J Relig Health
DOI 10.1007/s10943-016-0216-9

ORIGINAL PAPER

Fibromyalgia, Spirituality, Coping and Quality of Life

Eliane Biccheri[1] · **Nicolas Roussiau**[1] · **Constance Mambet-Doué**[1]

Abstract The aim of this study is to identify the impact of spirituality on coping strategies and on the quality of life of fibromyalgia patients. The study was carried out on 590 people suffering from fibromyalgia. The data were collected with the French version of the WCC-R (The Ways of Coping Checklist: Cousson et al. 1996), the questionnaire of spirituality (*Evaluation de La Spiritualité*: Renard and Roussiau, 2016) and Diener's Satisfaction with Life Scale questionnaire, translated into French (Blais et al. 1989). An analysis carried out with the software SPSS and Hayes' models showed that both problem-focused coping and coping through social support seeking are mediating variables that enable an indirect link between spirituality and quality of life.

Keywords Fibromyalgia · Coping · Spirituality · Satisfaction with life · Quality of life

Introduction

The present study focuses on the role that spirituality can play in fibromyalgia patients' strategies of adaptation to the disease as well as in their quality of life. The consequences of their symptoms on the quality of life of these patients have been highlighted in several studies. In a 2008 Spanish survey, people suffering from fibromyalgia mentioned a decrease in their quality of life due to their disease, which, they stated, sometimes became incapacitating (Escudero-Carretero et al. 2008). Aïni et al. (2007) also indicated a deterioration in many aspects of the quality of life of people suffering from fibromyalgia. In

✉ Eliane Biccheri
e.biccheri@free.fr

Nicolas Roussiau
nicolas.roussiau@univ-nantes.fr

[1] Laboratory LPPL (UPRES EA 4638), Université de Nantes, Chemin de la Censive du Tertre, BP 81227, 44312 Nantes Cedex 03, France

Published online: 27 February 2016

practice, the diagnosis of the disorder can be difficult, which may leave patients in a state of doubt and worry about their disease. This may in turn decrease their well-being and increase their symptoms. In fact, the diagnosis is often made by default (Albrecht et al. 2013). Fibromyalgia often occurs late in life, especially in patients who have accumulated various pathologies. Nacu and Benamouzig (2010) showed that physicians tend to refer to people suffering from fibromyalgia as "very demanding" patients, and generally consider that "a multi-disciplinary approach" (involving rheumatology, neurology, psychiatry, rehabilitation, CBT, etc.) (p. 557) is required to treat fibromyalgia. To date, the causes of fibromyalgia are unknown. The International Classification of Diseases ICD-10 lists this illness under diseases that are related to the musculoskeletal system and connective tissue and, more specifically, by the M.79 code: "Other soft tissue disorders, not elsewhere classified." These pains are defined as diffused, persistent and intense burnings. They engender a reduction in functional abilities, changing over time, and are perceived differently by individuals. Fibromyalgia is a painful chronic condition that is associated with exhaustion and sleep disorders. Painful pressure points, memory disorders, difficulties in concentration, attention disorders and fatigue appear to a varying degree in patients and affect their daily life. These problems lead some patients to withdraw gradually from social life. They can no longer work and find it hard to carry on their family and leisure activities. Fibromyalgia is the subject of many questions and opposes those who consider it a real disease and those who think that the disorders are the result of "social constructions" (Nacu and Benamouzig 2010). Medication is often seen as a complex treatment by the patients, and the improvement is not always long lasting, although there are significant inter-individual variations. Diagnostic difficulties, the large number of supports offered but of variable effectiveness, severe pain and the impact on people's quality of life are all factors indicating an urgent need to find another solution for this condition. Even if the experience of pain is real, its perception remains subjective and is linked to the patient's personality, previous experiences and environment (Calvino and Grilo 2004). Thus, spirituality, giving a meaning to life and allowing a distance from the body, is an interesting route to explore.

Spirituality

We approached spirituality from the following semantic areas: wellness and strength that comes from one's spirituality; the question of the meaning of life; transcendence (the search to surpass oneself); relationships with others and with the sacred. These are the main features that are defined by all studies on the subject (Elkins et al. 1988; Hill and Pargament 2008; Culliford 2010). The different terms and explanations given in the literature show the difficulty of defining the concept of spirituality. The concepts of spirituality and religion are historically so close that they have often been misused (Carmody et al. 2007). There is a spiritual dimension in every religion, but developing other forms of spirituality is also possible (Renard and Roussiau, 2016). Spirituality may also be supported by all the personal development techniques that are increasingly on offer and are supposed to give meaning to life. In this perspective, the concept of religion is included in that of spirituality. Clearly, finding meaning in life can be achieved through God and/or through practices considered spiritual. Thus, the present study considered spirituality in its widest sense.

The impact of religion and spirituality on physical and mental health is being increasingly investigated. Finding meaning in one's life can prove essential when one

suffers from a serious or chronic pathology. During a prolonged painful episode, as in fibromyalgia, chronic pain sets in, sometimes with terrible consequences that become incapacitating. Pain has an emotional dimension and can be modulated by fear, distress and anxiety (Calvino and Grilo 2004). It could therefore be helpful to support patients suffering both physically and psychologically on a spiritual path that reduces pain by acting on its affective dimension.

Bailly et al. (2011) have highlighted the positive influence of religious beliefs and spirituality on health and depression. Their study measured the relationship between religiosity, spirituality and health. The authors distinguish the public dimension of religion (church attendance and church services), which has a social component as it involves meeting other people, from the private dimension (prayer, meditation, specific reading), which corresponds to a more spiritual aspect of the search for the meaning of life. Their results confirm the link between religiosity, spirituality and health.

Coping and Health

The transactional model of Lazarus and Folkman (1984) introduced coping to show how an individual might react in order to adapt to an unpleasant situation. The individual will initially appraise the situation and then use coping strategies. If they are problem-focused, the individual makes active behavioral efforts to act and change both the situation and the state of vigilance. If the coping strategies are emotion-focused, then the individual will change their way of understanding or interpreting the situation, sometimes by avoiding or denying it. If the strategy has been successful, positive emotions will prevail; if it has not, then negative emotions will predominate (Folkman and Moskowitz 2004). To Lazarus and Folkman's definition of coping, Bruchon-Schweitzer added a new strategy, "social support seeking" (2001, p. 26), which corresponds to "the efforts of the subject to obtain the sympathy and the help of others" (p. 26). For Bruchon-Schweitzer, "perceived stress and emotion-focused coping are generally dysfunctional" (p. 29). Perceived control, problem-focused coping and coping through seeking social support have a rather positive impact on physical health while the perception of a lack of control has a negative influence on health and increases the risk of serious pathologies. Pain can be explained by physical mechanisms that involve various parts of the brain, while pain perception can be modulated by external factors in the patient's environment such as emotional state, sociocultural context, geographical location and psychological state (Calvino and Grilo 2004). According to the theoretical framework presented above, several factors can also modulate pain itself and/or the consequences of the symptoms of a disease like fibromyalgia on the quality of life of sufferers. A case study from Canada (Morin 2003) showed a patient suffering from fibromyalgia in complete remission following psychological and spiritual treatment. The study demonstrated "how a patient's spirituality developed along with the remission of fibromyalgia symptoms" (Morin, p. 97). By contrast, medication alone can relieve pain, but it rarely contributes to behavioral change nor can it play a role in a patient's search for the meaning of life. Changes can only occur if an individual takes the necessary steps to make things change.

This study thus hypothesizes that 1) people with a strong spiritual inclination cope with their disease differently from those who have little spiritual inclination and that 2) the impact on satisfaction with life will vary according to the individual level of spirituality, i.e., people with a strong spiritual inclination will use problem-focused coping strategies,

which produce higher scores on the satisfaction with life scale, compared to people with little spiritual inclination.

Method

Questionnaires were completed by fibromyalgia patients, most of whom belonged to associations specializing in this disease. These questionnaires were accompanied by a letter guaranteeing anonymity.

Spirituality is a continuous independent variable (IV). Coping is a dependent variable, divided into three subcategories: problem-focused coping, emotion-focused coping and coping through social support seeking. Satisfaction with life (SL) is a continuous dependent variable.

The questionnaire consisted of five parts:

1. Sociodemographic data: age, date of the diagnosis, sex, current employment situation, i.e., employed, on sick leave, retired or other.
2. A sub-questionnaire on coping strategies based on the validated French version of the WCC-R by Cousson et al. (1996). The scale includes 27 items and aims to calculate the scores of problem-focused coping, emotion-focused coping and coping through seeking social support. Cronbach's alpha for this scale is higher than .77. For each item, people had to choose one of the following answers: "no," "mostly no," "mostly yes," "yes."
3. A sub-questionnaire on spirituality: ESL (*Evaluation de La Spiritualité:* Spirituality Assessment, by Renard and Roussiau, 2016). Internal consistency is high ($\alpha = .98$). People had to respond to five items with five Likert-type points going from 1 "totally agree" to 5 "totally disagree."
4. The French version of the Satisfaction with Life questionnaire of Diener et al. (1985). Internal consistency is high ($\alpha = .85$). People had to position themselves on a five-item scale using seven points from 1 "strongly disagree" to 7 "strongly agree."
5. A space for free expression at the end of the questionnaires.

Results

The final sample was 590 fibromyalgia patients. There were 541 women and 49 men; 214 participants of the 590 made free comments regarding their feelings about the study. Their ages ranged from 18 to 76 years old (M age = 48.5; SD = 10.31). The average score of satisfaction with life was 17.5 (SD = 7) and that of spirituality was 44.9 (SD = 16.83).

Based on the working hypothesis that a higher level of spirituality engenders the use of problem-centered coping strategies and enables a better satisfaction with life, correlation analyses were carried out on the whole population for each dependent variable and the spirituality score. These results are presented in Table 1.

Problem-focused coping and coping through social support seeking varied at the same time as spirituality with a correlation coefficient less than .5 ($r = .25$, $p < .01$ and $r = .10$, $p < .05$, respectively). Satisfaction with life was correlated positively with problem-focused coping ($r = .33$, $p < .01$) and with coping through social support seeking ($r = .16$,

$p < .01$) and negatively with emotion-focused coping ($r = -.25$, $p < .01$). Figure 1 shows these correlations.

Based on the assumption that a stronger spiritual inclination generates both problem-focused coping strategies and a better satisfaction with life, an indirect link between spirituality and life satisfaction was then hypothesized. Calculations were carried out with the software SPSS 20 macro PROCESS (Hayes 2013, http://www.afhayes.com/), which enables mediation analysis. The regression analysis was performed in two steps: The independent variable predicted coping; then, coping predicted life satisfaction. The method provides confidence intervals for the indirect effects, which should not contain zero to be significant. The data were standardized to follow the normal law, and a bootstrapping method was used to correct biases in the confidence intervals (bootstrap = 5000; degree of confidence = 95 %). In this second step, spirituality remained an independent variable and life satisfaction remained a dependent variable. Problem-focused coping and coping through social support seeking became mediating variables whose effect was tested. The calculation showed a positive link between spirituality and problem-focused coping (F (1.587) = 37.73, $p < .0000$, $R^2 = .06$, $R = .25$) as well as between problem-focused coping and life satisfaction (F (2.586) = 36.82, $p < .0000$, $R^2 = .11$, $R = .33$).

A third step yielded an indirect effect of spirituality on life satisfaction that was significantly higher than zero with problem-focused coping as mediator (IE = .08, SE = .02, 95 % confidence interval [CI] = [.05, .12]) (Tables 2, 3 and 4 in Appendix 1). Hence, the following diagram could be constructed (Fig. 2).

The calculation also showed a positive link between spirituality and coping through social support seeking (F (1.587) = 37.73, $p < .02$, $R^2 = .01$, $R = .10$) as well as a positive link between coping through social support seeking and life satisfaction (F (2.586) = 8.60, $p < .000$, $R^2 = .03$, $R = .17$). This third step confirmed the indirect effect of spirituality on life satisfaction, which was significantly higher than zero with coping through seeking social support as mediator (IE = .015, SE = .0078, 95 %

Table 1 Correlations between the independent variable (spirituality) and the dependent variables (satisfaction with life) (SL) and coping and between different styles of coping and satisfaction with life (SL)

	SL	Coping focused on		
		Problems	Emotions	Social support seeking
Spirituality	.08	.25*	.01	.10*
SL		.33*	−.25*	.16*

* $p < .05$; $N = 590$

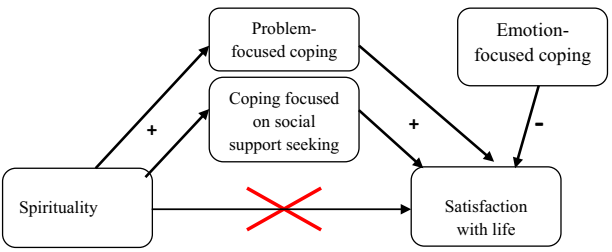

Fig. 1 Significant correlations between spirituality and coping strategies and between coping strategies and satisfaction with life

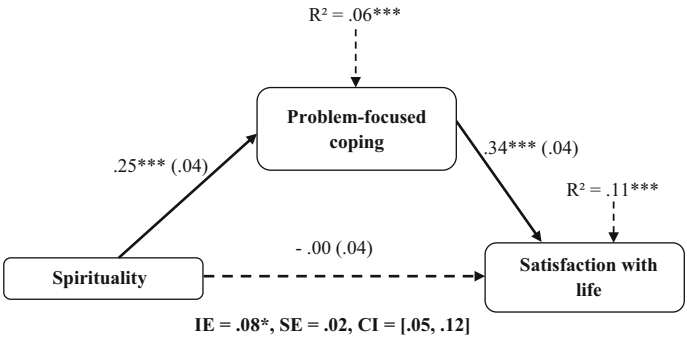

Fig. 2 Statistical diagram of the indirect effect of spirituality on satisfaction with life through problem-focused coping

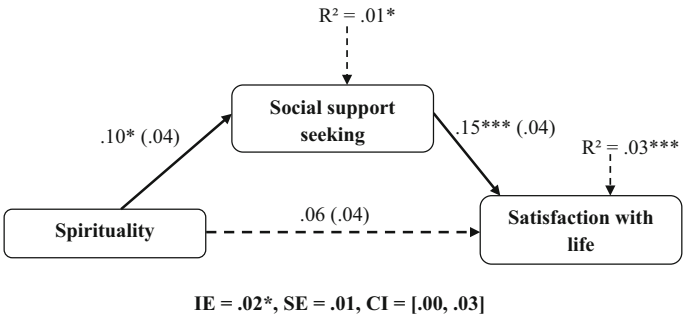

Fig. 3 Statistical diagram of the indirect effect of spirituality on satisfaction with life through social support seeking

confidence interval [CI] = [.0029, .034]) (Tables 5, 6 and 7 in Appendix 2). Hence, the following diagram could be constructed (Fig. 3).

Concerning the free comments (216 contributions), 24.7 % of them were directly about the illness. Patients emphasized its painful and incapacitating aspect, which was both physically and socially disabling, as well as the fact that the illness was not well perceived by their friends and family because it was invisible. 18.06 % of the comments mentioned spontaneously the help provided by spirituality. For these people, spirituality had given back meaning to their life and helped them on a daily basis, often to refocus on what was essential in their life. The types of help included practicing yoga, sophrology, meditation and psychotherapies applied to the self.

Discussion

This research aimed to examine the relationship between spirituality, coping strategies and quality of life in people suffering from fibromyalgia. This study belongs to a broader research interest in the influence of spirituality on people's health and quality of life. The impacts of the disease are found at many levels, from a personal point of view and from an economic and social point of view. The illness and the pain isolate people because they can

no longer keep up with their family or work normally; they are also misunderstood by others. The person and his/her entourage suffer while the disease has a financial cost to the individual, especially if he/she is unable to work, and to society through the provision of care.

The results indicated that a higher level of spirituality favors the use of problem-focused coping, which would have a more positive impact on satisfaction with life in the long term than any another form of coping. According to Bruchon-Sweitzer (2001), problem-focused strategies are more effective in the long term for controllable events. Yet, as the evolution of fibromyalgia does not have the same morbidity profile as cancer, it may be that some people have the possibility of controlling at least their symptoms. The results show that patients with a higher level of spirituality put into place practices that reduce the negative impact of these symptoms on their quality of life.

Moreover, according to their testimonies, patients seem to derive great benefit from practices such as relaxation therapy, yoga, meditation and some psychotherapies. Some of these practices can be part of a spiritual journey. It may be interesting to advise patients more systematically of the importance of developing this spiritual path in order to enhance and/or improve their treatment. Developing spirituality does not mean denying the physical impact of the disease. The body and mind are interrelated. A study by Desbordes et al. (2012) showed that training in mindfulness meditation can modify the activation of the amygdala, thereby modifying the emotional process of healthy adults.

To a lesser extent, this study also shows that coping through social support seeking varies positively with spirituality and that the level of satisfaction with life varies positively with coping through social support seeking. Bailly et al. (2011) showed that religious practices involve both a social dimension—when it comes to attending places of worship—and a spiritual dimension that includes engaging in individual actions such as meditation or prayer. By contrast, the results show that emotion-focused coping does not intervene in the spirituality–life satisfaction relationship and is negatively correlated with life satisfaction. These results are in keeping with several studies that showed the dysfunctionality/inadequacy of emotion-focused strategies, particularly in the long term for individuals suffering from a disease (Bruchon-Sweitzer 2001).

In conclusion, a strong spiritual inclination triggers a specific use of coping strategies, i.e., problem-focused coping and coping through social support seeking, which themselves positively influence life satisfaction. The present study shows that problem-focused coping and coping through social support seeking are mediating variables, enabling an indirect link between spirituality and quality of life. Spirituality improves life satisfaction through coping, particularly problem-focused coping and, to a lesser extent, coping through social support seeking. Further research might investigate whether extreme pessimism and/or feelings of injustice impact the coping variables in the spirituality–life satisfaction relationship. A better evaluation and consideration of the trends of extreme pessimism and injustice could pave the way for potential improvements in both patient care and patient condition. It could also be interesting to focus on emotion-centered coping and to study why this strategy does not improve the quality of life of fibromyalgia.

Appendix 1: Problem-focused coping as mediator

See Tables 2, 3 and 4.

Table 2 Regression model with spirituality (Zspirituality) as predictor and problem-focused coping as outcome

Model	Bêta	Standard error	*T*	*p*	LLCI	ULCI
Constant	.00	.04	.00	1.00	-.08	.08
Zspirituality	.25***	.04	6.14	.00	.17	.32
Model summary	$F(1,587) = 37.73$, $p < .00$, $R^2 = .06$***, $R = .25$					

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

Table 3 Regression model with problem-focused coping (Zproblem) and spirituality (Zspirituality) as predictors and satisfaction with life as outcome

Model	Bêta	Standard error	*t*	*p*	LLCI	ULCI
Constant	.00	.04	.00	1.00	−.08	.08
Zproblem	.34***	.04	8.34	.00	.26	.41
Zspirituality	−.00	.04	−.09	.93	−.08	.08
Model summary	$F(2,586) = 36.82$, $p < .00$, $R^2 = .11$***, $R = .33$					

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

Table 4 Indirect effect of spirituality on satisfaction with life through problem-focused coping

	Effect	Boot SE	LLCI	ULCI
Zproblem	.08*	.02	.05	.12

Appendix 2: Social support seeking as mediator

See Tables 5, 6 and 7.

Table 5 Regression model with spirituality (Zspirituality) as predictor and social support seeking as outcome

Model	Bêta	Standard error	t	p	LLCI	ULCI
Constant	.00	.04	.00	1.0000	−.08	−.08
Zspirituality	.10*	.04	2.47	.01	.02	.18
Model summary	$F(1,587) = 37.73$, $p < .02$, $R^2 = .01$*, $R = .10$					

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

Table 6 Regression model with social support seeking (Zsocial) and spirituality (Zspirituality) as predictors and satisfaction with life as outcome

Model	Bêta	Standard error	t	p	LLCI	ULCI
Constant	.00	.04	.00	1.00	−.08	.08
Zsocial	.15***	.04	3.67	.00	.07	.23
Zspirituality	.06	.04	1.55	.12	−.02	.14
Model summary	$F(2,586) = 8.60$, $p < .00$, $R^2 = .03$***, $R = .17$					

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

Table 7 Indirect effect of spirituality on satisfaction with life through social support seeking

	Effect	Boot SE	LLCI	ULCI
Zsocial	.02	.01	.00	.03

References

Aïni, K., Curelli-Chéreau, A., & Antoine, P. (2007). L'Expérience subjective de patients avec une fibromyalgie: Analyse qualitative. *Annales Médico-Psychologiques, 168*, 255–262. doi:10.1016/j.amp.2007.11.022.

Albrecht, P.J., Hou, Q., Argoff, C.E., Storey, J.R., Wymer, J.P., & Rice, F.L (2013). Excessive Peptidergic Sensory Innervation of Cutaneous Arteriole-Venule Shunts (AVS) in the Palmar Glabrous Skin of Fibromyalgia Patients: Implications for Widespread Deep Tissue Pain and Fatigue. *Pain Medicine, 14*(Issue 6), 895-915.

Bailly, N., Roussiau, N., & Fleury-Bahi, G. (2011). Étude des liens entre les croyances religieuses et spirituelles, la santé et l'âge. *Bulletin de psychologie, 512*, 149–154. doi:10.3917/bupsy.512.0149.

Blais, M. R., Vallerand, R. J., Pelletier, L. G., & Brière, N. M. (1989). L'Échelle de satisfaction de vie: Validation canadienne-française du "Satisfaction with Life Scale". *Revue canadienne des sciences du comportement, 21*, 210–223.

Bruchon-Sweitzer, M. (2001). CONCEPTS, STRESS, COPING, Concepts et modèles en psychologie de la santé. *Recherche en soins infirmiers, 67*, 4–39.

Calvino, B., & Grilo, R. M. (2004). Central pain control. *Revue du Rhumatisme, 73*, 10–18. doi:10.1016/j.rhum.2004.11.012.

Carmody, J., Reed, G., Kristeller, J., & Merriam, P. (2007). Mindfulness, spirituality, and health-related symptoms. *Journal of Psychosomatic Research, 64*, 393–403. doi:10.1016/j.jpsychores.2007.06.015.

Cousson, F., Bruchon-Schweitzer, M., Quintard, B., Nuissier, J., & Rascle, N. (1996). Analyse multidimensionnelle d'une échelle de coping: Validation française de la Ways of Coping Checklist. *Psychologie française, 41*(2), 155–164.

Culliford, L. (2010). *The psychology of spirituality: An introduction*. London/Philadelphia: Jessica Kingsley Publisher.

Desbordes, G., Negi, L. T., Pace, T. W. W., Wallace, B. A., Raison, C. L., & Schwartz, E. (2012). Effects of mindful-attention and compassion meditation training on amygdala response to emotional stimuli in an ordinary, non-meditative state. *Frontiers in Human Neuroscience,*. doi:10.3389/fnhum.2012.00292.

Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction with Life Scale. *Journal of Personality Assessment, 49*, 71–75.

Elkins, D. N., Hedstrom, L. J., Hughes, L. L., Leaf, J. A., & Saunders, C. (1988). Toward a humanistic Phenomenological Spirituality: Definition, Description, and Measurement. *Journal of Humanistic Psychology, 28*(4), 5–18.

Escudero-Carretero, M. J., García-Toyos, N., Prieto-Rodríguez, M. A., Pérez-Corral, O., March-Cerdá, J. C., & López-Doblas, M. (2008). Fibromyalgia: Patient perception on their disease and health system. *Qualitative research study. Reumatologia Clinica, 6*(1), 16–22.

Folkman, S., & Moskowitz, J. T. (2004). COPING: Pitfalls and promise. *Annual Reviews of Psychology, 55*, 45–774. doi:10.1146/annurev.psych.55.090902.141456.

Hill, P. C., & Pargament, K. I. (2008). Advances in the conceptualization and measurement of religion and spirituality: Implications for physical and mental health research. *Psychology of Religion and Spirituality, 1*, 3–17.

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer.

Morin, M. L. (2003). Rémission des symptômes de fibromyalgie: une étude phénoménologique existentielle. *Revue Canadienne de counseling, 37*(2), 18–25.

Nacu, A., & Benamouzig, D. (2010). La Fibromyalgie: du problème public à l'expérience des patients. *Santé Publique, 22*, 551–562.

Renard, E., & Roussiau, N. (2016). Construction et validation d'une Echelle de Spiritualité. In N. Roussiau (Ed.), *Psychologie, religion et spiritualité*. PUR: Presses Universitaire de Rennes (in press).