

# Prevalence of spiritual and religious experiences in the general population: A Brazilian nationwide study

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## Abstract

Spiritual and religious experiences (SREs) are common subjective phenomena related to the awareness of transcendence, which transforms one's perception of life, death and suffering. Despite the high prevalence of SREs worldwide, not enough studies have been conducted beyond Europe and North America. To fill this gap, this study investigates the prevalence of SREs in Brazil and their association with socio-demographic variables. This online cross-sectional study includes participants from all regions of Brazil. Sixteen SREs were investigated, being categorized into 4 groups: mystical, mediumistic, psi-related and past life/near-death experiences. Prevalence was calculated as percentages and multinomial logistic regression models were used. A total of 1,053 Brazilians were included; 92% reported one SRE in their lifetime and 47.5% experienced at least one SRE frequently. Participants reported having had at least one mystical experience (35%), one psi-related experience (27.7%), and one mediumistic experience (11%). Half the sample had “felt the presence of a dead person” and 70% experienced precognitive dreams at least once. In a multivariate analysis, SREs were associated with the female gender but showed no associations with income, education, employment status and ethnicity. Mystical experiences were associated with age 55 and older. In summary, SREs are very prevalent across different strata of the population, and deserve more attention from researchers and clinicians in order to clarify their nature and implications for mental health care and research in Brazil.

## Keywords

anomalous experiences, religion and psychology, religious experiences, spiritual experiences, spirituality

In all known cultures throughout the ages there have been reports of spiritual and religious experiences (SREs). SREs comprise a great variety of phenomena that have been studied by different disciplines like Parapsychology, Transpersonal Psychology, Psychology of Anomalous Experience, and the Psychology of Religion. SRE is an umbrella concept, which includes phenomenologically diverse events such as mediumistic, paranormal (psi-related) and mystical experiences (sometimes regarded as a distinct category in itself) (Brook, 2019; Taves, 2019). The study of religious and spiritual experiences and their relationship to mental health owes its modern development to William James' *The Varieties of Religious Experiences* (1902/2002). James adopted a phenomenological approach to studying experiences from a Christian perspective. However, although James focused on the investigation of extraordinary experiences, the study of SREs should not be restricted to the occurrence of dramatic and anomalous phenomena, but should

include more ordinary experiences (Dein, 2010; Yamane, 2000). SREs can be deeply felt by the experiencer, who relates them to the presence of a spiritual dimension of reality (Hardy, 1979; Taves, 2019; Yamane, 2000). In this study, SREs are defined as interpretations of subjective phenomena related to the individual's involvement with the sacred—the awareness of a transcendent dimension of life

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that can transform the way the experiencer sees life, death and suffering (Brook, 2019; Hardy, 1979). Such events are part of a spectrum of natural human experiences, and are often spontaneous, but can also result from volition. The experiencer can have full, little or no control over SRE and can maintain a critical stance or be completely absorbed by the experience (Giordano & Engebretson, 2006). SREs can also be triggered by a variety of physiological states, medical conditions, drugs, and ingested substances (Cardeña et al., 2000; Hardy, 1979). They do not depend on specific religious or spiritual beliefs, but relate to them in the way they are interpreted or explained (F. R. Machado et al., 2016) and should be studied within the values and traditions shared and transmitted by a particular group (Correa & Brojato, 2016).

Brazilian religious and spiritual contexts have been changing rapidly, influenced by New Age, mediumistic and esoteric traditions along with the phenomenon of secularization (F. R. Machado, 2009; Moreira-Almeida et al., 2010; Peres et al., 2020; Pew Research Forum, 2014; Reichow, 2017; Somma et al., 2017). The last Brazilian Census (Instituto Brasileiro de Geografia e Estatística [IBGE], 2010) confirmed a relatively common trend in Latin countries in recent decades: a decline in the number of Catholics and increase in Evangelicals and those who identify as agnostic, atheist, or without religion (Peres et al., 2020; Somma et al., 2017). Moreover, Brazilians often define themselves as “spiritual but not religious,” or report having multiple affiliations (Peres et al., 2020).

SREs are common in different populations worldwide and in a vast range of cultural backgrounds (Castro et al., 2014; Haraldsson & Houtkooper, 1991; F. R. Machado, 2009; Moreira-Almeida & Lotufo-Neto, 2017; Palmer & Hastings, 2013; Pechey & Halligan, 2012; Reichow, 2017; Wahbeh & Radin, 2018). Globally, about 50% of individuals report experiencing SREs at least once in their lifetime (Cardeña et al., 2000; Dein, 2012; Targ et al., 2000).

Regarding socio-demographic factors, previous studies have shown a higher prevalence of SREs among women and older adults (American Piety in the 21st Century, 2006; Castro et al., 2014; Haraldsson & Houtkooper, 1991; Pechey & Halligan, 2012). In 1991, a survey of a sample of 18,607 adults from 13 countries in Europe and the USA (Haraldsson & Houtkooper, 1991) found more women reported more SREs when compared to men: 38% versus 30% in Europe and 59% versus 47% in the United States. In relation to age, previous studies imply that SREs can be experienced throughout life but are more likely to happen to those aged over 40 years (Castro et al., 2014; Greeley, 1975; Palmer & Braud, 2002). However, most of the data available come from Europe and North America and these findings might not reflect most of the world’s population. In Brazil, for example, although SREs have been studied in very specific and limited samples, there is some suggestion that these

experiences may be more frequent. F. R. Machado (2009) found at least one anomalous experience (AE) in 82.7% of young adults ( $n = 306$ ) from the city of São Paulo, Brazil. In the same line, Reichow (2017) used a convenience sample from southern Brazil and compared four different groups of individuals, investigating the prevalence of AEs in mediums ( $n = 40$ ), people who sought help in a Spiritist group ( $n = 36$ ), a group with non-mediumistic religious affiliation ( $n = 40$ ) and atheists ( $n = 42$ ). Of the 158 participants, 100% reported experiencing at least one AE.

SREs have been associated with pathological mental conditions, but the available empirical data are mixed (Dein, 2010). While some studies indicate a relatively high prevalence of religious delusions among patients with schizophrenia (25% to 39%) and bipolar disorder (15% to 22%) (Koenig, 2009; Loch et al., 2019), in the general population, anomalous perceptual experiences (e.g., psi-related and mediumistic experiences) are reported among those without indication of associated pathology (Alminhana et al., 2017; Peters et al., 2016). There have been considerable attempts to differentiate pathological from healthy experiences (Menezes Junior & Moreira-Almeida, 2009), an effort stimulated by the proposal by Lukoff, Lu & Turner (1998) for a category of religious and spiritual problems in the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed., *DSM-5*; American Psychiatric Association, 2013). However, the interplay between SREs and mental health is complex and multidimensional. Cultural concepts such as the “porosity” of an individual (the understanding of mind as a more or less permeable structure that connects the material and immaterial), as well as the cultural conceptualizations of mental illness, frame the appraisal of SREs and thus influence assessments of their prevalence in different countries (Luhrmann et al., 2021; Maraldi & Krippner, 2019). More investigation is needed outside the European–North American axis to map the importance of individual (genetic and personality variables) and cultural aspects in differentiating psychopathological from healthy spiritual experiences. Nevertheless, some SREs (the mystical and unitive types) can present transformative effects, leading to a sense of meaning in life and psychological well-being, provided that experiencers assimilate them into their lives (Brook, 2019; Greeley, 1975; Hay & Morisy, 1978; Moreira-Almeida & Lotufo Neto, 2017; Palmer & Braud, 2002). Yet, SREs generally have been neglected as a therapeutic resource by health professionals. Knowing the prevalence SREs in diverse populations can contribute to understanding cross-cultural aspects that influence clinical outcomes.

There also is a real risk of misdiagnosis of SREs, especially related to psychotic disorders and experiences such as “hearing the voice of someone who died,” or “seeing an apparition of a disembodied spirit” (Brook, 2019; Greyson, 2007). A recent study investigating how Brazilian

psychiatrists approach the religious and spiritual (R/S) dimension in clinical practice, found that the main barrier to discussing the issue with the patient was the lack of adequate training, especially in relation to experiences that could indicate the presence of mental disorders, such as possession and other mediumistic types of experiences (Menegatti-Chequini et al., 2019). More recently, however, there has been some debate among health professionals about the importance of the R/S dimension in clinical practice. The World Psychiatric Association published a position statement on spirituality and religion, with seven guidelines for psychiatrists' clinical practice (Moreira-Almeida et al., 2018). Based on a series of studies conducted with licensed psychologists, Vieten et al. (2013) identified a series of 16 spiritual and religious competencies (attitudes, knowledge, and skills) to be incorporated by psychologists and psychotherapists in the clinical setting.

Despite Brazil being a large and highly religious country, the prevalence and distribution of SREs has not been established because of the lack of generalizability in samples of previous studies. In the present study, we aimed to fill this gap, using a large general population sample from all Brazilian regions, investigating the prevalence of SREs and their association with socio-demographic variables, and discussing the implications for clinical practice.

## Methods

### Study design

This was a cross-sectional study, with data collected through a self-administered online survey using Qualtrics Panels (Brandon, 2013). The survey was designed for a larger project entitled "Spiritual and Religious Beliefs, Practices and Experiences in the General Population" sponsored by the Interfaith Coalition on Spirituality and Health, a Brazilian institution composed of healthcare professionals and representative members of all religious or non-religious faith practices in Brazil. The Ethics in Research Committee of the Albert Einstein Hospital in Brazil and Institute of Psychiatry (IPq) Faculty of Medicine of the University of São Paulo Clinics Hospital (HCFMUSP) approved the study and an online informed consent statement was signed by participants.

### Setting

Between June 28 and August 22, 2016, invitations to participate in the survey were sent using the Qualtrics database, aiming to reach a wide sample of participants from the five main regions of Brazil. Quotas were set in order to ensure representativeness of the sample in age, gender and geographic location according to the 2010 Brazilian National Census (IBGE, 2010). The sample has, however, higher

education and income than the general adult population in Brazil as described in a previous publication (Peres et al., 2018). Questions were divided into five randomized blocks to correct for any potential impact of order and fatigue on responses. Forced response validation was included in all questions. The questionnaire was answered in less than 30 minutes.

### Study variables

Socio-demographic data included age, gender, marital status, educational level, employment status, household income, race/ethnicity and the geopolitical region of residence (North, Northeast, Southeast, South, Center-West).

**Spiritual and religious experiences.** In order to investigate the most common SREs, a pool of experts was consulted and 16 experiences were identified as the most likely to be prevalent. Participants were asked to fill out the questionnaire answering whether they had any of the experiences listed on a 4-point Likert scale with the possible answers: "Never happened in my life," "Happened once in my life," "More than once in my life," and "Frequently happens in my life." Based on a comprehensive literature review these experiences were grouped in four categories:

**Group 1: Mystical experiences.** Mystical experiences are transcendental phenomena, centered on a sense of reality that differs from ordinary experience and is characterized by a sense of unity with the whole of reality (Cardeña et al., 2017). The items were: (1) Experience of total connection with nature; (2) Experience of no perception of time and space; (3) Feeling that all is sacred and divine; (4) Experiencing something that cannot be put into words; (5) A sentiment of union with everything in the Universe; (6) Feeling of a new reality being revealed; (7) Unity with God or something higher than oneself; (8) Dissolution of Ego, individual consciousness disappears.

**Group 2: Mediumistic experiences.** Mediumship constitutes experiences characterized by the extension of one's consciousness beyond the phenomenal world and the time-space continuum as we perceive it, where individuals or mediums can supposedly communicate with the deceased (Lucchetti et al., 2015). In the questionnaire, the experiences considered mediumistic were: (9) Feeling the presence of someone who died; (10) Hearing voices of someone who died; (11) Experience of seeing apparitions or spirits.

**Group 3: Psi-related experiences.** Psi-related experience was the general term used to describe experiences felt as paranormal and includes those of intuition, precognition, clairvoyance, telepathy and others (Targ et al., 2000). These are common experiences in religious and spiritual traditions, which are generally interpreted as related to a

transcendent dimension of reality. There were three experiences categorized as psi-related in the survey: (12) Experience of a dream that later came true; (13) Experience of intuition; (14) Experience of using intuition to make a decision.

*Group 4: Experiences of alleged past life memories or near-death experiences..* These are two types of experiences also related to a transcendent dimension in life: (15) Experiencing a memory of a past life: this refers to experiences that seem to extend the usually assumed boundaries of consciousness, reporting impressions of a different identity of an allegedly previous life (Mills & Lynn, 2000); (16) Having experienced death and then coming back to life (i.e. near-death experiences): deep psychological events that carry within them mystical and transcendental elements, usually present when a person is near death or going through a life-threatening situation (Cardeña et al., 2017).

### Statistical analysis

Socio-demographic descriptive statistics were reported as absolute numbers, percentages, means and standard deviations. Prevalences were calculated as percentages with 95% confidence intervals, according to the Clopper-Pearson method. Hierarchical logistic regression models were used to investigate the association between religious/spiritual experiences and socio-demographic data. In these models, the socio-demographic characteristics were the independent variables. Hierarchical criteria for entry and exclusion of terms were adopted. Classification statistics were performed to evaluate the accuracy of the models in predicting group membership. Because previous literature has consistently shown associations of religiosity/spirituality with gender and age, we included these variables first in the model, followed by income, educational level, employment status, marital status, and ethnicity.

Each group of experiences was then investigated in relation to its frequency of occurrence. The categories of frequency were “Never,” “Low Frequency” (which combined the categories “At least once” and “More than once”), and “Frequently.” The reference category was “Never.” For socio-demographic variables, reference categories for each variable were: sex = “Male,” age range = “18–24 years,” educational level = “Elementary,” ethnicity = “European Brazilian,” employment status = “Full-time job,” household income = “< 2 minimum wages,” and marital status = “Single.” A *p*-value of *< .05* was considered statistically significant. A histogram was used to show the proportion of participants by the number of experiences reported. The SPSS software (IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY) computed the analyses.

## Results

A total of 1,053 participants were included. Their mean age was 40.8 years, 95% CI [39.9, 41.7]. Table 1 shows the socio-demographic characteristics of the sample. Most participants were women (52.1%), European Brazilian (61.2%), aged between 18–59 years (86.7%), employed (64.7%), middle-class or higher (74%), and with a high educational level (i.e., post-secondary) (54.2%).

### Spiritual and religious experiences

Figure 1 summarizes the prevalence of SREs. Nearly 92% of the population sample reported having had at least one of the SREs at some time in their life. The group of experiences most commonly reported by participants as having happened at least once were Mystical Experiences (84.2%), Psi-related (83.1%), Mediumistic (58.3%), and Past Life/Near Death (33.1%). The experiences more often reported as happening frequently were “Unity with God or something higher than oneself” (26.8%), “Had an intuition about something” (18.6%), “To have used intuition to make a decision” (18.0%), and “Sentiment of union with everything in the universe” (16.3%). Unusual experiences such as “Feeling the presence of someone who died” (50.4%), “Seeing apparitions or spirits” (41.3%), “No perception of time or space” (38.7%), “Hearing voices of someone who died” (30.8%), and “Experiencing the memory of a past life” (30.0%) were also reported as having happened at least once in a lifetime by a large proportion of participants. Survey participants also claimed to have had at least one mystical experience frequently in 35% of cases, while in the group of psi-related experiences this percentage was 27.7%, followed by the mediumistic group, with 11% of people reporting at least one mediumistic experience often. Almost half of the sample (47.5%) reported frequently having at least one out of all the 16 listed experiences.

To investigate if participants had more than one type of SRE, we calculated the proportion of the number of participants (%) by different types of SREs reported (Figure 2). More than 90% of participants declared having had more than one SRE in their life. The proportion of subjects reporting all 16 experiences listed was the highest (8.6%), followed by reports of 5 to 9 different experiences in life.

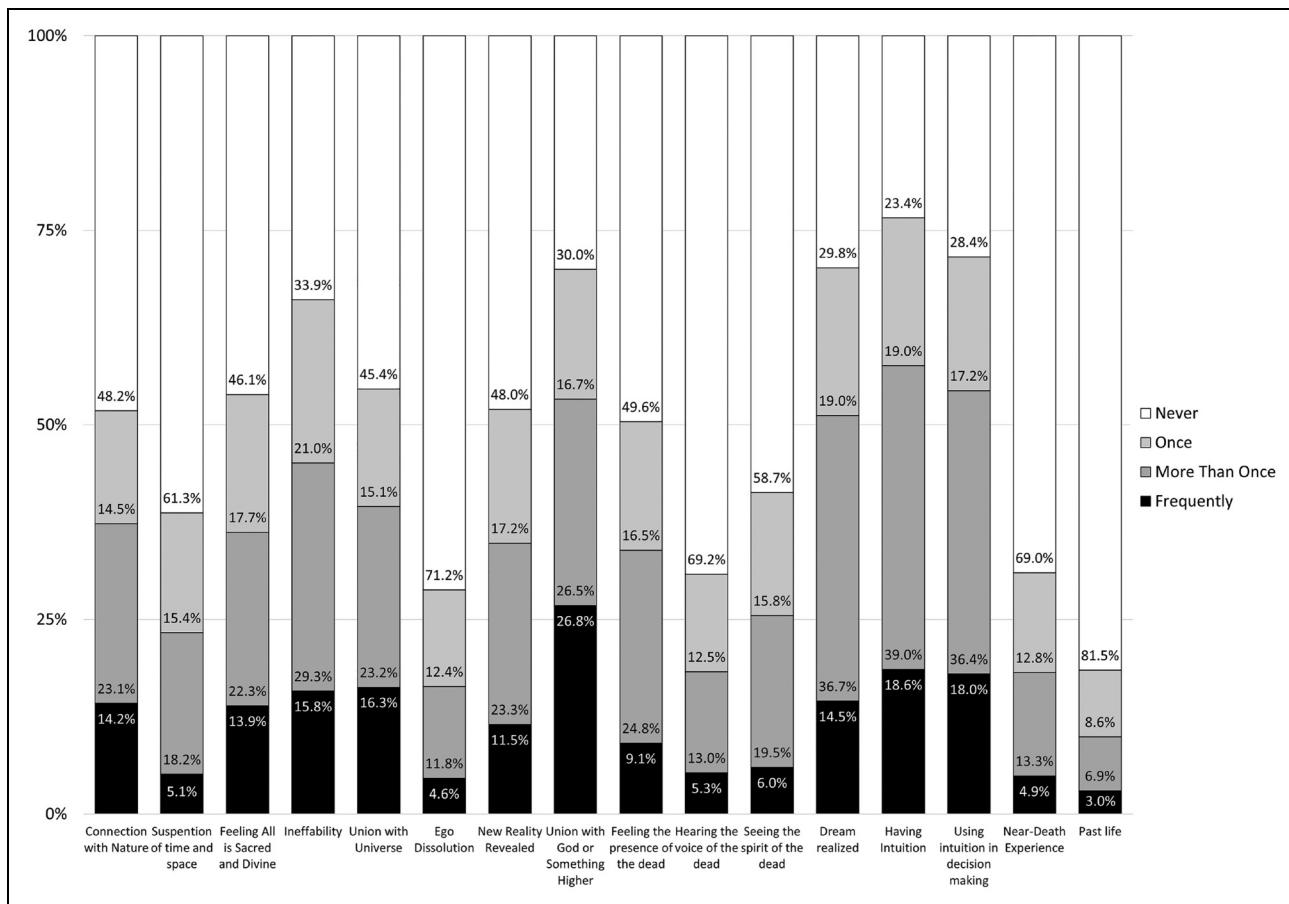
### Socio-demographic profile and SREs

The overall model for each of the four regression models showed fit improvement with the variables in the equation over the null model and fitness of the data. Statistical analyses for each model showed that for the dependent variable Mystical:  $\chi^2 = 87.299$ ,  $df = 54$ ,  $p = .003$ , Pseudo  $R^2 = 0.10$ , Pearson  $\chi^2$ :  $p = .178$ ; Mediumistic:  $\chi^2 = 90.855$ ,  $df = 52$ ,  $p = .001$ , Pseudo  $R^2 = 0.15$ , Pearson  $\chi^2$ :  $p = .37$ ; Psi-related:

**Table 1.** Socio-demographic characteristics of sample (N = 1,053).

Variables	n	% [95% CI]
<b>Region</b>		
North	79	7.5 [6.1, 9.2]
Northeast	282	26.9 [24.4, 29.5]
Center-West	78	7.8 [6.3, 9.5]
Southeast	462	43.4 [40.6, 46.3]
South	149	14.3 [12.4, 16.5]
<b>Sex</b>		
Male	500	47.9 [45.0, 50.8]
Female	553	52.1 [49.2, 55.0]
<b>Age range</b>		
18–24	202	19.7 [17.6, 22.0]
25–34	222	19.8 [17.6, 22.1]
35–44	220	20.9 [18.7, 23.3]
45–54	165	16.1 [14.1, 18.3]
55–64	157	14.9 [13.0, 17.0]
≥ 65	87	8.5 [7.0, 10.1]
<b>Ethnicity</b>		
White	651	61.2 [58.3, 63.9]
Mixed race	308	29.9 [27.3, 32.6]
Black	58	5.7 [4.4, 7.2]
Asian	28	2.6 [1.8, 3.7]
Indigenous	8	0.7 [0.3, 1.3]
<b>Education</b>		
Illiterate/None	7	0.8 [0.3, 1.4]
Elementary	39	4.3 [3.2, 5.6]
Secondary	416	40.2 [37.4, 43.1]
Post-secondary	591	54.8 [51.9, 57.6]
<b>Household income [minimum wage unity<sup>a</sup>]</b>		
< 2	68	7.7 [6.2, 9.5]
2–3	158	18.2 [15.9, 20.7]
4–8	338	37.8 [34.8, 40.9]
9–18	245	26.6 [23.9, 29.5]
>18	84	9.6 [7.9, 11.6]
<b>Employment status</b>		
Part-time job	213	20.2 [18.0, 22.6]
Full-time job	477	44.5 [41.6, 47.4]
Unemployed	92	8.8 [7.2, 10.5]
Student	83	8.2 [6.7, 9.9]
Housewife	45	4.3 [3.2, 5.6]
Disable	1	0.2 [0.02, 0.6]
Retired	134	13.0 [11.1, 15.0]
Voluntary job	8	0.9 [0.5, 1.6]
<b>Marital status</b>		
Single	346	32.7 [30.0, 35.4]
Married/cohabiting	612	58.1 [55.3, 60.9]
Divorced	54	5.4 [4.1, 6.8]
Separated	24	2.3 [1.5, 3.3]
Widow/widower	17	1.6 [1.0, 2.5]
<b>Religious affiliation</b>		
Catholic	461	43.8 [40.8, 46.9]
Evangelical/Protestant	192	18.3 [16.0, 20.7]
Spiritism	136	12.9 [11.0, 15.1]
Christian	71	6.7 [5.3, 8.4]
Others	64	6.1 [4.7, 7.7]
Agnostic/ Atheist/ No religion	128	12.2 [10.3, 14.3]

<sup>a</sup> Based on minimum wage of June IBGE (2016). There is a 16% missing data rate in the income variable.



**Figure 1.** Prevalence of spiritual/religious experiences (SREs) in Brazil (N = 1,053).

Note. Calculated from “At Least Once” data.

$X^2 = 84.187$ ,  $df = 52$ ,  $p < .003$ , Pseudo  $R^2 = 0.14$ , Pearson  $X^2$ :  $p = .35$ ; and Past life/Near death:  $X^2 = 72.599$ ,  $df = 52$ ,  $p = 0.046$ , Pseudo  $R^2 = 0.13$ , Pearson  $X^2$ :  $p = .066$ . The overall classification accuracy to correctly predict the groups in each model was, Mystical = 53.9%, Mediumistic = 54.6%, Psi-related = 59.9%, and Past life/Near death = 70.2%.

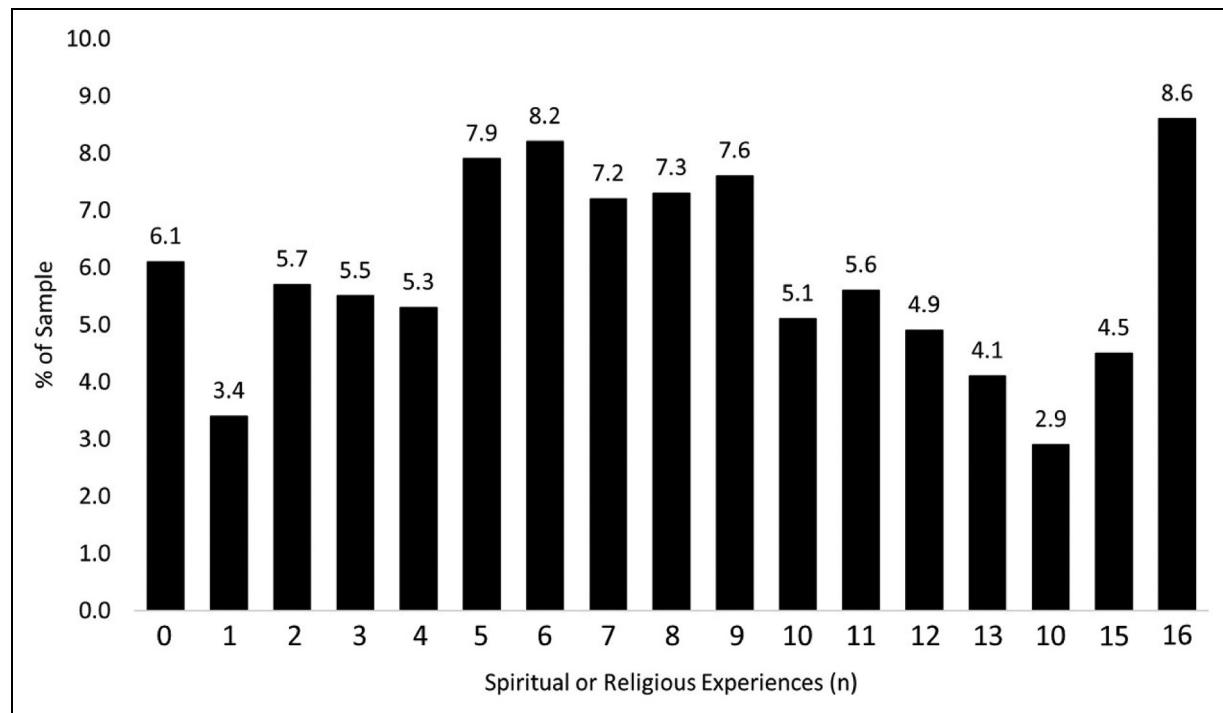
The statistically significant associations between groups of SREs and socio-demographic variables are shown in Table 2. Due to the small number of reports of some of the experiences which resulted in low count cells, the regression model was calculated using the groups as a whole.

The most consistent findings were significant positive associations between SREs with gender and age. In the mystical, mediumistic, and psi-related groups, women were more likely (60, 80, and 60% respectively) to have had these experiences frequently when compared to men. In relation to age, only mystical experiences were rated as frequent among subjects of 55–64 years old ( $OR = 4.3$ ), and older (over 65 years) ( $OR = 15.5$ ). Associations were found at a low frequency level among participants of the mediumistic group aged 35–44 ( $OR = 3.45$ ), 45–54 ( $OR = 7.0$ ), 55–64 ( $OR = 3.96$ ), and  $\geq 65$  ( $OR = 5.9$ ) and among

those aged between 45–54 years old ( $OR = 3.5$ ) of the past life/near-death group. Mixed-ethnicity people were twice as likely to have mystical experiences frequently, while being Asian reduced the chances of psi-related experiences frequently ( $OR = 0.11$ ) and in low frequency basis ( $OR = 0.25$ ). Married and cohabiting individuals were found to have reduced chances of low frequent mediumistic and psi-related experiences ( $OR = 0.35$ , 0.15) as well as divorced people ( $OR = 0.41$  and 0.18 respectively). Education, income, and employment status were mainly unrelated to SREs.

## Discussion

Our findings show that SREs were highly prevalent in a sample of the Brazilian population, with more than 90% of participants (all groups combined) reporting having had at least one SRE, at least once in their lifetime and 47.5% reported having at least one experience frequently. In line with previous literature, SREs were more frequent among women. However, contrary to the hypotheses of several authors (Bainbridge, 1978; Rice, 2003; Stefan et al., 1971; Wuthnow, 1976), in a multivariate analysis, SREs were mostly unrelated to income, education,



**Figure 2.** Histogram of the proportion of participants by the number of SREs reported.

employment status, and ethnicity. Older age was related to frequent experiences of the mystical type only.

### SREs and group categories

**Group 1: Mystical experiences.** Mystical experiences were reported by 84% of participants. The most common experience was “unity with God or something higher.” Mystical experiences are, in general, related to altered states of consciousness, in which there is a most vivid perception of a different and even superior reality (Moreira-Almeida & Lotufo Neto, 2017). They can be intense and extreme or more gentle (Wulff, 2013), but often lead to a profound impact in the experiencer’s life. They are commonly reported in different cultures, with 40% of the population in England reporting the experience (Greeley, 1975; Hay & Morisy, 1978) and around 50% in America (Pew Research Center, 2009; Wulff, 2013). Our results showed a much higher prevalence in Brazil. The country is considered a fertile soil for religious movements and syncretic spiritual practices that share the belief of a higher spiritual force, creating an appropriate frame to support experiences like “unity with God” (F. R. Machado et al., 2016). Some religious experiences such as “the Gifts of the Holy Spirit” are manifestations that contain transcendent mystical aspects and are shared by a large proportion of followers across Brazil, such as Catholics, Protestants and especially Evangelicals, whose number has increased in the last decade (Peres et al., 2018). Furthermore, New

Age inspired shamanic movements are growing in popularity in Brazil, with practices that may stimulate the occurrence of mystical experiences (F. R. Machado et al., 2016). From a clinical point of view, healthy people can have positive and long-lasting outcomes, especially when the experiences are held in religious or spiritual contexts. Even in their mildest forms, SREs can provide inspiration for self-development and inner growth (Wulff, 2013). Although there can be some overlap between healthy and pathological mystical experiences, there are differences worth addressing. Menezes Júnior and Moreira-Almeida (2009) proposed 9 items that should be considered in the differential diagnosis of healthy and pathological SREs. Among them is the progressive character of mystical experiences as opposed to the regressive nature of pathological experiences. In other words, even when SREs trigger symptoms that resemble dissociative and psychotic disorders, experiencers may emerge from them feeling more functional in daily life activities and report improved levels of well-being, provided they receive supportive interventions (Brook, 2019; Lukoff, 1985). Therefore, further investigation is needed to elucidate the therapeutic potential of these experiences and the correlation with healthy and pathological conditions.

**Group 2: Mediumistic experiences.** We found a high prevalence of SREs of hearing the voice of someone who died, feeling the presence of someone who died, and seeing spirits more than once in life (63%) and frequently (11%).

**Table 2.** Associations between groups of SREs and socio-demographic data.

		Mystical		Mediumistic		Psi-related		Past life/Near death	
		Low Freq. OR [95% CI]	Frequently OR [95% CI]	Low Freq. OR [95% CI]	Frequently OR [95% CI]	Low Freq. OR [95% CI]	Frequently OR [95% CI]	Low Freq. OR [95% CI]	Frequently OR [95% CI]
Sex	Female	1.1 [0.8, 1.6]	<b>1.6 [1.1, 2.3]</b>	<b>1.3 [1.0, 1.8]*</b>	<b>1.8 [1.2, 2.8]**</b>	1.2 [0.9, 1.8]	<b>1.6 [1.1, 2.4]**</b>	0.8 [0.6, 1.1]	0.8 [0.5, 1.4]
Age range	Male	Ref. [1.0]	Ref. [1.0]	Ref. [1.0]	Ref. [1.0]	Ref. [1.0]	Ref. [1.0]	Ref. [1.0]	Ref. [1.0]
	≥ 65	<b>7.5 [1.6, 34.1]**</b>	<b>15.5 [3.2, 74.8]**</b>	<b>5.9 [2.2, 15.5]</b>	1.0 [0.2, 5.2]	4.6 [1.2, 17.6]	2.2 [0.49, 10.4]	1.9 [0.68, 5.5]	2.27 [0.34, 14.8]
55–64	55–64	1.9 [0.6, 5.8]	<b>4.3 [1.4, 13.7]*</b>	<b>3.96 [1.8, 8.7]</b>	1.1 [0.3, 3.7]	1.6 [0.6, 4.6]	1.1 [0.38, 3.7]	1.44 [0.59, 3.3]	1.83 [0.41, 8.0]
	45–54	1.5 [0.5, 4.2]	1.9 [0.6, 5.4]	<b>7.04 [3.2, 15.2]**</b>	0.6 [0.1, 2.2]	8.8 [2.5, 30.7]	4.0 [1.05, 15.7]	<b>3.62 [1.64, 7.9]**</b>	0.45 [0.06, 3.0]
35–44	35–44	1.2 [0.5, 2.9]	1.1 [0.4, 2.9]	<b>3.45 [1.7, 6.9]</b>	1.1 [0.4, 3.0]	3.3 [1.3, 8.6]	3.45 [1.2, 9.7]	1.74 [0.85, 3.7]	1.43 [0.37, 5.51]
	25–34	1.1 [0.5, 2.3]	1.4 [0.6, 3.0]	1.73 [0.9, 3.1]	.6 [0.2, 1.5]	1.2 [0.6, 2.7]	1.7 [0.75, 3.8]	1.22 [0.63, 2.37]	1.5 [0.46, 4.82]
Income	18–24	Ref. [1.0]	Ref. [1.0]	Ref. [1.0]	Ref. [1.0]	Ref. [1.0]	Ref. [1.0]	Ref. [1.0]	Ref. [1.0]
	>18	1.4 [0.4, 4.1]	1.4 [0.4, 4.7]	0.7 [0.3, 1.7]	4.6 [0.5, 43.3]	1.52 [0.5, 4.5]	1.44 [0.8, 4.8]	.49 [0.17, 1.38]	1.42 [0.23, 8.7]
	9–18	1.5 [0.5, 3.8]	2.2 [0.8, 6.3]	1.3 [0.6, 2.8]	6.8 [0.8, 57.8]	2.59 [0.75, 7.0]	2.8 [0.97, 8.5]	0.75 [0.32, 1.77]	1.16 [0.21, 6.33]
	4–8	2.0 [0.8, 4.8]	<b>2.6 [1.0, 6.8]</b>	1.2 [0.6, 2.5]	6.1 [0.7, 49.3]	2.1 [0.8, 5.0]	1.5 [0.5, 4.1]	0.90 [0.41, 1.99]	.81 [0.15, 4.23]
Education	2–3	1.8 [0.7, 4.6]	1.7 [0.6, 4.7]	0.9 [0.4, 1.9]	5.6 [0.6, 57.9]	2.25 [0.89, 5.0]	1.4 [0.5, 4.3]	0.71 [0.30, 1.69]	1.18 [0.21, 6.52]
	<2	Ref. [1.0]	Ref. [1.0]	Ref. [1.0]	Ref. [1.0]	Ref. [1.0]	Ref. [1.0]	Ref. [1.0]	Ref. [1.0]
	Superior	1.2 [0.3, 5.5]	0.7 [0.1, 3.2]	0.5 [0.1, 1.7]	0.6 [0.1, 3.9]	0.54 [0.1, 2.95]	1.5 [0.19, 12.3]	<b>0.20 [0.06, 0.60]**</b>	0.60 [0.05, 6.34]
	Secondary	1.3 [0.3, 5.6]	1.0 [0.2, 4.6]	0.8 [0.2, 2.4]	0.5 [0.09, 3.2]	0.57 [0.11, 2.98]	1.7 [0.21, 13.4]	<b>0.19 [0.06, 0.55]**</b>	0.43 [0.04, 4.51]
Employment status	Elementary	Ref. [1.0]	Ref. [1.0]	Ref. [1.0]	Ref. [1.0]	Ref. [1.0]	Ref. [1.0]	Ref. [1.0]	Ref. [1.0]
	Retired	0.4 [0.1, 1.1]	<b>0.2 [0.09, 0.8]**</b>	0.7 [0.3, 1.5]	0.4 [0.1, 1.6]	0.59 [0.22, 1.5]	0.68 [0.21, 2.1]	1.13 [0.53, 2.42]	0.13 [0.014, 1.19]
	Student	0.7 [0.3, 1.8]	0.7 [0.2, 1.9]	0.7 [0.3, 1.5]	1.2 [0.4, 4.1]	0.6 [0.24, 1.57]	1.2 [0.45, 3.6]	0.53 [0.21, 1.44]	0.97 [0.21, 4.3]
	Housewife	1.2 [0.1, 14.2]	5.4 [0.5, 52.1]	1.8 [0.4, 7.3]	1.4 [0.1, 13.8]	1.6 [0.29, 9.5]	1.1 [0.13, 9.6]	0.15 [0.01, 1.48]	0.47 [0.03, 7.0]
	Unemployed	0.9 [0.3, 2.6]	<b>1.7 [0.6, 5.2]</b>	0.7 [0.3, 1.5]	<b>1.5 [0.4, 4.9]</b>	0.8 [0.27, 2.5]	2.0 [0.61, 6.6]	0.98 [0.43, 2.2]	0.45 [0.05, 3.9]
	Part-time	1.1 [0.6, 2.2]	1.3 [0.6, 2.6]	1.0 [0.6, 1.5]	1.5 [0.7, 3.2]	0.9 [0.47, 1.74]	1.5 [0.74, 3.31]	1.1 [0.68, 1.88]	1.29 [0.53, 3.0]
	Full-time	Ref. [1.0]	Ref. [1.0]	Ref. [1.0]	Ref. [1.0]	Ref. [1.0]	Ref. [1.0]	Ref. [1.0]	Ref. [1.0]

(continued)

Table 2. Continued

	Mystical			Mediumistic			Psi-related			Past life/Near death			
	Low Freq.		Frequently	Low Freq.		Frequently	Low Freq.		Frequently	Low Freq.		Frequently	
	OR [95% CI]	OR [95% CI]	OR [95% CI]	OR [95% CI]	OR [95% CI]	OR [95% CI]	OR [95% CI]	OR [95% CI]	OR [95% CI]	OR [95% CI]	OR [95% CI]	OR [95% CI]	
Marital status													
Widowed	.8 [0.07, 8.8]	1.2 [0.1, 13.6]	.9 [0.1, 5.2]	1.8 [0.1, 26.2]	—	—	—	—	1.14 [0.23, 5.6]	2.8 [0.20, 38.6]			
Married/	1.1 [0.6, 2.0]	1.5 [0.8, 2.9]	.35 [0.21, 0.57]**	1.1 [0.5, 2.4]	.41 [0.21, 0.78]**	.61 [0.30, 1.24]	.61 [0.30, 1.24]	.56 [0.34, 0.94]*	.56 [0.34, 1.32 [0.53, 3.3]				
Cohabiting													
Divorced	.4 [0.1, 1.2]	.4 [0.1, 1.5]	.15 [0.05, 0.44]**	.5 [0.1, 3.2]	.18 [0.053, 0.64]**	.38 [0.095, 1.54]	.38 [0.095, 1.54]	.64 [0.21, 1.94]	.64 [0.21, 1.94]	2.3 [0.39, 13.9]			
Separated													
Single	.8 [0.1, 4.8]	.6 [0.09, 4.0]	.3 [0.1, 1.2]	—	—	—	—	—	—	48 [0.12, 1.82]			
Pardo	Ref. [1.0]	Ref. [1.0]	Ref. [1.0]	Ref. [1.0]	Ref. [1.0]	Ref. [1.0]	Ref. [1.0]	Ref. [1.0]	Ref. [1.0]	Ref. [1.0]	Ref. [1.0]	Ref. [1.0]	
	1.3 [0.7, 2.5]	2.1 [1.1, 4.0]	1.3 [0.6, 1.4]	.9 [0.6, 1.7]	.9 [0.50, 1.59]	.78 [0.41, 1.47]	.89 [0.50, 1.59]	.78 [0.41, 1.47]	.83 [0.52, 1.33]	.83 [0.52, 1.33]	1.22 [0.54, 2.75]		
Asian													
Black	.4 [0.1, 1.5]	.4 [0.1, 1.7]	.9 [0.3, 2.5]	1.1 [0.2, 6.2]	.25 [0.079, 0.80]*	.11 [0.021, 0.66]*	.11 [0.021, 0.66]*	.14 [0.49, 4.1]	.14 [0.49, 4.1]	—			
European	.9 [0.3, 2.4]	1.3 [0.4, 3.9]	1.4 [0.7, 3.1]	.8 [0.2, 3.3]	.68 [0.25, 1.83]	.78 [0.26, 2.32]	.78 [0.26, 2.32]	.91 [0.38, 2.17]	.91 [0.38, 2.17]	1.13 [0.23, 5.46]			
Brazilian												Ref. [1.0]	

Note. The categories "I literate/Not answered," "Indigenous," "Disabled," and "Voluntary job" were excluded from regression models due to the small number of respondents. Empty cells in the table ("—") indicate when the model could not compute due to the small number of entries. Reference category is "never." Low Freq. = "Low Frequency" category, which was set by pooling "At least once" and "More than once" together.

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

The frequencies in Brazil are higher than those reported in North American and European surveys. In our study, 41.3% of participants claimed they have seen spirits at least once and 50% felt their presence, compared to 18% and 29% of North Americans respectively (Pew Research Center, 2009). The frequencies are also higher compared to Western Europeans (23%) and the British (10.4%) when asked about having contact with the dead at least once (Castro et al., 2014; Haraldsson & Houtkooper, 1991).

In the Brazilian context, mediumistic religions (Candomblé, Umbanda, and Kardecist Spiritism) are widespread throughout the country (Lucchetti et al., 2015; Peres et al., 2018). Furthermore, the popularity of mediumistic phenomena in Brazil is supported by a syncretic trend identified in previous studies (Alves et al. 2017; Moreira-Almeida et al., 2010; Pew Research Center, 2006). Historically, mediumship has been a part of the Brazilian cultural map, from the African religions of slaves in the 16th century to Kardecist Spiritism developed in Europe much later. Mediumistic experiences became well-known through the popularity of important mediums such as Chico Xavier (Maraldi, 2014). However, although mediumistic traditions may support SREs, others such as Protestant and neo-Pentecostal sects, whose number of followers has grown in recent years, regard mediums as being “possessed by demons,” which can lead to feelings of guilt and inadequacy and create a fearful attitude toward the experience (F. R. Machado, 2009). The study of mediumistic phenomena as seen by other (non-mediumistic) religions deserves more attention and further analysis. The potential impact of this conflictual relationship with other religions on mediums’ quality of life and mental health deserves further study.

**Group 3: Psi-related experiences.** The psi-related group of experiences also had a high prevalence rate (83%), confirming findings from a previous study with a convenience sample from São Paulo, Brazil (F. R. Machado, 2009). Precognitive dreams (“dreams that later came true”) were prevalent (53.7%) at a low frequency, but were also reported on a frequent basis by 14.5%. In a U.S. survey, 40% of Americans reported experiencing precognitive dreams and 50% believed that dreams have the power to reveal hidden facts and future events (American Piety in the 21st Century, 2006). In Brazil, despite the small size of the sample, preliminary data (F. R. Machado, 2009) suggests that experiences occurring during a dream state were the most frequent (71.9%) and influenced decisions and habits. For some individuals, Important decisions may be made based on dreams and intuitive processes rather than based on objective and analytic data. A combination of “intuition” and “using intuition to make a decision” was significantly reported in this study (over 70%). Intuition is an important component of human thought, considered in the areas of both cognitive psychology and human

information processing (Norenzayan et al., 2010). Nevertheless, it can also be understood as a kind of knowledge that comes from a mystical or divine source, whereby the individual is able to anticipate future events—a type of precognition or psi-related phenomenon (Targ et al., 2000). An intuition can be highly appreciated, especially in organizational environments (for risk-taking in investments) or in clinical assessment in nursing care (Castro et al., 2014), regardless of the religious background or spiritual beliefs of those involved. In Brazil, F. R. Machado (2009) found that decisions about lifestyle, purpose in life, choice of friends, love and professional issues can be influenced by intuition. However, further studies are necessary to clarify the implications regarding the paranormal characteristics of intuition and dreams on well-being and mental health. The use of culture-specific spiritual techniques to design new experimental protocols for research is recommended.

### **Association of SREs with socio-demographic characteristics**

Our samples represent a wide cross-section of the Brazilian population, including participants from the five main geographic regions (South, Southeast, North, Northeast, Center-West). However, our sample was mostly European Brazilian (61.2%), middle-class or higher (74%), and had a post-secondary education level (54.2%), which is higher than that of the general population (21%) (INEP, 2019). The survey participants’ religious/spiritual background also presented some differences from the representative Brazilian Demographic Census (BDC; IBGE, 2010), showing a smaller number of Catholics (43.8% vs. 64.6%), but a larger number of Spiritists (12.9% vs. 2%) and atheists/agnostics/no religion (12.2% vs. 8%).

**Gender.** Being a woman is associated with having more spiritual, religious, and anomalous experiences in several studies (American Piety in the 21st Century, 2006; Castro et al., 2014; Haraldsson & Houtkooper, 1991; Pechey & Halligan, 2012; Pew Research Center, 2009). Our study replicated these findings, showing women to be significantly more likely than men to experience mystical (60%), mediumistic (80%), and psi-related experiences (60%) more frequently. Interestingly, some of the few Brazilian studies previously conducted indicated no significant differences in the prevalence of SREs between genders, but differences in the willingness to report them (F. R. Machado, 2009; Martins & Zangari, 2012). There have been traditional explanations for the differences in the prevalence in men and women, which rely on the idea that women are more intuitive and person-oriented (Haraldsson, 1985). However, more recent studies suggest that intuitive thinking and social interaction styles cannot be explained by gender alone (Castro et al., 2014; Saher

and Lindeman, 2005). Nevertheless, a cultural hypothesis, which holds that women may feel more comfortable in expressing their experiences, remains as one plausible explanation for the results (F. R. Machado, 2009; Underwood, 2011). In addition, women attend religious services more often, and are more likely to participate in religious practices and being involved with spiritual, Spiritist, and so-called “New Age” practices (Castro et al., 2014; Farias et al., 2005; Peres et al., 2018; Reichow, 2017). Furthermore, SREs may give women a sense of empowerment and usefulness in society (Maraldi & Krippner, 2019). Particularly in Brazil, the relationship between women and religion can be associated with power. In the Iorubá tradition, women occupy the highest positions within the religious hierarchy of Candomblé (Silva, 2010). Likewise, even in the Pentecostal movement, which is traditionally patriarchal, women have been assuming higher status roles, gaining more autonomy from their families and partners, as well as a newfound sense of respect in the community (M. D. C. Machado, 2005). There are many potential explanations for the greater prevalence of SREs among women, including cultural, behavioral, economical, and political factors, which require further study (Castro et al., 2014).

**Age.** Our study found that only the mystical group of SREs was associated with age. Although studies in the United States and Europe show that SREs occur mostly among middle-aged people (Castro et al., 2014; Greeley, 1975; Palmer, 1979), there are several issues that must be considered. Older persons might be expected to be more likely to have experienced some type of SREs at least once in their lives, simply because they have lived longer. This could explain the associations found for the low frequency experiences, but not the more frequent ones. In this study, within the “frequently” level there was a significant association between mystical experiences and being over 55 years of age. In fact, mystical experiences have been related with the middle-aged (Castro et al., 2014; Greeley, 1975), but not with the elderly. For a more complete understanding of this correlation, one should consider variables such as the time when the experience occurred, sociological and psychological factors related with the aging process (Castro et al., 2014), as well as the experience reported. Mid-life is certainly characterized by events that inspire the search for meaning and purpose in life—the spiritual dimension (Castro et al., 2014). In that sense, people going through the second half of their lives may become more open to practices that stimulate the occurrence of SREs as well as more prone to interpret subjective events as spiritual phenomena. Furthermore, the depth in religious adherence and strength in beliefs found in older people (Bengston et al., 2015) could be particularly related to the manifestation of mystical experiences, which are related to transformative processes, changes in values,

and meaning in life. However, these associations need more investigation. Frequent mediumistic experiences, for instance, were not found to be associated with any age specifically and there were no consistent findings in the other groups of experiences to support the claim that SREs are generally age-related. Finally, due to the low prevalence of some of the experiences in our study, the regression model was calculated for the group. Future analyses should separate each experience and verify the time and circumstances of their manifestation.

**Ethnicity, Education, Employment Status and Income.** Overall, the findings are in accordance with results from previous studies (Castro et al., 2014; Harraldson & Houtkooper, 1991; F. R. Machado, 2009; Reichow, 2017). Ethnicity, education, employment status, and income were generally not associated with SRE prevalence. The results are consistent with recent studies that do not support the marginality hypothesis, which predicts higher prevalence of SREs in minority groups as a compensation for the lack of opportunities and the high social pressures they face (Castro et al., 2014; Hay & Morisy, 1978; Maraldi & Krippner, 2019; Rice, 2003). However, it seems valuable to discuss the greater likelihood of mixed-ethnicity (*pardo*) participants having frequent mystical experiences. In Brazil, mixed-ethnicity people are the largest group affiliated with the Pentecostal and Neo-Pentecostal movements (Peres et al., 2018). As mentioned earlier, some of their religious practices can be felt as similar to mystical experiences (“the gifts of the Holy Spirit”) and, according to some studies (F. R. Machado, 2009; Rice, 2003), experiencers tend to adopt religious beliefs that accept and explain experiences of anomalous features, therefore feeling encouraged to report them (Maraldi & Krippner, 2019). Hence, the phenomena of experiencing and believing seem to be intertwined, constantly reinforcing each other, reflecting the multifactorial aspects underlying the occurrence of SREs (F. R. Machado et al., 2016). Apart from gender and age, the other associations found between SREs and socio-demographic variables require different methods of investigation for more reliable conclusions, as they seem to be isolated associations within multiple correlations.

**Marital status.** In contrast to previous studies, our research found that being married, cohabiting, or being divorced was associated with a decrease in the reporting of low frequency mediumistic, psi-related, and past life/near-death experiences. Earlier, Haraldsson and Houtkooper (1991) suggested that people with a history of broken relationships reported more mediumistic (contact with the dead) and other psi-related experiences than the single and married groups. In Brazil, Reichow’s (2017) study supported those results, whereas F. R. Machado (2009) did not find any association between marital status and AEs. The

reduction of the chances of SREs found in our study among married as well as divorced people seems to question the consistency of the assumption that those who failed in their relationships would have more SREs (the marginality hypothesis). However, as the association occurred only at a low frequency level, further investigation is needed to ratify these differences.

### Study limitations

This study has several limitations. Although a quota collection method was used, the final sample population had higher educational and socioeconomic levels than the general population of Brazil, limiting generalizability. The survey itself did not assess the time when the experiences occurred and some of the SREs listed had no phenomenological explanation to describe them. Finally, due to the low prevalence of some of the experiences in our study, we conducted the analysis using groups of experiences instead of each separate experience, and could not address their specificities.

### Conclusion

SREs were highly prevalent in the population, confirming previous studies in Brazil. Nearly 92% of the sample had SREs at least once in their lifetime. While many international surveys have found a high prevalence of SREs, these Brazilian rates are especially high. A substantial number of people reported having SREs on a frequent basis, particularly mediumistic experiences (11%). Across the 16 different types of experiences assessed, almost half of the sample reported at least one SRE frequently and a significant proportion reported having more than one type of experience, regardless of their religious affiliation. These results suggest SREs are a common human phenomenon, across all strata of society, more openly reported by women, more likely to occur among middle-aged people, but generally unrelated to other socio-demographic characteristics like education, ethnicity and income, contradicting the marginalization hypothesis. The high prevalence of different types of SREs points to the need for more cross-cultural and mixed method studies to elucidate their impact on the formation of spiritual and religious beliefs and practices related to healthy functioning or pathological conditions.

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