into English for this publication.

Moreover, the groups showed different frequencies of (gnostic) disbelief responses (options 1, 2, and 3), (agnostic) unbelief responses (option 4), and belief responses (options 5, 6, and 7) to the items [$F(6, 3504) = 607.501; p < .001; \eta^2 = 0.510$]. All comparisons were statistically significant ($p < .05$) (Table 5). Specifically, GNSs presented more (gnostic)

disbelief responses than ANSs ($p < .001$), NRSs ($p < .001$) and RSs ($p < .001$); ANSs showed more (agnostic) unbelief responses than GNSs ($p < .001$), RSs ($p < .001$) and NRSs ($p < .001$); RSs presented more belief responses than GNSs ($p < .001$), ANSs ($p < .001$) and NRSs ($p < .001$); and NRSs showed more belief responses than ANSs ($p < .001$) and GNSs ($p < .001$). These findings agreed with our expectations.

Table 5

Mean frequency of (gnostic) disbelief, (agnostic) unbelief, and belief responses to the items.

	GDR	AUR	BR
	M (SD)	M (SD)	M (SD)
Total sample	4.62 (5.39)	1.31 (2.46)	7.05 (5.35)
Religious spiritualists	0.96 (1.40)	0.74 (1.46)	11.28 (2.09)
Non-religious spiritualists	1.91 (2.47)	2.26 (2.51)	8.81 (3.52)
Agnostic non-spiritualists	8.71 (4.87)	3.65 (4.53)	0.62 (1.81)
Gnostic non-spiritualists	12.83 (1.02)	0.15 (1.01)	< 0.01 (0.08)

Note: M = mean; SD = standard deviation; GDR = frequency of (gnostic) disbelief responses (options 1, 2 and 3); AUR = frequency of (agnostic) unbelief responses (option 4); BR = frequency of belief responses (options 5, 6 and 7).

Evidence of incremental validity

Considering the levels of religiosity (DUREL) and religious beliefs (RBS) of the participants, does the level of spiritual belief (BSBS) incrementally predict their respective spiritual groups? We first tested this hypothesis regarding their likelihood of being spiritualists (i.e., RSs or NRSs, which were combined into a single group). DUREL scores were used as initial predictors (Model 1), to which the RBS (Model 2) and BSBS scores (Model 3) were added afterwards. Model 1 was statistically significant [$X^2(3) = 1620.498; p < .001, R^2Nagelkerke = .84$], correctly classifying 94.1% of the

spiritualists, 91.4% of the remaining participants and 93.2% of all cases. Model 2 significantly improved the prediction [$X^2(2) = 191.728; p < .001, R^2Nagelkerke = .897$], correctly classifying 96.3% of the spiritualists, 92.4% of the non-spiritualists and 95.1% of all cases. We observed a similar improved prediction with Model 3 [$X^2(1) = 82.468; p < .001, R^2Nagelkerke = .92$], which correctly classified 97.6% of the spiritualists, 93.1% of the non-spiritualists and 96.2% of all cases. However, by adding the BSBS score, the RBS-W and DUREL-NORA scores became statistically non-significant in predicting the belonging spiritualist groups (Table 6).

Table 6

Hierarchical logistic regression to predict belonging to the spiritualist groups (religious spiritualists and non-religious spiritualists).

	β	Model 1		β	Model 2		β	Model 3	
		Wald	OR		Wald	OR		Wald	OR
		(p)	(95% CI)		(p)	(95% CI)		(p)	(95% CI)
DUREL-ORA	0.744	39.067	2.104	0.486	13.465	1.625	0.372	5.803	1.450
		(<.01)	(1.666–2.657)		(<.01)	(1.254–2.107)		(.016)	(1.072–1.963)
DUREL-NORA	0.661	51.923	1.937	0.339	10.153	1.404	0.211	3.228	1.235
		(<.01)	(1.618–2.319)		(<.01)	(1.139–1.730)		(.072)	(0.981–1.555)
DUREL-IR	0.474	149.911	1.606	0.250	23.850	1.284	0.228	13.601	1.256
		(<.01)	(1.489–1.733)		(<.01)	(1.162–1.420)		(<.01)	(1.113–1.418)
RBS-E				0.261	79.351	1.298	0.119	10.195	1.127
					(<.01)	(1.226–1.375)		(.001)	(1.047–1.213)

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	Model 1			Model 2			Model 3		
	β	Wald (<i>p</i>)	OR (95% CI)	β	Wald (<i>p</i>)	OR (95% CI)	β	Wald (<i>p</i>)	OR (95% CI)
RBS-W				0.118	16.064 (<i><.01</i>)	1.125 (1.062–1.192)	-0.052	1.755 (.185)	0.949 (0.879–1.025)
BSBS							0.110	65.246 (<i><.01</i>)	1.117 (1.087–1.147)

Note: BSBS: Belief in spiritual beings; RBS-E: Eastern religious beliefs; RBS-W: Western religious beliefs; DUREL-ORA: organizational religious activity; DUREL-NORA: non-organizational religious activity; DUREL-IR: intrinsic religiosity. OR = odds ratio; CI = confidence interval.

Second, using the same sequence of predictor insertion, we tested the participants' likelihood of belonging to their specific spiritual groups. Having GNSs as the dependent variable, Model 1 (DUREL scores) was statistically significant [$X^2(3) = 1088.512$; $p < .001$, R^2 Nagelkerke = .704], correctly classifying 85.8% of the GNSs, 91.0% of the remaining groups and 89.9% of the total. Model 2 (RBS scores) significantly improved the prediction

[$X^2(2) = 248.260$; $p < .001$, R^2 Nagelkerke = .812], correctly classifying 89.1% of the GNSs, 94.5% of the remaining groups and 93.3% of all cases. We observed a similar improved prediction with Model 3 (BSBS) [$X^2(1) = 93.024$; $p < .001$, R^2 Nagelkerke = .849], which correctly classified 92.9% of the GNSs, 95.3% of the remaining groups and 94.8% of the total. However, the RBS-W and DUREL scores became statistically non-significant predictors (Table 7).

Table 7

Hierarchical logistic regression to predict belonging to the gnostic non-spiritualists group.

	Model 1			Model 2			Model 3		
	β	Wald (<i>p</i>)	OR (95% CI)	β	Wald (<i>p</i>)	OR (95% CI)	β	Wald (<i>p</i>)	OR (95% CI)
DUREL-ORA	-0.695	26.771 (<i><.01</i>)	0.499 (0.384–0.649)	-0.336	4.325 (.038)	0.715 (0.521–0.981)	-0.236	1.839 (.175)	0.790 (0.562–1.111)
DUREL-NORA	-1.278	29.004 (<i><.01</i>)	0.278 (0.175–0.443)	-0.665	9.824 (.002)	0.514 (0.339–0.779)	-0.462	3.699 (.054)	0.630 (0.394–1.009)
DUREL-IR	-0.303	62.692 (<i><.01</i>)	0.739 (0.686–0.796)	0.017	0.095 (.758)	1.018 (0.911–1.136)	0.030	0.241 (.644)	1.031 (0.906–1.173)
RBS-E				-0.279	67.882 (<i><.01</i>)	0.756 (0.708–0.808)	-0.160	14.708 (<i><.01</i>)	0.852 (0.785–0.925)
RBS-W				-0.171	13.665 (<i><.01</i>)	0.842 (0.769–0.923)	-0.039	0.422 (.516)	0.962 (0.857–1.081)
BSBS							-0.124	67.673 (<i><.01</i>)	0.883 (0.857–0.910)

Note: BSBS: Belief in spiritual beings; RBS-E: Eastern religious beliefs; RBS-W: Western religious beliefs; DUREL-ORA: organizational religious activity; DUREL-NORA: non-organizational religious activity; DUREL-IR: intrinsic religiosity. OR = odds ratio; CI = confidence interval.

Having ANSs as the dependent variable, Model 1 (DUREL scores) was statistically significant [$X^2(3) = 228.034$; $p < .001$, R^2 Nagelkerke = .255], correctly classifying 0.0% of the ANSs, 100% of the remaining groups and 90.2% of the total. Model 2 (RBS scores) significantly improved the prediction [$X^2(2) = 26.661$; $p < .001$, R^2 Nagelkerke = .283],

correctly classifying 1.7% of the ANSs, 99.6% of the remaining groups and 90.0% of all cases. Model 3 (BSBS), however, did not improve the prediction [$X^2(1) = 1.253$; $p = .263$, R^2 Nagelkerke = .284], correctly classifying 2.9% of the ANSs, 99.7% of the remaining groups and 90.2% of the total. Moreover, the DUREL-ORA and RBS-W scores were not significant predictors (Table 8).

Table 8
Hierarchical logistic regression to predict belonging to the agnostic non-spiritualists group.

	Model 1			Model 2			Model 3		
	β	Wald (<i>p</i>)	OR (95% CI)	β	Wald (<i>p</i>)	OR (95% CI)	β	Wald (<i>p</i>)	OR (95% CI)
DUREL-ORA	-0.180	2.784 (.095)	0.835 (0.676–1.032)	-0.242	4.694 (.030)	0.785 (0.631–0.977)	-0.222	3.847 (.050)	0.801 (0.642–1.000)
DUREL-NORA	-0.302	8.422 (.004)	0.739 (0.603–0.907)	-0.399	15.153 (<.01)	0.671 (0.549–0.820)	-0.385	13.774 (<.01)	0.681 (0.555–0.834)
DUREL-IR	-0.157	16.083 (<.01)	0.855 (0.792–0.923)	-0.266	30.468 (<.01)	0.766 (0.697–0.842)	-0.258	28.181 (<.01)	0.772 (0.702–0.850)
RBS-E				0.100	21.761 (<.01)	1.105 (1.059–1.152)	0.117	19.477 (<.01)	1.124 (1.067–1.184)
RBS-W				-0.010	0.141 (.708)	0.990 (0.941–1.042)	0.003	0.013 (.911)	1.003 (0.948–1.061)
BSBS							-0.011	1.243 (.265)	0.989 (0.971–1.008)

Note: BSBS: Belief in spiritual beings; RBS-E: Eastern religious beliefs; RBS-W: Western religious beliefs; DUREL-ORA: organizational religious activity; DUREL-NORA: non-organizational religious activity; DUREL-IR: intrinsic religiosity. OR = odds ratio; CI = confidence interval.

Having NRSs as the dependent variable, Model 1 (DUREL scores) was statistically significant [$X^2(3) = 219.188; p < .001, R^2Nagelkerke = .169$], correctly classifying 24.9% of the NRSs, 94.1% of the remaining groups and 75.1% of the total. Model 2 (RBS scores) significantly improved the prediction [$X^2(2) = 335.819; p < .001, R^2Nagelkerke = .390$],

correctly classifying 50.6% of the NRSs, 89.6% of the remaining groups and 78.9% of all cases. We observed a similar improved prediction with Model 3 (BSBS) [$X^2(1) = 41.892; p < .001, R^2Nagelkerke = .414$], which correctly classified 52.5% of the NRSs, 89.2% of the remaining groups and 79.1% of the total. The DUREL-NORA and DUREL-IR scores were not significant predictors (Table 9).

Table 9
Hierarchical logistic regression to predict belonging to the non-religious spiritualists group.

	Model 1			Model 2			Model 3		
	β	Wald (<i>p</i>)	OR (95% CI)	β	Wald (<i>p</i>)	OR (95% CI)	β	Wald (<i>p</i>)	OR (95% CI)
DUREL-ORA	-0.687	163.135 (<.01)	0.503 (0.453–0.559)	-0.702	142.811 (<.01)	0.496 (0.442–0.556)	-0.779	163.387 (<.01)	0.459 (0.407–0.517)
DUREL-NORA	0.214	17.447 (<.01)	1.239 (1.120–1.370)	0.005	0.009 (.924)	1.005 (0.902–1.121)	-0.045	0.643 (.423)	0.956 (0.855–1.068)
DUREL-IR	0.189	63.586 (<.01)	1.208 (1.153–1.265)	-0.016	0.280 (.597)	0.984 (0.927–1.045)	-0.061	3.631 (.57)	0.941 (0.883–1.002)
RBS-E				0.258	238.699 (<.01)	1.294 (1.252–1.337)	0.201	117.843 (<.01)	1.222 (1.179–1.267)
RBS-W				-0.032	5.480 (.019)	0.969 (0.943–0.995)	-0.080	26.009 (<.01)	0.923 (0.896–0.952)
BSBS							0.042	40.194 (<.01)	1.043 (1.029–1.057)

Note: BSBS: Belief in spiritual beings; RBS-E: Eastern religious beliefs; RBS-W: Western religious beliefs; DUREL-ORA: organizational religious activity; DUREL-NORA: non-organizational religious activity; DUREL-IR: intrinsic religiosity. OR = odds ratio; CI = confidence interval.

Finally, having RSs as the dependent variable, Model 1 (DUREL scores) was statistically significant [$X^2(3) = 1316.492$; $p < .001$, $R^2Nagelkerke = .709$], correctly classifying 84.5% of the RSs, 87.6% of the remaining groups and 86.3% of the total. Model 2 (RBS scores) significantly improved the prediction [$X^2(2) = 66.565$; $p < .001$,

$R^2Nagelkerke = .733$], correctly classifying 84.7% of the RSs, 88.7% of the remaining groups and 87.1% of all cases. We observed a similar improved prediction with Model 3 (BSBS) [$X^2(1) = 14.060$; $p < .001$, $R^2Nagelkerke = .738$], which correctly classified 84.9% of the RSs, 89.1% of the remaining groups and 87.4% of the total (Table 10).

Table 10

Hierarchical logistic regression to predict belonging to the religious spiritualists group.

	Model 1			Model 2			Model 3		
	β	Wald (<i>p</i>)	OR (95% CI)	β	Wald (<i>p</i>)	OR (95% CI)	β	Wald (<i>p</i>)	OR (95% CI)
DUREL-ORA	0.925	208.823 (<i><.01</i>)	2.522 (2.224–2.859)	0.900	185.496 (<i><.01</i>)	2.460 (2.161–2.800)	0.865	166.909 (<i><.01</i>)	2.374 (2.082–2.707)
DUREL-NORA	0.171	7.178 (.007)	1.186 (1.047–1.344)	0.180	7.333 (.007)	1.197 (1.051–1.363)	0.152	5.101 (.024)	1.164 (1.020–1.327)
DUREL-IR	0.284	70.464 (<i><.01</i>)	1.329 (1.244–1.420)	0.205	27.868 (<i><.01</i>)	1.228 (1.138–1.325)	0.169	17.656 (<i><.01</i>)	1.184 (1.094–1.281)
RBS-E				-0.033	2.582 (.108)	0.967 (0.929–1.007)	-0.066	8.223 (.004)	0.936 (0.894–0.979)
RBS-W				0.123	58.843 (<i><.01</i>)	1.131 (1.096–1.168)	0.092	25.599 (<i><.01</i>)	1.096 (1.058–1.135)
BSBS							0.030	13.836 (<i><.01</i>)	1.031 (1.014–1.047)

Note: BSBS: Belief in spiritual beings; RBS-E: Eastern religious beliefs; RBS-W: Western religious beliefs; DUREL-ORA: organizational religious activity; DUREL-NORA: non-organizational religious activity; DUREL-IR: intrinsic religiosity. OR = odds ratio; CI = confidence interval.

Discussion

Most of our findings corroborate the validity of BSBS. First, we observed an one-dimensional scale structure, indicating that it measures the general level of spiritual belief/disbelief. Second, the BSBS score correlated moderately to highly with the RBS (i.e., Western and Eastern religious beliefs) and the DUREL (i.e., organizational religious activity, non-organizational religious activity, and intrinsic religiosity) scores. Third, the four groups of spiritual denomination presented different levels of spiritual belief and different item endorsement patterns. Finally, considering the DUREL and RBS scores, the BSBS score was able to incrementally predict the spiritual groups to which the participants belonged, except for those identifying as agnostic non-spiritualists.

General discussion

The two studies presented here describe the development and psychometric properties of the Belief in Spiritual Beings Scale (BSBS). Our analyses show evidence

of its validity based on several criteria. First, according to expert evaluation (panel of judges), the content of the BSBS can be considered intelligible, theoretically relevant, and pertinent to people of different spiritual denominations, including non-spiritualists. Representatives of the target population also corroborated the intelligibility of the scale items. The interviews conducted allowed us not only to gather more information for item design, but also to check whether the expression “spiritual beings” was adequate for our purposes. Although some authors commonly use expressions such as “supernatural beings” or “supernatural agents” (Jong et al., 2013; Lindeman et al., 2012; Norenzayan & Gervais, 2013), Brazilians seem to prefer the one we chose.

Second, we found that the BSBS has a unidimensional structure, that is, the BSBS evaluates a single construct: the general level of spiritual belief/disbelief. Although people may believe in some types of spiritual being more than in others, one who believes that “A spiritual being rules the world” also tends to believe that “Some spiritual beings torment us.”

Similar reasoning applies to spiritual disbelief. It may be that all spiritual beliefs are grounded in the same intuitions, such as that body and mind are substantially different (Norenzayan & Gervais, 2013; Willard & Norenzayan, 2013). Conversely, espousing beliefs that are incoherent with spiritual ones could end up reducing the level of the latter (Asp & Tranel, 2013; Connors & Halligan, 2015; Gilbert, 1991; Quine & Ullian, 1978). Besides, motivational and social variables may also explain our general tendency to believe or disbelieve in spiritual beings (Norenzayan & Gervais, 2013).

Third, the BSBS score correlated positively with measures of religious beliefs and religiosity, with the highest correlation found between our scale and the Western religious beliefs subscale scores. This may have occurred because 5 of the 6 items making up this subscale explicitly mention spiritual beings (e.g., “The world was created by God, and it will end one day”). Nonetheless, the BSBS score correlated moderately with the Eastern religious beliefs subscale and highly with the three religious components of the DUREL. These last correlations corroborate that the belief in spiritual beings is a key feature of religion (Atran & Norenzayan, 2004; Barrett, 2004; Dennett, 2006) and spirituality/religiosity (Caldwell-Harris, Wilson et al., 2011; Lindeman et al., 2012). As Barrett (2004, p. 26) argues, “religions do not center on such things as sticks that people can use to move objects (we would call that magic or technology, not religion)”, but on “disembodied minds that can act on us and the world.” In this regard, spiritual ideas would not only control and give meaning to religious/spiritual practices and experiences (e.g., praying, attending religious meetings, and feeling the presence of God), but also be necessary to *define* those practices and experiences as spiritual.

Fourth, we identified different scores and item endorsement patterns among religious spiritualists (RSs), non-religious spiritualists (NRSs), gnostic non-spiritualists (GNSs) and agnostic non-spiritualists (ANSs). As expected, RSs presented higher levels of spiritual beliefs than the other groups; NRSs showed higher levels of spiritual beliefs than GNSs and ANSs; and ANSs had higher levels of spiritual beliefs than GNSs. Interestingly, although ANSs presented more (agnostic) unbelief responses (option 4) than the other groups, their (gnostic) disbelief responses (options 1, 2, and 3) were, on average, more frequent than the other types. Similarly, other studies found that

agnostics tend to disbelieve more than believe not only in God (Galen & Kloet, 2011), but also in other types of supernatural concepts (Lanman, 2009). Nonetheless, their level of disbelief does not surpass that of atheists. Assuming that the ANSs and GNSs groups were predominantly composed of people commonly called “agnostics” and “atheists,” respectively, our findings agree with the literature.

Finally, considering the participants’ level of religious beliefs (measured by the RBS) and religiosity (measured by the DUREL), the BSBS score incrementally predicted almost all the spiritual groups to which they belonged. Meaning that, although these constructs are related, our scale is “tapping” into something different. While the DUREL focuses on religiosity—which encompasses activities such as praying, attending religious services, and living according to religious precepts—, the RBS does not measure beliefs in spiritual beings as precisely and/or specifically. ANSs was the only group the BSBS failed to significantly predict the belonging participants. Both the DUREL and RBS were also not very competent in this aspect, as, together, their subscales correctly classified 1.7% of the agnostics. Apparently, this group has spiritual/religious characteristics barely captured by these instruments. Future studies could investigate what has been left out.

Despite our findings, other BSBS psychometric properties have yet to be verified. For example, a small longitudinal study could be carried out to test scale stability. Moreover, we must emphasize that our study sample consisted only of Brazilians, who were predominantly Christians and Spiritists. Further studies should test the validity of the instrument in other countries and with members of other denominations, such as Buddhists and practitioners of Umbanda or Candomblé. Importantly, to be used with polytheistic populations, items that refer to only one spiritual being (e.g., “We are loved by a spiritual being”) might need to be modified (e.g., “We are loved by spiritual beings”). When compared with other scales—e.g., *Christian Orthodoxy Scale* (Fullerton & Hunsberger, 1982), *Religious Beliefs Scale* (Aquino, 2005) and *Supernatural Belief Scale* (Jong et al., 2013)—, however, BSBS has less terms and propositions specific to one religion or another. Even if we can see Christian elements on some of its items (e.g., “Thanks to a spiritual being, we will live forever in peace”), most seem to be pertinent—or easily adaptable—to different religious denominations.

Finally, we should mention that Study 2 had more participants with higher levels of education and income. Future studies could test the scale adequacy using a more representative sample of the Brazilian population.

In conclusion, given its preliminary evidence of validity, the BSBS may be a good instrument for measuring the general level of spiritual belief and/or disbelief.

Currently, even though most people worldwide believe in spiritual beings, many countries have become increasingly secularized (Zuckerman et al., 2016), including Brazil (Mariano, 2013). This seems to be a good time to observe, as precisely as possible, the ups and downs of the “soul” of spirituality, as well as its causes and consequences.

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