





Research Article

Explicit spirituality, self-esteem and the mechanisms of social and temporal comparison

Justine Ollivaud¹ 
University of Nantes

Jean-Michel Galharret² 
University of Nantes

Nicolas Roussiau³ 
University of Nantes

¹ Correspondence to: Nicolas Roussiau (Prof. Dr.), Professor of Psychology, University of Nantes, Laboratory of Psychology of the Pays de la Loire (LPPL - EA 4638), F-44000 Nantes, France. Email: nicolas.roussiau@univ-nantes.fr

² Psychologist, University of Nantes, Laboratory of Psychology of the Pays de la Loire

³ Professor of Statistics, University of Nantes, Laboratory of Mathematics Jean Leray

Corresponding author:

Nicolas Roussiau

E-mail:

nicolas.roussiau@univ-nantes.fr

eISSN: 2458-9675

Received: 29.12.2022

Revision: 12.01.2023

Accepted: 03.02.2023

©Copyright 2023 by Author(s)

Abstract

The purpose of this research is to find out if people who call themselves spiritual compare themselves less to others and have a higher self-esteem. Comparing oneself to others often leads to suffering and unhappiness. Thus, this quantitative study aimed to investigate the relationship between explicit spirituality, social and temporal comparisons and self-esteem. Four questionnaires were completed by 331 participants, each evaluating the different variables. The results confirmed our hypothesis which suggested that individuals with high spiritual scores would have low social and temporal comparison scores on the one hand, and high self-esteem on the other. The theoretical implications and limitations of the study are discussed.

Keywords:

spirituality • explicit spirituality • social comparison • temporal comparison • self-esteem.

Citation: Ollivaud, J., Galharret, J.M., & Roussiau, N. (2023). Explicit spirituality, self-esteem and the mechanisms of social and temporal comparison. *Spiritual Psychology and Counseling*, 8(1), 83–102. <https://doi.org/10.37898/spc.2023.8.1.187>

In recent years, spirituality has aroused a growing interest in the field of psychology. Despite this interest and the resulting scientific advances, the concept of spirituality in everyday language is often associated with esoteric or sectarian phenomena, sometimes impeding its study. Furthermore, it is often perceived as being closely linked to religion, leading to the exclusion of individuals with no religious beliefs from this spiritual approach (Biccheri & al., 2016). However, the growing disillusionment with religious institutions, particularly in Europe, is leading to developments in spirituality outside of the religious sphere (Hill & al., 2000). Spirituality can thus be religious or non-religious, the neologism “a-religious” allows for the dissociation of religion from spirituality in a more general cultural perspective (Renard, 2018). Among Anglo-Saxons, the acronyms SBNR (Spiritual But Not Religious) or SBNA (Spiritual But Not Affiliated) are used to identify spirituality outside of a religious framework and/or formal institution. A major distinction with religion is the transversality of spirituality. Regarding the differences between the two, Koenig, McCullough and Larson (2001, p.18) suggested six specific distinctions. Spirituality is: - more individual, - more subjective, - less formal, - the emotional dimension is oriented towards the self, - there is no authority, - and no doctrine, whereas religion is: - more collective, - more objective (therefore measurable), - organized, - ritualized (social practices), - subject to authorities - and develops a doctrine that separates good from evil. For Roof (1999, p.35), spirituality can be defined around four themes: 1. a source of values and ultimate meaning (or purpose beyond oneself); 2. a means of understanding; 3. inner awareness; and 4. personal integration, both in the form of inner unity (with respect to oneself) and outer unity (the capacity to be connected to others). More recently, Carignan and Bellehumeur (2019, p.22) presented a concept of spirituality around five elements: “1. Self-transcendence refers to overcoming oneself, leaning towards something that is beyond oneself, which may (or may not) be the Transcendent or “sacred”; 2. Connectedness refers to the relationship with oneself, others or the Transcendent; 3. Meaning refers to the meaning given to events, elements and circumstances of life; 4. Purpose refers to the motivation or justification for one’s existence, what one lives for; 5. Contribution refers to the meaning of what one brings to life, to the community or to the environment” There are many definitions of spirituality, but researchers generally agree that the concept of spirituality is multidimensional, objectifiable and an intimate experience.

Spirituality is often defined as an inner search of each individual for meaning and purpose in life. It is a distinct and considered universal dimension of human experience. In particular, it is associated with a certain form of appreciation of life. Spirituality is also an inner quest for truth and authenticity that aims at the fulfillment of the individual. This search for meaning aims to achieve coherence in one’s life (Wink & Dillon, 2002). This intimate quest for coherence and meaning leads people to be authentic with themselves. Often we behave according to what others

think. When the individual compares, it leads to jealousy, competition, aggression and leads the individual to forget his identity, his real desires, his aspirations and his dreams. Through this mechanism, the individual will act according to others, resulting in suffering and regret (Ware, 2011). The main question that arises in this article is the following: do people who say they are spiritual, compare themselves less to others? When individuals do not compare themselves much to others, do they have a higher self-esteem? Getting to know each other, rather than wanting to be what others want, could lead to high self-esteem. Indeed, spirituality commits the individual to focus on the relationship with the self, which can lead to increased self-esteem and, as a corollary, increased happiness, which, according to Lyubomirsky, Tkach and DiMatteo (2005), are inextricably linked. These elements, therefore, lead us to question the links between spirituality, i.e., the relationship to oneself, and the mechanisms of daily life common to all individuals, namely social comparison.

Social comparison

Festinger (1954), defined social comparison as examining similarities and differences between the self and others. Friedmann (2011) explains that individuals compare themselves to others regarding their opinions and abilities as well as their values. Thus, by comparing themselves positively to others, individuals seek to improve their own well-being and self-esteem. However, this very costly process can lead to anxiety and suffering (Crocker & Park, 2004 ; Verduyn & al., 2020). According to Hogg (2000), social comparison is a pervasive feature of group life. It occurs at the intergroup level, with individuals comparing their group to other groups as well as at the interindividual level, with individuals measuring themselves against members of other groups, as well as their own. Authors such as Friedmann (2011) have identified three main types of comparison. First, the comparison with a group or a person that one considers close to oneself, which is qualified as lateral (allowing one to evaluate one's performance and to confirm one's opinion). Then, the so-called top-down comparison, which consists in comparing oneself to someone weaker than oneself (in the aim of increasing one's self-esteem). Finally, the so-called ascending social comparison, which intervenes when one compares oneself to someone considered superior by oneself (in the aim of self-improvement and progression, by identifying oneself with a targeted model). Individuals, in the process of social comparison, may be motivated by needs for self-evaluation (top-down comparison) and self-improvement (bottom-up comparison) (Vogel & al., 2014; Wood, 1996).

Temporal Comparison

In a complementary theory, Albert (1977) studied temporal comparisons that deal with the temporal aspect of human experience, leading to the comparison of oneself

at different periods in a temporal perspective. This allows the individual to establish an identity that endures over time and thus to be able to evaluate, initiate and adjust to changes. Self-evaluation is a fundamental reflective analysis for human beings. Whether positive or negative, it allows individuals to situate themselves in relation to others and to themselves. Together, these two types of evaluation are true reference points for individuals and are directly linked to their well-being and more particularly to their self-esteem (de la Sablonnière & al., 2009 ; Vogel & al., 2019).

Self-esteem

Defined as a personal judgment of dignity, self-esteem is expressed in the attitudes that individuals have toward themselves. Heatherton and Wyland (2003) described self-esteem as an emotional evaluative component that individuals feel when they assess their abilities and skills. In this sense, individuals with low self-esteem generally have an aversion to the perception of what surrounds them and see the world in a more negative way. According to the authors, depression, shyness and loneliness are all linked to low self-esteem. Research has shown that social and temporal comparisons are a source of threat to one's well-being (de la Sablonnière & Tougas, 2008). Conversely, high self-esteem, considered vital to psychological health, is thought to act as a "social vaccine" protecting individuals from social and societal problems (Heatherton & Wyland, 2003, p.226).

Social and temporal comparisons and self-esteem

Both psychological and social processes, namely temporal comparison and social comparison, can play an important role in maintaining self-esteem (Rickabaugh & Tomlinson-Keasey, 1997; Schmuck & al., 2019). However, when based on domains that require constant validation or comparison with others, self-esteem can be constantly threatened. To address this, Crocker and Park (2004, p.408) suggested moving to internal contingencies of self-esteem. For example, being a moral person or being compassionate can render self-esteem less vulnerable to the threats of everyday life and, while pursuing self-esteem goals, reduce the costs. There are also cross-cultural differences in the pursuit of self-esteem. According to Heine and al. (1999), the Japanese focus more on relationships than distinction from others. Unlike Western societies based on individualism, the Japanese support interdependence, which may furthermore relieve anxiety.

Hypotheses and problematic

This study focuses on so-called explicit spirituality to include religious and non-religious individuals. On the other hand, different forms of comparison have been identified such as social comparison (Festinger, 1954) and temporal comparison (Albert,

1977). Self-esteem is also a key concept in this research. It is considered as an attitude towards oneself related to personal beliefs about skills, abilities, social relationships and future outcomes. So far no study on spirituality, dissociated from religion, has been carried out with the aim of highlighting an influence on the process of social and temporal comparison as well as on self-esteem. We may wonder if people with spirituality are led to compare themselves less socially and temporally and conversely for people without spirituality (who compare themselves more), maintaining a high self-esteem. Thus, spirituality would act as an internal contingency that would allow the individual to have a high self-esteem and avoid the costs that a comparison can cause

We put forward the hypothesis (H1) that individuals with a high score on the spirituality scale would obtain a low score on the social comparison scale. Indeed, spirituality leads the individual to focus on the relationship with the self, minimizing comparison to others and oftentimes, providing a protection from social judgment and comparison (Lyubomirsky, 2007).

We also put forward the hypothesis (H2) that individuals with a high score on the spirituality scale would obtain a low score on the temporal comparison scale. Indeed, despite the presence of a temporal dimension within spirituality, such as the practice of recalling fond memories for example, here, we measured a different aspect which corresponds not to a spiritual practice but to a need for self-evaluation which can threaten the well-being of individuals, the elderly in particular (Rickabeugh & Tomlison-Keasey, 1997).

Our third hypothesis (H3) concerned participants who score highly on the spirituality scale and who we believe would also score highly on the self-esteem scale. Previous studies have shown, for example, that spiritual and religious people with HIV have higher self-esteem than people who do not have such beliefs (Cotton & al., 2006).

Furthermore, we hypothesized (H4) that subjects who score highly on the social comparison scale would obtain a low score on the self-esteem scale. Bearing in mind the work on social comparisons, here, we expected to find low self-esteem scores which, in turn, can be considered a motivation for individuals to engage in the quest for self-esteem, and this, by comparing themselves to others, more often than not, weaker than themselves (Blanton & al., 2000).

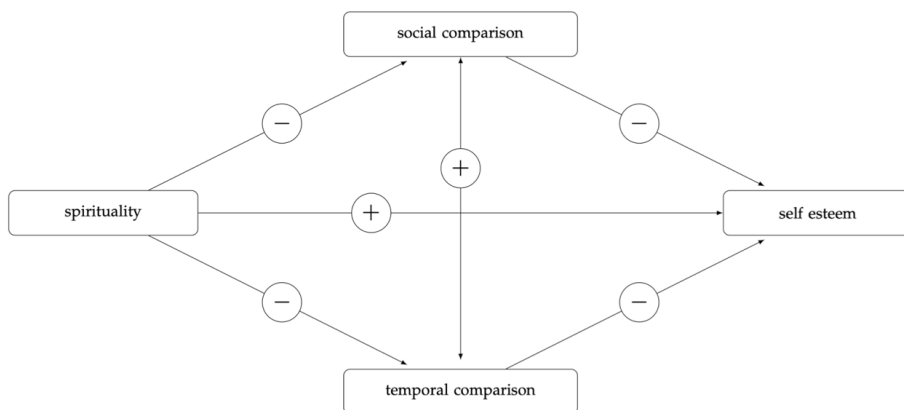
In addition, we hypothesized (H5) that individuals who score highly on the temporal comparison scale would obtain a low score on the self-esteem scale. We expected to find the same result here, as for the previous hypothesis (H4). Indeed, self-evaluation through temporal comparison is negatively related to both well-being and self-esteem (de la Sablonnière & al., 2009).

Our sixth and last hypothesis (H6) predicted that individuals with a high score in social comparison would also obtain a high score in temporal comparison. Closely tied to the two previous hypotheses, we predicted that individuals who tend to compare themselves socially to their peers would also tend to compare themselves to themselves over time.

From the previous hypotheses, we construct a theoretical model (Figure 1) in which social and temporal comparison are mediators in the association between spirituality and self-esteem. Specifically, taking into account the previous assumptions, the indirect relationships between spirituality and self-esteem through social and temporal comparison are positive since we assume that spirituality reduces social and temporal comparison which in turn increase self-esteem.

Figure 1.

Hypothesized model of relationships between the main variables of the study: with social and temporal comparison as mediators through which the association between spirituality and self-esteem is positive.



Method

Study Group

A total of 425 individuals participated in the study, however, only 331 subjects were retained. We were unable to analyze 94 questionnaires as some participants provided two answers for a single question, preventing statistical processing of the data. An additional participant did not indicate their age. The sample consisted of 8.8% men ($n = 29$) and 91.2% women ($n = 302$). The average age of individuals overall was 40.3 years ($SD = 12.1$), 39.9 years ($SD = 11.5$) for women, and 44.7 years ($SD = 16.7$) for men.

It is important for the study to describe whether the participants are religious or non-religious because the explicit spirituality questionnaire asks people only about their spirituality. Spirituality can therefore be religious or non-religious. To find out, you have to ask people about their beliefs. Regarding religious beliefs, 54.7% of subjects ($n = 181$) had no beliefs versus 45.3% of subjects ($n = 150$) who did. Moreover, 18 men and 163 women declared having no religious belief compared to 11 men and 139 women who did. Finally, the average age of the non-believers was 38.7 years ($SD = 11.6$) compared to an average age of 42.2 years ($SD = 12.4$) for the believers. The subjects of the study were contacted through social networks. Data collection was carried out via the internet.

All procedures were conducted in accordance with the ethical standards of the Ethics Committee for Non-Interventional Research (CERNI) of the University of Nantes (ethics committee approval no. 30052022-1) and with the 1964 Declaration of Helsinki and its subsequent amendments. Informed consent was obtained from all individual participants included in the study.

Instruments

We conducted our research using four quantitative questionnaires that subjects were asked to complete. We harmonized the measures in the four questionnaires (spirituality, spatial comparison, temporal comparison and self-esteem) using a Likert scale for each item, ranging from 1 “strongly disagree” to 5 “strongly agree”.

In this study we administered the unidimensional a-religious explicit spirituality scale constructed and validated by Roussiau, Bailly and Renard (2018) in 16 items. Explicit spirituality is when, in a questionnaire, there is only the term spirituality (no terms related to religion). This scale refers to the well-being and strength provided by spirituality, on questions of the meaning of one’s life, transcendence, relationships with others and the sacred. Example items: “My spirituality brings me well-being”, “My spiritual belief gives meaning to my life” or “My spirituality guides my life’s priorities”. This scale has a satisfactory internal consistency and good psychometric qualities ($\alpha=.92$ for our sample and $\alpha=.97$ in the validation study). It is equally well adapted for men and women as well as for believers and non-believers. For each item, subjects must position themselves on a Likert scale ranging from 1 “strongly disagree” to 5 “strongly agree”.

For the social and temporal comparison, we used the eight items created by de la Sablonnière, Hénault and Huberdeau (2009), the last item was modified to better fit our own study, namely (8) “when I evaluate my daily difficulties, I compare mine to the daily difficulties faced by others.” For each item, participants were initially asked to rate themselves on an 11-point Likert scale, ranging from 0 “totally disagree” to 10

“totally agree”. Example of items for social comparison: “I tend to measure my quality of life with the quality of life of others” or “I am not the kind of person who compares himself to others” and for temporal comparison: “I tend to measure my present quality of life with my past quality of life” or “I never consider my present situation with my past life situation”. The internal consistency of the questionnaire in our sample was satisfactory for the two dimensions of comparison (respectively $\alpha=.72$ for the social and $\alpha=.77$ for the temporal, against $\alpha=.90$ and $\alpha=.86$ in the validation study).

Self-esteem was measured using Rosenberg’s (1965) self-esteem inventory, translated into French by Vallières and Vallerand (1990). This scale contains a total of 10 statements, 5 of which are positively oriented and 5 of which are negatively oriented. Example items: “I think I have a number of good qualities” or “I have a positive attitude towards myself”. The authors’ results showed that the psychometric qualities of this scale are acceptable and compare favorably with the English version. The level of internal consistency is satisfactory and the correlation for the test-retest appears to be very adequate while being equivalent to that of the English version. This scale was initially presented as a 7-point Likert scale ranging from 1 “strongly disagree” to 7 “strongly agree”. The internal consistency of this questionnaire on a Likert scale of 1 to 5 for our sample remains acceptable ($\alpha=.83$ for our sample and $\alpha=.83$ in the validation study).

Participants were also asked about their gender, age, and whether or not they had a religious belief. The study was conducted in accordance with the code of ethics for psychologists: the data collected was anonymous and each candidate was informed of the purpose of the study in which he or she participated. At the end of the questionnaire, participants were asked if they had any questions, comments or suggestions regarding the questionnaires or the study in which they had just participated. This helped to highlight any limitations in the understanding of the questionnaires and to deepen our understanding of the quantitative results. Statistical processing was carried out using Jamovi software.

Results

Descriptive analysis of variables

Table 1.

Descriptive analysis of variables of interest (N=331)

	Mean	SD	Minimum	Maximum	Skewness	
					Skewness	SE
Spirituality	4.42	0.538	1.63	5.00	-1.393	0.134
Social comparison	2.40	0.702	1.00	4.75	0.150	0.134
Temporal comparison	3.22	0.750	1.00	5.00	-0.251	0.134
Self-esteem	3.95	0.642	2.10	5.00	-0.348	0.134

Results of the descriptive analysis of variables are included in Table 1. The mean score for spirituality was 4.42, with a minimum of 1.53 and a maximum of 5 (SD = 0.538). The distribution of the subjects' spirituality scores was highly skewed (skewness=-1.39) indicating that most participants obtained a high spirituality score. Regarding the social comparison score, the mean was 2.40, with a minimum of 1 and a maximum of 4.75 (SD = 0.702). The distribution of these scores was symmetrical (skewness=0.150) and can be considered close to a normal distribution. The mean temporal comparison score was of 3.22 with a minimum score of 1, a maximum score of 5 and a median of 3.13 (SD = 0.750). The mean was slightly higher for the temporal comparison score than for the social comparison score, the distribution appears normal. Overall, these results suggest that individuals have a social comparison score that is in the average range (close to 2.5) and a temporal comparison score that is slightly above average. From these descriptive analyses, we can assume that subjects tend to compare themselves more to themselves over time, than they do to others. Finally, the mean score for self-esteem was 3.95, with a minimum score of 2.10, a maximum of 5 and a median of 4 (SD = 0.642). Despite a rather high mean for this score, the results show a normal distribution. The study sample obtained a relatively high score on the self-esteem scale.

Correlational analyses of the scores obtained for spirituality, social and temporal comparison and self-esteem

Table 2.

Bravais Pearson correlation matrix

	1	2	3	4	5
1 Spirituality score	—				
2 Social comparison score	-0.235 ***	—			
3 Temporal comparison score	-0.160 **	0.319 ***	—		
4 Self-esteem score	0.206 ***	-0.523 ***	-0.169 **	—	
5 Age	0.180 **	-0.148 **	-0.247 ***	0.138 *	—

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

Given the sample size, the correlational analysis between the different variables of interest was performed using Bravais-Pearson tests. The results (Table 2) showed a significant negative correlation between the spirituality scores and the social comparison scores, $r = -0.235^{***}$, thus indicating that an increase in the spirituality score is associated with a decrease in the social comparison score. Similarly, the results also highlighted that the more spiritual an individual is, the less likely they are to engage in temporal comparison (comparing themselves with themselves at different points in time), $r = -0.160^{**}$. Furthermore, matrix analysis suggested that an increased spirituality score was associated with an increased self-esteem score ($r = 0.206^{***}$). Finally, both increased social comparison scores and increased temporal comparison scores were associated with a decreased self-esteem score ($r = -0.523^{***}$ and $r = -0.169^{**}$ respectively).

In addition, we noted significant correlations, not considered in our initial hypotheses, between age and all four of our independent variables: positive correlations with the spirituality and self-esteem scores ($r=.180^{**}$ and $r=0.138^*$ respectively) and negative correlations with the social and temporal comparison scores ($r=-.148^{**}$ and $r=-0.247^{***}$ respectively).

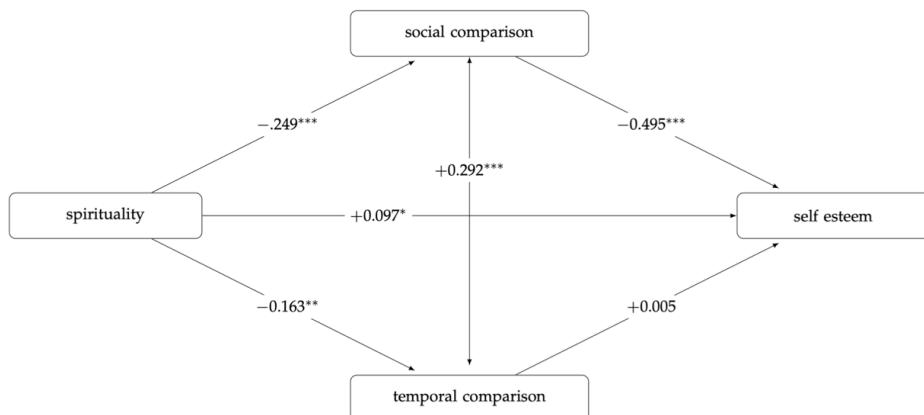
Mediation analysis

The mediation model was fitted using a parallel mediator’s model in a structural equation (see Hayes, 2018 for details on this model). Estimates of the indirect effects of social and temporal comparison on self-esteem were generated using bootstrapping, with 5,000 bootstrap replications (Hayes, 2018). The bootstrap confidence intervals for the indirect effects were constructed using the Bias-corrected method. According to this method, if the Bias-corrected bootstrap confidence interval does not contain 0, then a significant indirect effect is found.

The analyses were performed in R (R core Team, 2016) using the lavaan package (Rosseel, 2012). Figure 2 provides the results for the fitted mediation model with self-esteem as an outcome. In this model, religious beliefs of the participants was controlled. There is a positive and significant direct association between spirituality and self-esteem ($D=0.097^*$). There is a positive and significant indirect relation between spirituality and self-esteem through social comparison ($I=0.147$, $CI=[0.079,0.215]$) but there is not an indirect relation through temporal comparison ($I=-0.001$, $CI=[-0.129,0.897]$). A high level of spirituality reduces social comparison and thus improves self-esteem. However, this is not the case with the temporal comparison.

Figure 2.

The theoretical model adopted for self-esteem. The estimated path weights (ie regression coefficients) between variables are standardized. $p < .10$. $ p < .05$. $** p < .01$. $*** p < .001$.*



Links with religious beliefs

Student's *t* tests were performed to compare the mean scores of individuals with and without a religious belief. The homogeneity of variances was not rejected for any of the variables considered, so Welch's corrections were unnecessary.

Table 3.

Comparison of different scores between individuals who reported having a religious belief (N=150) and those who did not (N=181)

	Beliefs					
	NO		YES		d	p
	Mean	SD	Mean	SD		
Spirituality score	4,37	0,588	4,49	0,466	0,219	0,048
Social comparison score	2,33	0,732	2,48	0,661	0,206	0,063
Temporal comparison score	3,21	0,732	3,22	0,775	0,02	0,857
Self-esteem score	4,02	0,63	3,87	0,645	0,234	0,035
Age	38,88	11,531	42,15	12,448	0,274	0,014

The results obtained (Table 3) show that, on average, individuals with religious beliefs obtained a higher spirituality score ($d=0.219^*$) but a lower self-esteem score ($d=0.234^*$). For the social and temporal comparison scores there was no significant difference between believers and non-believers. Results showed an age difference between believers and non-believers ($d=0.014$), believers being of a more advanced age on average than those with no religious beliefs.

In a second step, the correlational analysis between the variables of interest was reproduced in the two sub-samples of believers and non-believers. From a statistical point of view, this amounts to investigating whether or not the links between the variables of interest are moderated by being a believer or not. To test the hypothesis of equality of correlation coefficients between believers and non-believers, we used the procedure described in Chen and Popovich (2002, p.20). The results are presented in Table 4 and demonstrate that none of the correlations between the variables of

Table 4.

Bravais-Pearson correlation coefficients of the variables of interest for believers and non-believers

		1	2	3			
Spirituality score	YES	—					
	NO	—					
	<i>z</i>	—					
Social comparison score	YES	-0,213	**	—			
	NO	-0,272	***	—			
	<i>z</i>	0,563	—				
Temporal comparison score	YES	-0,092		0,336	***	—	
	NO	-0,213	**	0,309	***	—	
	<i>z</i>	1,113		0,27	—		
Self-esteem score	YES	0,141		-0,446	***	-0,163	*
	NO	0,279	***	-0,574	***	-0,174	*
	<i>z</i>	1,298		1,559		0,102	—

interest depended significantly on whether or not the subject was a believers. Thus, no significant differences that might be associated with being a believer or not were observed between the relationships linking the variables of interest.

Discussion

In this study, using a quantitative methodological approach, we demonstrated that high levels of explicit spirituality were associated with low social and temporal comparison scores and high levels of self-esteem. Moreover, we have highlighted by a mediation model that spirituality has a beneficial effect on self-esteem through reduced social comparison. More precisely, we have shown that high spirituality leads to less social comparison, which implies higher self-esteem. However, the direct effect of spirituality on self-esteem is significant, which means that a significant part of the association between spirituality and self-esteem is explained by others non measured variables in our study. Considered together, these findings are consistent with previous research (Lyubomirsky & al., 2005; Crocker & Park, 2004). We present the specific implications of our study. As previously stated, we observed that high levels of explicit spirituality were related to low social comparison and high self-esteem (H1 and H3 validated). Spirituality may therefore be considered a moderating variable which, on the one hand, decreases the comparison mechanism, whose deleterious effects have been recognized in various studies, and on the other hand, increases self-esteem. Indeed, Young, Shcherbakova and Cashwell (2000) have previously shown that spirituality acts as a moderator between negative life events and both depression and anxiety, weakening their impact. It can therefore be assumed that a high level of spirituality is linked to better emotional health (Regnerus, 2003). Spirituality can be a source of strength for many of the challenges that most individuals face (e.g., health complications and psychosocial problems), regardless of age or life situation (Thoreson, 1998, cited in Hayman & al., 2007). This suggests that spirituality leads to a certain subjective well-being that is described as being spiritual.

Moreover, in spirituality the relationship to time is particular. We speak of temporalities in the plural because the experiences of one's relationship to time can be different according to one's spiritual approach. For example, in mindfulness activities, the individual may have the sensation of forgetting time. In this study, we evaluated one dimension of this temporality, namely comparison with oneself, which is integrated into the concept of a sequential process (de la Sablonnière & al., 2009) where social comparison would precede temporal comparison. Indeed, we observed that individuals who tend to compare themselves socially to their peers also tend to compare themselves to themselves over time (H6 validated). Moreover, some authors have emphasized the anxiety-provoking nature of these temporal comparisons (Rickabaugh & Tomlinson-Keasey, 1997), so it is not surprising that a

negative correlation between this variable and spirituality was observed. The majority of studies in this field have developed the idea that spirituality minimizes the feeling of negative effects.

We further noted that spirituality is negatively correlated with temporal comparison, independently of religious belief. This is interesting to observe because religious dogma inscribes the life of men and women in time. Indeed, for Christians, for example, life is punctuated by baptism, communion or marriage, giving a temporality to religious life. The management of this temporality is left to the organization of institutional systems. In contrast, among non-believers, there are no such institutions that inscribe men and women in this temporal dimension (H2 validated).

Our results regarding self-esteem, defined as the perception and evaluation of oneself in personal and social contexts (Kamya, 2000), have also been demonstrated in previous literature. Indeed, sociometer theory suggests that a person's self-esteem is primarily derived from the feedback they receive from others (Leary & al., 1995). This is consistent with our results which show that the self-esteem score is negatively correlated with both social and temporal comparisons (H4 and H5 validated). This, for example, was observed in a study by Vogel and al. (2014), which highlighted the detrimental effects of social comparison on well-being in the context of social networks. In addition, in our sample, it was observed that the older an individual is, the more spiritual they are. This can be explained by the fact that older people are more available, capable, and motivated to invest in their personal spirituality (Mystakidou & al., 2008). This obviously contributes to better self-esteem since comparisons may highlight the deterioration of their physical and cognitive abilities, inevitably linked to aging (Rickabaugh & Tomlinson-Keasey, 1997). The positive correlation between religious belief and age can also be explained by the growing disillusionment around religious institutions and the importance of the secularization process in modern Western culture (Renard, 2018). Our results are also consistent with Suls and Mullen's (1984) model that envisions social comparisons following the lifespan model. According to this concept, in childhood social comparisons become the predominant mode of evaluation. Later, in old age, due to changes in the environment and a decrease in social interactions, the mode of comparison becomes more temporal. Although our results do not show this correlation between age and temporal comparison, we did observe decreased social comparison scores in older individuals. It is possible that the correlation does not appear in our results due to the average age within our sample (40.3 years old). In fact, according to the literature, the temporal comparison appears only at an advanced age, often after retirement (60 years old), when the individual's social interactions are reduced (de la Sablonnière & al., 2009). This is not the case in our sample. Our results also showed a link between religious belief and social comparison. This can be explained and integrated into

Allport and Ross' (1967) concept of intrinsic and extrinsic religion. According to these authors, extrinsic people use religion as a means to gain status, security and opportunities for socializing. They tend to be strongly affiliated with their religious traditions, beliefs, and practices. In contrast, intrinsic people internalize their beliefs and have a higher level of commitment, viewing religion as an end in itself and living it selflessly. This distinction is echoed by Kelly (1995) who sees spirituality as a personal affirmation of a transcendent connection in the universe and religion as a believing, institutional and ritual expression of spirituality. Thus, as shown by Zinnbauer et al (1997), people can experience and develop spirituality without necessarily being religious, and the reverse is also possible. According to these elements, spirituality is more likely to be found in intrinsic personalities. Our results further show that religious belief is positively correlated with self-esteem. This may support the idea that adherence to a religion can be used as a means of defense and external psychological support (Genia, 1991). In other words, the set of beliefs provides responses and religious practices provide a support structure. Religious belief does not increase self-esteem when the support structures are external rather than internalized, that is, when people base their religion on external motivations (status or privilege) rather than internal ones (spirituality).

It is also important to keep in mind that some forms of spirituality are linked to ill-being. Researchers from various disciplines have long speculated about the effects of religion and spirituality on human health and well-being. But in King et al (2013) study, spiritual people were found to be more likely to use or be addicted to drugs and to have abnormal eating attitudes, anxiety disorders, and/or phobic disorders than people who were neither religious nor spiritual. The authors concluded that people who have a spiritual understanding of life, in the absence of a religious framework, are more vulnerable to mental disorders. However, as King, Speck and Thomas (1994) pointed out, not only is it difficult to measure the strength of belief given its philosophical nature, but definitions of spirituality may differ from one study to another, implying that results are difficult to compare and yet are identified under the same label: spirituality. Spirituality has mainly been studied in psychology as a dimension involved in a process to overcome adversity, triggered by negative experiences. It is generally studied as an effective coping strategy in response to distress (Pargament, 1997). Spirituality must be understood not only as a coping strategy but also as an upward pathway to and from self-transcendent positive emotions.

More concretely, in a professional context, Tusaie and Dyer (2004) recognized the importance of a belief system in providing meaning to one's existence, a coherent life story and an appreciation of one's uniqueness leading to high levels of resilience at work. Thus, according to these authors, it is important to participate in a range of healthy activities outside of work. These activities should include those that are

physically, emotionally and spiritually nourishing. Research has shown that spiritual practices, such as meditation, induce positive emotions that can be conducive to spirituality. They promote pro-social behavior and a desire to become a better person. These emotions can be studied in secular contexts and in all individuals, regardless of their religiosity (Van Cappellen & al., 2013). In other words, religion and spirituality are considered excellent coping strategies for dealing with stress and adversity, and conversely, individuals can also develop spirituality after experiencing certain positive emotions.

How can we explain the overrepresentation of women in this research? The first exploratory analyses based on our socio-demographic data reveal a majority of women, believers and non-believers. These results are conceptually in line with other works, particularly sociological ones (Bronner, 2003). We adopt a certain number of beliefs (found in mystical-esoteric spirituality) when we have little control over our environment, which can give us the illusion of better control. These beliefs then represent a means of exercising greater control over one's life on a daily basis. That being said, we have assessed spirituality, but we do not know if this spirituality is specifically mystical-esoteric. Further studies could seek to identify, according to gender and social positioning, the links with particular forms of spirituality.

At the methodological level, the manner in which our data was collected has both advantages and limitations and conditions the criticism of our study. On the one hand, the framework of our survey had to be adapted to the health conditions related to COVID-19, limiting us to the use of a questionnaire shared on the Internet in order to avoid any physical contact. Participants' answers were therefore based solely on self-reported measures. As such, subjects may have underestimated or overestimated their levels of spirituality, social comparison, temporal comparison, and self-esteem, and this may have limited the reliability of the results. On the other hand, the various questionnaires attempted to objectively measure determined norms of each construct without exploring the richly subjective and complex meanings of these variables. Studies that examine these concepts from a qualitative perspective are needed to make these results more relevant. The study sample was composed of a majority of spiritual people, which resulted in a high spirituality score within the sample. This can be explained by the fact that the people recruited to answer the different questionnaires belonged to groups of people who were already aware of and committed to this concept. Furthermore, completing a questionnaire relating to spirituality, while belonging to a spirituality group, could have produced social desirability biases. Our sample was also predominantly female (91.2%), yet in the literature it has already been shown that gender differences exist in spiritual beliefs and that they impact behavior (Hayman & al., 2007). Future research on spirituality and social and temporal comparison should consider a more mixed and therefore more representative sample in order to achieve further analyses between women and men. We used the unidimensional scale constructed

and validated by Roussiau, Bailly and Renard (2018) measuring so-called explicit a-religious spirituality. We believe that the combination of two spirituality questionnaires could be relevant and complementary. For example, Genia (1991) proposed a Spiritual Experience Index (SEI) theoretically based on developmental and not multidimensional conceptualization. This allows for the assessment of the degree of spiritual maturity for people of various religious and spiritual backgrounds with the objective of specifying the spirituality score of participants. Finally, longitudinal research and cross-sectional studies may lead to a better understanding of developmental changes in spiritual functioning. Despite these limitations, this study contributes to the literature and to our understanding of the role spirituality plays in the social and temporal comparison processes. It appears that individuals' spirituality influences multiple aspects of their lives, with their spiritual identity being integral to who they are. As such, this research provides support for authors who argue that a spiritual approach to life promotes well-being (Payne & al., 1991).

To conclude, we know that, in institutions and among many professionals, approaching spirituality poses a problem in relation to questions related to secularism, potential and real religious proselytizing, sectarian embrigadement phenomena ... which leads to many resistances. Helping professionals, psychotherapists, psychologists, professionals in the health and education sectors can work with scales of explicit spirituality or open questions in the same perspective. Spirituality in all its forms (religious and non-religious) is thus open to all professionals who wish to get involved in this theme without having to position themselves. We can note that we also find important advantages when we work from another methodology : implicit spirituality. That is to say, one exchanges only from the dimensions that constitute spirituality (meaning of one's life, transcendence, feeling of connection ...) without naming it (Ameline & al., 2019). This is the subject of future research that will allow for the development of relevant tools to address spirituality in the context of a helping relationship for people in whom spirituality is a resource to cope with life. For example, helping people deal with the issue of social comparison. To make people understand that an excessive comparison with others is a source of suffering and that a work on oneself, on one's own life objectives is a possibility to be more fulfilled and to have a better self-esteem

Ethical Approval. All procedures were conducted in accordance with the ethical standards of the Ethics Committee for Non-Interventional Research (CERNI) of the University of Nantes (ethics committee approval no. 30052022-1) and with the 1964 Declaration of Helsinki and its subsequent amendments. Informed consent was obtained from all individual participants included in the study.

Authors' Contributions. Justine Ollivaud and Nicolas Roussiau

worked on the theoretical part, the hypotheses and the survey. Jean Michel Galharret took care of the statistical part.

Peer Review. Externally peer reviewed.

Funding. The authors received no external funding to conduct the study reported in the present manuscript.

Disclosure Statement. The authors declare that they have no conflict of interest.

References

- Albert, S. (1977). Temporal comparison theory. *Psychological Review*, *84*(6), 485-503. <https://doi.org/10.1037/0033-295X.84.6.485>
- Allport, G.W., & Ross, J.M. (1967). Personal religious orientation and prejudice. *Journal of Personality and Social Psychology*, *5*(4), 432-443. <https://doi.org/10.1037/h0021212>
- Ameline, A, Biccheri, E., & Roussiau, N. (2019). Implicit Areligious Spirituality and Fibromyalgia : Scale Adapted from Piedmont's Spiritual Transcendence Scale (1999). *International Journal of Existential Positive Psychology*, *8*(1), 1-12
- Biccheri, E., Roussiau, N., & Mambet-Doué, C. (2016). Fibromyalgia, Spirituality, Coping and Quality of Life. *Journal of Religion and Health*, *55*(4), 1189-1197. <https://doi.org/10.1007/s10943-016-0216-9>
- Blanton, H., Crocker, J., & Miller, D.T. (2000). The Effects of In-Group versus Out-Group Social Comparison on Self-Esteem in the Context of a Negative Stereotype. *Journal of Experimental Social Psychology*, *36*(5), 519-530. <https://doi.org/10.1006/jesp.2000.1425>
- Bronner, G. (2003). *L'empire des croyances*. Presses Universitaires de France
- Carignan, L.M., & Bellehumeur, C.R. (2019). Bilan-synthèse des rapports historiques entre la psychothérapie, la religion et la spiritualité. Dans C.R. Bellehumeur & J. Malette (Eds). *Psychologie positive et spiritualité en psychothérapie* (pp.13-40). Presses Universitaires de Laval.
- Chen, P., & Popovich, P., (2002). Correlation: Parametric and Nonparametric Measures, Sage University Papers Series on Quantitative Applications in the Social Sciences, 07-139. Thousand Oaks, CA : Sage.
- Core Team, R. (2016). *A language and environment for statistical computing*. R Foundation for statistical Computing. Austria. <https://www.R-project.org>
- Cotton, S., Puchalski, C.M., Sherman, S.N., Mrus, J.M., Peterman, A.H., Feinberg, J., Pargament, K.I., Justice, A.C., Leonard, A.C., & Tsevat, J. (2006). Spirituality and religion in patients with HIV/AIDS. *Journal of General Internal Medicine*, *21*(S5), S5-S13. <https://doi.org/10.1111/j.1525-1497.2006.00642.x>

- Crocker, J., & Park, L.E. (2004). The Costly Pursuit of Self-Esteem. *Psychological Bulletin*, 130(3), 392-414. <https://doi.org/10.1037/0033-2909.130.3.392>
- De la Sablonnière, R., Hénault, A.M., & Huberdeau, M.E. (2009). Comparaisons sociales et comparaisons temporelles : vers une approche séquentielle et fonction de la situation unique. *Les Cahiers Internationaux de Psychologie Sociale*, 83(3), 3-24. <https://doi.org/10.3917/cips.083.0003>
- De la Sablonnière, R., & Tougas, F. (2008). Relative Deprivation and Social Identity in Times of Dramatic Social Change: The Case of Nurses. *Journal of Applied Social Psychology*, 38(9), 2293-2314. <https://doi.org/10.1111/j.1559-1816.2008.00392.x>
- Festinger, L. (1954). A Theory of Social Comparison Processes. *Human Relations*, 7(2), 117-140. <https://doi.org/10.1177/001872675400700202>
- Friedmann, L. (2011). Se comparer aux autres. *Sciences Humaines*, 224(3), 13. <https://doi.org/10.3917/sh.224.0013>
- Genia, V. (1991). The spiritual experience index: A measure of spiritual maturity. *Journal of Religion & Health*, 30(4), 337-347. <https://doi.org/10.1007/bf00986905>
- Hayes, A. F. (2018). *Methodology in the social sciences. Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (2nd ed.). Guilford Press.
- Hayman, J.W., Kurpius, S.R., Befort, C., Nicpon, M. F., Hull-Blanks, E., Sollenberger, S., & Huser, L. (2007). Spirituality Among College Freshmen: Relationships to Self-Esteem, Body Image, and Stress. *Counseling and Values*, 52(1), 55-70. <https://doi.org/10.1002/j.2161-007x.2007.tb00087.x>
- Heatherton, T.F., & Wyland, C.L. (2003). Assessing self-esteem. In S.J Lopez & C.R Snyder (Eds.), *Positive psychological assessment: A handbook of models and measures*, (pp.219-233). American Psychological Association. <https://doi.org/10.1037/10612-014>
- Heine, S.J., Lehman, D.R., Markus, H.R., & Kitayama, S. (1999). Is there a universal need for positive self-regard? *Psychological Review*, 106(4), 766-795.
- Hill, P.C., Pargament, K.I.I., Hood, R.W., McCullough, J.M. E., Swyers, J.P., Larson, D.B., & Zinnbauer, B.J. (2000). Conceptualizing Religion and Spirituality : Points of Commonality, Points of Departure. *Journal for the Theory of Social Behaviour*, 30(1), 51-77. <https://doi.org/10.1111/1468-5914.00119>
- Hogg, M.A. (2000). Social Identity and Social Compariso. In J. Suls & L. Wheeler (Eds.), *Handbook of Social Comparison: Theory and Research* (pp.401-421). Springer US https://doi.org/10.1007/978-1-4615-4237-7_19
- Kamya, H.A. (2000). Hardiness and Spiritual Well-Being Among Social Work Students. *Journal of Social Work Education*, 36(2), 231-240. <https://doi.org/10.1080/10437797.2000.10779004>
- King, M., Marston, L., McManus, S., Brugha, T., Meltzer, H., & Bebbington, P. (2013). Religion, spirituality, and mental health: results from a national study of English households. *British Journal of Psychiatry*, 202(1), 68-73. <https://doi.org/10.1192/bjp.bp.112.112003>
- King, M., Speck, P., & Thomas, A. (1994). Spiritual and religious beliefs in acute illness-Is this a feasible area for study? *Social Science & Medicine*, 38(4), 631-636. [https://doi.org/10.1016/0277-9536\(94\)90260-7](https://doi.org/10.1016/0277-9536(94)90260-7)
- Koenig, H.G., McCullough, M.E., & Larson, D.B. (2001). *Handbook of religion and health*. Oxford University Press.
- Leary, M.R., Tambor, E.S., Terdal, S.K., & Downs, D.L. (1995). Self-esteem as an interpersonal monitor: The sociometer hypothesis. *Journal of Personality and Social Psychology*, 68(3), 518-530. <https://doi.org/10.1037/0022-3514.68.3.518>

- Lyubomirsky, S. (2007). *Comment être heureux... et le rester*. Editions Flammarion
- Lyubomirsky, S., Tkach, C., & DiMatteo, M.R. (2005). What are the Differences between Happiness and Self-Esteem? *Social Indicators Research*, 78(3), 363404. <https://doi.org/10.1007/s11205-005-0213-y>
- Mystakidou, K., Tsilika, E., Parpa, E., Hatzipli, I., Smyrmioti, M., Galanos, A., & Vlahos, L. (2008). Demographic and clinical predictors of spirituality in advanced cancer patients: a randomized control study. *Journal of Clinical Nursing*, 17(13), 17791785. <https://doi.org/10.1111/j.1365-2702.2008.02327.x>
- Pargament, K. I. (1997). *The Psychology of Religion and Coping*. Guilford Publications.
- Payne, I.R., Bergin, A.E., Bielema, K.A., & Jenkins, P.H. (1991). Review of Religion and Mental Health. *Prevention in Human Services*, 9(2), 1140. https://doi.org/10.1300/j293v09n02_02
- Regnerus, M.D. (2003). Religion and Positive Adolescent Outcomes: A Review of Research and Theory. *Review of Religious Research*, 44(4), 394. <https://doi.org/10.2307/3512217><https://doi.org/10.2307/3512217>
- Renard, E. (2018) La spiritualité une croyance areligieuse. Dans N. Roussiau (Ed). *Croyances sociales : Spiritualité, religion, croyances ascientifiques, croyances areligieuses* (pp.201-213) In Press.
- Rickabaugh, C.A., & Tomlinson-Keasey, C. (1997). Social and Temporal Comparisons in Adjustment to Aging. *Basic and Applied Social Psychology*, 19(3), 307328. <https://doi.org/10.1207/s15324834basp19033>
- Rosseel, Y (2012). lavaan: An R Package for Structural Equation Modeling. *Journal of Statistical Software*, 48(2), 1-36. <https://doi.org/10.18637/jss.v048.i02>
- Roof, W.C. (1999). *Spiritual marketplace : Baby boomers and the remaking of American religion*. Princeton University Press.
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton University Press
- Roussiau, N., Bailly, N., & Renard, E. (2018). Premières étapes de construction et de validation d'une échelle de spiritualité explicite areligieuse. *Pratiques Psychologiques*, 24(3), 277291. <https://doi.org/10.1016/j.prps.2017.11.001>
- Schmuck, D., Karsay, K., Matthes, J., & Stevic, A. (2019). “Looking Up and Feeling Down”. The influence of mobile social networking site use on upward social comparison, self-esteem, and well-being of adult smartphone users. *Telematics and Informatics*, 42(73), 101240. <https://doi.org/10.1016/j.tele.2019.101240>
- Suls, J., & Mullen, B. (1984). Social and Temporal Bases of Self-Evaluation in the Elderly : Theory and Evidence. *The International Journal of Aging and Human Development*, 18(2), 111120. <https://doi.org/10.2190/33ux-54wu-avmh-082t>
- Tusaie, K., & Dyer, J. (2004). Resilience: a historical review of the construct. *Holistic Nursing Practice*, 18, 310. <http://urlr.me/SfRvd>
- Vallières, E.F., & Vallerand, R.J. (1990). Traduction et Validation Canadienne-Française de L'échelle de L'estime de Soi de Rosenberg. *International Journal of Psychology*, 25(2), 305316. <https://doi.org/10.1080/00207599008247865>
- Van Cappellen, P., Saroglou, V., Iweins, C., Piovesana, M., & Fredrickson, B.L. (2013). Self-transcendent positive emotions increase spirituality through basic world assumptions. *Cognition & Emotion*, 27(8), 13781394. <https://doi.org/10.1080/02699931.2013.787395>
- Verduyn, P., Gugushvili, N., Massar, K., Täht, K., & Kross, E. (2020). Social comparison on social networking sites. *Current Opinion in Psychology*, 36, 3237. <https://doi.org/10.1016/j.copsyc.2020.04.002>

- Vogel, E., Rose, J., Roberts, L., & Eckles, K. (2014). Social comparison, social media, and self-esteem. *Psychology of Popular Media Culture*, 3(4), 206222. <https://doi.org/10.1037/ppm0000047>
- Vogel, E. A., Rose, J.P., Aspiras, O.G., Edmonds, K.A., & Gallinari, E.F. (2019). Comparing comparisons : Assimilation and contrast processes and outcomes following social and temporal comparison. *Self and Identity*, 19(6), 629649. <https://doi.org/10.1080/15298868.2019.1647278>
- Ware, B (2011). *Top five regrets of the dying*. Hay House.
- Wink, P., & Dillon, M. (2002). Spiritual development across the adult life course : Findings from a longitudinal study. *Journal of Adult Development*, 9, 79-94. <https://doi.org/10.1023/A:1013833419122>
- Wood, J.V. (1996). What is Social Comparison and How Should We Study it? *Personality and Social Psychology Bulletin*, 22(5), 520537. <https://doi.org/10.1177/0146167296225009>
- Young, J.S., Cashwell, C.S., & Shcherbakova, J. (2000). The Moderating Relationship of Spirituality on Negative Life Events and Psychological Adjustment. *Counseling and Values*, 45(1), 4957. <https://doi.org/10.1002/j.2161-007x.2000.tb00182.x>
- Zinnbauer, B.J., Pargament, K.I., Cole, B., Rye, M.S., Butter, E. M., Belavich, T.G., Hipp, K.M., Scott, A.B., & Kadar, J.L. (1997). Religion and Spirituality: Unfuzzifying the Fuzzy. *Journal for the Scientific Study of Religion*, 36(4), 549564. <https://doi.org/10.2307/1387689>