5

Young people and paranormal experiences: could anxiety be the result of a cognitive disturbance?

Abstract

This study aims to better understand the interaction between paranormal experience (PE) (here mainly spiritualism), cognitive disturbance and emotional stress in young people. In some cases, the PE can be an unsettling event that disrupts the adolescent's fundamental structure of knowledge and expectation of reality (the paradigm) and causes strong feelings of anxiety. 675 young French speakers aged between 13 and 25 years old completed an online survey about their paranormal experiences and were rated for anxiety and depression (HAD) and PTSD (IOE-6). An analysis of the relationship between PE and impact on anxiety shows a difference between those who practice very regularly, occasionally or never. However, the effect of frequency on the degree of anxiety becomes clear when the mediation of paradigm shift is introduced. It is therefore not certain paranormal experiences in themselves that generate unease, but the resulting paradigmatic disturbance, which causes feelings of anxiety and has a lasting impact.

Keywords: adolescents, paranormal experience, spiritualism, anxiety, paradigm shift, cognition, emotion

1. Introduction

1.1. Paradigmatic disturbance

It seems that everyone has their own set of preconceived beliefs about the workings of the reality that surrounds them. These are constantly adjusted to reflect everyday experiences in a continual and complex interaction between the cognitive and the emotional (Rimé, 2005). Simple cognitive integration enables the permanent readjustment of current and concrete realities. In contrast, fundamental paradigms, that is to say, all of the knowledge gathered and organised in the individual's own representation of themselves and of the world (Miller, Galanter & Pribram, 1960 ; Epstein, 1980, 1991), are often much less easily adjusted.

This fundamental structure can be disturbed by an experience that goes beyond the boundaries of their understanding. The theoretical edifice is therefore unprepared and fundamental beliefs are disturbed. A crisis arises and this experience can sometimes evoke extreme emotion. The "surprise" effect of the disturbing incident is all the more intense when it is unexpected and provokes a defensive cognitive reaction (Gendolla & Koller, 2001 ; Luminet, Bouts, Delie, Manstead & Rimé, 2000 ; Oatley, Keltner & Jenkins, 2006). The person tries to protect themselves using denial, which allows them to maintain their conceptions of reality for as long as possible and eventually gives them time to prepare for a progressive transition (Janoff-Bulman et Timko, 1987 ; Janoff-Bulman, 1989).

This cognitive transition, highly emotionally-charged, which leaves the person particularly vulnerable to all forms of "cognitive aggression" while their basic beliefs are undermined, has been called *Hermit Crab Syndrome* (Mathijsen,

2010). Indeed, like the crustacean that must find a larger shell to survive, the individual must undertake paradigmatic development and cognitive readjustment that will enable them to move beyond the sense of conflict produced by the experience (Vaidis & Halimi-Falkowicz, 2007). How the individual responds will determine whether or not they are able to modify their beliefs (Mathijsen, 2009) or knowledge structure (Izard, Ackerman, Schoff & Fine, 2000).

1.2. Paranormal experiences, paradigmatic disturbance and anxiety

Unusual, out-of-the-ordinary experiences are among those disturbing events that can undermine a person's basic paradigmatic structure. Among those, experiences labelled anomalous or paranormal (i.e. which is scientifically inexplicable, which calls into question established scientific principles and which is inconsistent with a belief, perception and expectation of normal reality (Tobacyk & Milford, 1983) affect almost a third of adolescents by showing an interest in spiritualism, psi faculties, precognition and witchcraft (Boyd, 1996 ; Francis & Williams, 2009; Le Vallois & Aulenbacher, 2006 ; Sjödin, 2002 ; Smith, 2002). Attracted by, among other things, the possibility of thrillseeking, especially in the case of psi experiences _ the alledged power of mind on matter _ or spiritualism _ alledged communication with "spirits" _ (Tobacyk & Milford, 1983 ; Groth-Marnat & Pegden, 1998), the young person who perceives or believes they have perceived an unusual phenomenon linked to a paranormal experience risks paradigmatic destabilisation, which could be accompanied with unease. To escape this, the young person must either resort to denial, which could be an effective short-term coping mechanism (Suls & Fletcher, 1985), or accept the paranormal experience as "real" and neutralise its ambiguity (Lange & Houran, 1999), which could allow them to gain control of the emotional stress provoked by this experience.

2. Focus of research

While the link between anxiety and some types of paranormal *belief* has been studied for decades (Granqvist & Hagekull, 2001 ; Lange & Houran, 1999 ; Perkins, 2006 ; Streib, 1999 ; Wolfradt, 1997), the relationship between paranormal *experiences* (PEs) and anxiety remains less known. But as we have just seen, the anxiety that can result from this type of experience could well come from a disturbing perception that leads to paradigmatic disturbance followed by strong emotion. It would seem that spiritualism is the most common PE among adolescents (Boyd, 1996 ; Francis & Williams, 2009 ; Le Vallois & Aulenbacher, 2006 ; Sjödin, 2002 ; Smith, 2002). By combining their findings, we put forward the hypothesis that some types of paranormal experience, specifically the practice of spiritualism, generate anxiety, which could be mediated by paradigmatic disturbance.

3. Method

3.1. Participants and procedure

This research involved young francophones born into post-modern Western culture, for whom the daily presence of spirits is not culturally normal (as in African culture, for example). The study was carried out with young people (girls: 66.2% and boys: 33.8%) aged between 13 and 25 years old (M = 16.8, SD = 1.9), mostly in francophone Belgium (96%) and rural areas (65%). The procedure was designed in line with the requirements of the *British Psychological Society Ethical Guidelines*. Almost 1200 young people, mainly secondary school pupils, were invited by their teachers or by a member of our team to complete the online survey using LimeSurvey software. The survey was anonymous but offered participants the chance to provide an email address for

entry into a prize draw to win cinema tickets. 859 young people responded and 675 valid and completed questionnaires were retained.

3.2. Ratings

1) Taking an inductive approach to our research, we have only studied those experiences that the young people themselves consider to be paranormal. According to qualitative "life story" interviews with young people between 16 and 25 years old (M = 21, SD = 2.6) who had undergone such experiences (Mathijsen, 2010; 2011), 8 types of experience, both active and passive, were measured (the rate of occurance among the young population in general is given in brackets). Firstly, passive PEs: 1) anomalous sensitive perceptions (50.4) and 2) having apparitions, seeing ghosts (19.3). Secondly, active PEs 3) practicing spiritualism (28.8), 4) consulting one or more healers or hypnotists (16.7) or 5) clairvoyants (10.6), 6) practicing white magic (9.5) or 7) black magic (4.9) and 8) satanic rituals (3.7). Cronbach's $\alpha = 0.79$.

2) Three scales were used to measure emotional outcomes: a French version of the *Hospital Anxiety and Depression scale* (*HAD*), as validated by Lepine, Godchau, Brun et Teherani (1986), a French adaptation of a short version (6 items) of the *Impact of Event Scale* (*IES-6*) used by Thoresen, Tambs, Hussain, Heir, Johansen et Bisson (2009) and a small evaluation scale of 5 emotions. The *HAD* is a self-assessment survey of 14 items rated on a scale of 4 points and designed by Zigmond and Snaith (1983) for patients consulting in general medicine, internal medicine or psychiatry. It enables detection of possible problems of *anxiety* and *depression* and evaluates their severity. The *IES-6* is a short version of the *IES-R* by Weiss (2004), used as a symptomatic measure of *post traumatic stress disorder* (PTSD) on the basis of three major symptoms:

intrusive thoughts, avoidance and hypersensitivity. These are rated on a 5-point Likert scale. Finally, the young person was invited to evaluate the strength (on a 5-point scale) of each emotion of *unease, disturbance, consolation, fear and wellbeing* about their PE.

3) The perception of a shift in fundamental beliefs and cognitive and emotional expectation of reality was measured with a self-assessment survey using the *Paradigm Shift Scale* (PSS) (Mathijsen, 2011b). The PSS was designed on the basis of the results from two qualitative studies of the paranormal beliefs and experiences of Western francophone adolescents and was validated by two online quantitative surveys completed by 812 adolescents (M = 16.46 ans, SD = 1,84). The validated PSS is composed of 5 items (i.a. *There has been a profound shift in the way I see things* or *My view of the world is no longer the same*), and has a coherent and one-dimensional factorial structure that reliably (α = 0.97) measures the phenomenon of paradigm shift.

4. Results and discussion

4.1. Paranormal experiences, emotions and impact

Of the 675 respondents, 342 young people claimed to have had one or more paranormal experiences (PEs). A table of correlation between PEs and ratings for *anxiety* and *depression* (HAD), and *traumatic impact* (IES-6) shows that, overall, PEs certainly have an effect. Practically all PEs have a link to *traumatic impact* and global statistical significance to *anxiety. Depression* ratings reveal some trends but have no significant correlation with PEs, with the exception of *unusual and unexplained perceptions*. These also correlate strongly with all emotional impact ratings. This PE, as well as *apparitions*, is a passive experience, usually unprovoked and so is rarely under control. This could

explain their greater significance than other PEs with regard to *anxiety* ($r(339) = .31$ and $.23$, $p < 0.01$) and *traumatic impact* ($r(339) = .31$ and $.32$, $p < 0.01$) respectively.

Table 1: PE and impact

Type of effect	*anxiety*	*depression*	*traumatic impact*
Passive PEs			
anomalous perceptions	.31**	.17**	.31**
apparitions	.23**	.08	.32**
Active PEs			
clairvoyance	.13*	.03	.22**
healer/hypnotist	09	.08	.05
spiritualism	.14*	.07	.19**
satanic rituals	.10	.03	.14**
black magic	.15**	.08	.14**
white magic	.16**	.07	.12*

$N = 342$

** significant correlation at level 0.01 (bilateral)

* significant correlation at level 0.05 (bilateral)

A linear regression confirms that the passive PEs (e.i. *anomalous perceptions* and *apparitions*) significantly predict *anxiety* $\beta = .38$, ($t(339) = 4.26$, $p < .001$ and ($\beta = .37$, ($t(339) = 3.30$, $p < .001$). Both PEs also predict *traumatic impact*: $\beta = .37$, ($t(339) = 4.26$, $p < .001$ and $\beta = .41$, $t(339) = 4.39$, $p < .001$. This impact is also predicted by the consultation of a *clairvoyant* ($\beta = .37$, ($t(339) = 3.20$, $p < .001$). Other PEs show no particularly significant association.

4.2. PE, traumatic impact and anxiety; mediation of Paradigm Shift

In the case of those 3 PE that more clearly predict anxiety and traumatic impact, a regression makes clear the mediating role of the *paradigm shift* (PS). *Anomalous perceptions* significantly predict *PS* (β = 0.20, (t(339) = 3.69, p < 0.001) and *PS* predicts *anxiety* (β = 0.36, (t(324) = 7.23, p < 0.001). A Sobel test indicates a significant mediation (*Sobel* = 3.11, p < 0.001) by *PS* between *anomalous perceptions* and *anxiety*. There is also significant moderation by *PS* between *anomalous perceptions* and *traumatic impact* (*Sobel* = 2.60, p < 0.01) and between *apparitions* and *anxiety* (*Sobel* = 4.71, p < 0.00001, two-tailed) and *traumatic impact* (*Sobel* = 4.77, p < 0.00001, two-tailed). For active PEs, mediation by *PS* is less significant between the consultation of a *clairvoyant* and *traumatic impact* or *anxiety* (*Sobel* = 2.78, p < 0.01, two-tailed).

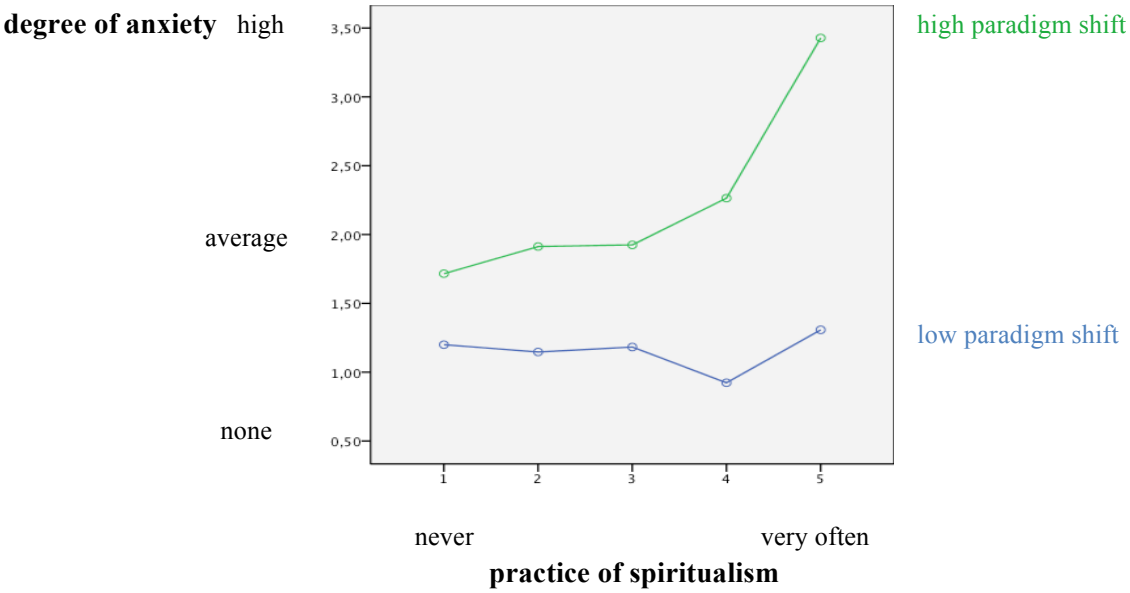
4.3. PE, traumatic impact and anxiety; the case of spiritualism

The practice of spiritualism is a type of paranormal belief that, along with witchcraft, extrasensory perception and PSI faculties, seems to have a marked impact upon young people (Tobacyk & Milford, 1983 ; Groth-Marnat & al., 1998 ; Mathijsen, 2010) et est la principale active PE (Mathijsen, 2011). Furthermore, more than a quarter of the young people sampled had been affected by the *invocation of spirits*, having both related beliefs and experiences (Le Vallois & Aulenbacher, 2006 ; Mathijsen, 2011$_a$). Therefore, we will focus on analysing this PE. In order to observe any differences relating to frequency of practice with a sufficiently large sample size (N = 342), the young people were re-classed according to the frequency of their PE (on a 5-point Likert scale ranging from “never” to “very often”) : those who had never had this kind of PE (N = 213), those answering “almost never” who were classed as “practicing

rarely" (N = 66), and those answering "sometimes", "quite often" and "very often" who were classed as "practicing regularly" (N = 63).

With regard to *anxiety* ($r(339) = 0.14$, $p < 0.05$) and *traumatic impact* ($r(339) = 0.19$, $p < 0.01$), spiritualism has a less significant impact on anxiety than passive, involuntary PEs. Descriptive statistics show that more young people who show a slight PS, and take part in occasional paranormal practices, display less average overall anxiety (M = 1.14, SD = 0.52, N = 33). And more young people who show a stronger PS and practice regularly, display greater average overall anxiety (M = 2.22, SD = 0.87, N = 45).

Graph 1: The effect of paradigm shift on anxiety in spiritualism

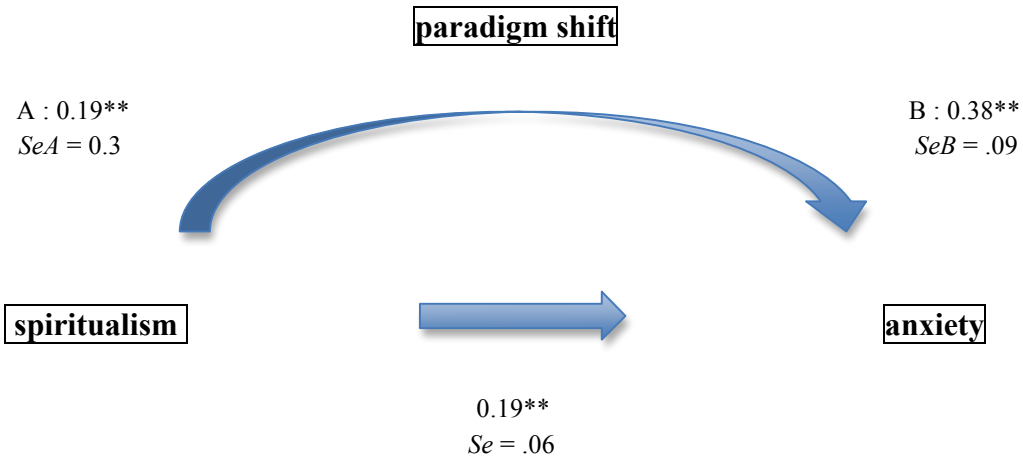


4.3. Mediation of the paradigm shift between spiritualism and anxiety

Since paradigm shift seems to have an effect on the anxiety of young people who practice spiritualism, it is important to measure any possible moderating or

mediating role PS may have between spiritualism and anxiety. A relationship between the three variables seems probable since a Spearman correlation reveals significant links for each combination: the practice of *spiritualism* (VI) and *anxiety* (VD) = $r(339) = .19$, $p < 0.01$), between the practice of *spiritualism* (VI) and *paradigm shift* (VM) = $r(339) = .16$, $p < 0.01$), and between *paradigm shift* (VM) and *anxiety* (VD)= $r(339) = .37$, $p < 0.01$). A linear regression reveals a direct association (non-mediated) between the practice of *spiritualism* and overall *anxiety* of .19 (*Se* = .06, $p < .001$). By introducing the mediation of *paradigm shift*, the relationship between *spiritualism* and *PS* reveals a coefficient of .19 (*Se* = .03, $p < .001$), and between *PS* and overall *anxiety* of .38 (*Se* = .09, $p < .001$). The Sobel test gives a good statistical significance (p = .0004, two-tailed) coefficient of 3.51. This confirms that paradigm shift plays a mediating role between the practice of spiritualism and anxiety.

Figure 1: Mediation of paradigm shift between spiritualism and anxiety



5. General discussion, limits and future research

The results of this study of 675 young people show that almost one in two young people have had one or more paranormal experiences. In most cases, these have had a long-lasting impact on anxiety levels durable as almost all the PEs correlate significantly with *traumatic impact* and *anxiety*. While they only show positive trends with regard to *depression* ratings. This anxiety effect seems even greater among young people who have perceived *apparitions* or *anomalous perceptions* (unexplained lights and sounds) (for a cognitive approach to an anxiety structure relating to PEs, see Mathijsen, 2010). The same goes for those who consult clairvoyants. It may be that the absence of personal control felt by young people over these PEs, which thus prove even more elusive cognitively, is actually a basis for the weakening of the young person's paradigm, of their understanding of reality. And it is precisely this which could be a cause of anxiety (Mathijsen, 2010 ; 2011_a).

Analysis of the relationship between PEs and anxiety shows a clear difference between those who practice very regularly, those who practice occasionally and those who have never practiced. The frequency therefore determines the level of anxiety and trauma resulting from PEs. However, in examining more deeply the case of spiritualism, the effect of frequency becomes clear when one introduces the variable of *paradigm shift*, as the group of young people who claim to have undergone a clear paradigm shift, (i.e. of their relationship with reality) show greater anxiety, which increases with the frequency of practice of spiritualism. In addition, the group of young people who claim not to have undergone a paradigm shift shows no particular anxiety, how frequently they practice spiritualism.

The mediating role of *paradigmatic shift* in the relationship between the practice of *spiritualism* and *anxiety* supports the hypothesis that it is not in itself a paranormal experience of spiritualism which provokes a feeling of unease, but the shift in understanding and expectation of reality which can result from a PE and cause long-lasting anxiety. This confirms the findings of some of the literature relating to the link between cognition and emotion (Frijda, 1988 ; Mathijsen, 2010 ; Rimé, 2005 ; 2009). This mediation through *PS* could also be key to understanding the schizotypal personality. Indeed, this personality disorder is marked by unusual behaviour and a magical, strange and paranormal "re-reading" of everyday reality (according to 9 criteria in the DSM IV TR by Delbrouck, 2008). This could be rooted in a paradigm shift which disturbs the relationship with reality. In this case, the schizotypal disorder is not necessarily what leads to an interest in the paranormal, but may result from practices that have caused a PS. This hypothesis is to be tested in future studies.
In addition, since it seems that the cognitive faculty of emotional intelligence would be more activate when the person is distressed by a cognitive situation out of their control (Gianotti, Mohr, Pizzagalli, Lehmann & Brugger, 2001), it would be useful to better understand the possible role of this type of more intuitive and emotional, and less analytical intelligence (Aarnio & Lindeman, 2005 ; Sjöberg & Af Wahlberg, 2002) in the relationship between PEs and anxiety and in facilitating paradigmatic disturbance.

The link between some kinds of PE and *anxiety* and *traumatic* impact is clear for passive, uncontrolled PEs, while it is less evident in PEs which demonstrate a more or less conscious and voluntary approach. We could could have studied each PE in terms of the two criteria of impact in order to obtain a more detailed analysis. Our study is limited to the analysis of *spiritualism* and the *anxiety* generated since 1) this is the most common PE actively practiced by young

people and 2) we are striving to understand the mechanism underlying the appearance of anxiety linked to this PE.

6. Acknowledgements

We would like to thank Nathalie Lefèvre, PhD for her help and advice during statistical processing, and the *Statistical Methodology and Computing Support (SMCS) technological platform* for providing training used to launch the online questionnaire.

7. Références

Aarnio, K. & Lindeman, M. (2005). Paranormal beliefs, education and thinking styles. *Personality and Individual Differences, 39*(7)*,* 1227-1236.

Boyd, A (1996). *Dangerous obsessions: teenagers and the occult.* London: Marshall Pickering.

Delbrouck, M. (2008). *Psychopathologie. Manuel à l'usage du médecin et du psychothérapeute* [Psychopathology. Handbook for physicians and psychotherapists]. Carrefour des psychothérapies. Bruxelles : De Boeck

Epstein, S. (1980). The self-concept : A review and the proposal of an integrated theory of personnality. *in* E. Staub (Ed.), Personality : Basic issues and current research (p. 82-131), Engelwoods Cliffs, NJ, Prentice-Hall *in* Rimé (2005)

Epstein, S. (1991) The self-concept, the traumatic neurosis, and the structure of personality *in* Rimé (2005).

Francis, L. & Williams, E. (2009). Contacting the spirits of the dead; Paranormal belief and the teenage worldview. *Journal of Research in the Christian Education, 18*(1), 20-35.

French, C. (2003). The relevance of research into eyewitness testimony and false memories for reports of anomalous experiences. *Journal of Consciousness Studies, 10*(6–7), 153-174.

Frijda, N. (1988). The laws of emotion. *American Psychologist, 43*(5), 349 -358.

Gendolla, G. & Koller, M. (2001). Surprise and motivation of causal search : How are they affected by outcome valence and importance ? *Motivation and Emotion, 25*(4), 327-349.

Gianotti, L., Mohr, C., Pizzagalli, D., Lehmann, D. & Brugger, P. (2001). Associative processing and paranormal belief. *Psychiatry and Clinical Neurosciences, 55*(6), 595-603.

Granqvist, P. & Hagekull, B. (2001). Seeking security in the New Age: On attachment and emotional compensation. *Journal for the Scientific Study of Religion, 40*(3), 527-545.

Groth-Marnat, G., & Pegden, J.A. (1998). Personnality correlates of paranormal belief : Locus of control and sensation seeking. *Social behavior and personality : An international Journal, 26*(3), 291-296.

Izard, C. E., Ackerman, B. P., Schoff, K. M. & Fine, S. E. (2000). *Emotion, development, and self-organization: Dynamic systems approaches to emotional development.* Cambridge studies in social and emotional development. New York: Cambridge University Press.

Janoff-Bulman, R. (1989). Assumptive worlds and the stress of traumatic events : Applications of the schema construct. Social Cognition, *7, 113-136 in* Rimé (2005)

Janoff-Bulman, R. & Timko, C. (1987). Coping with traumatic life events. The role of denial in light of people's assumptive worlds *in* C.R. Snyder and C. Ford (Eds.), *Coping with negative life events : Clinical and social perspectives* (p. 135-159), New York, Plenum *in* Rimé (2005).

Lange, R. & Houran, J. (1999). The role of fear in delusions of the paranormal. *Journal of Nervous and Mental Disease, 187*(3), 159-166.

Lepine, J.P., Godchau, M., Brun, P. & Teherani, M. (1986). Utilité des échelles d'auto-évaluation de l'anxiété et de la dépression en médecine interne [Usefulness of self-assessment scales for anxiety and depression in internal medicine]. *Acta Psychiatrica Belgica, 86*(5)*,* 608-15.

Le Vallois, P. & C. Aulenbacher, C. (2006). *Les ados et leurs croyances. Comprendre leur* quête de sens et déceler leur mal-être [Teenagers and their beliefs. Understanding their search for meaning and detecting their anxiety]. Paris : Editions de l'Atelier.

Luminet, O., Bouts, P., Delie, F., Manstead, A. & Rimé, B. (2000). Social sharing of emotion following exposure to a negatively valenced situation. *Cognition and emotion, 14*(5), 661-688.

Mathijsen, F. (2009). Empirical research and paranormal beliefs: Going beyond the epistemological debate in favour of the individual. *Archive for the Psychology of Religion, 31*(3)*,* 319-333.

Mathijsen, F. (2010). Young people and paranormal experiences: Why are they scared? A cognitive pattern. *Archive for the Psychology of Religion, 32*(3), 345-361.

Mathijsen, F. (2011_a). Adolescents and spiritualism: Is this a good way to cope with fear? A qualitative approach. *Mental Health, Religion & Culture*, *In press*.

Mathijsen, F. (2011_b). Validation d'une mesure auto-rapportée de Modification Paradigmatique [Validation of a Paradigmatic Shift self-assessment scale]. *European Review of Applied Psychology*, submitted.

Miller, G.A., Galanter, E. & Pribram, K.H. (1960). *Plans and the structure of behavior.* New York, Holt, Rinehart and Winston *in* Rimé (2005).

Oatley, K., Keltner, D. & Jenkins, J.M. (2006). *Understanding emotions*. Blackwell Publishing.

Perkins, S. L. (2006). Childhood physical abuse and differential development of paranormal belief systems. *Journal of Nervous and Mental disease, 194*(5), 349-355.

Rimé, B. (2005). *Le partage social des émotions* [the social sharing of emotions]. Paris, Presses Universitaires de France.

Rimé, B. (2009). Emotion elicits the social sharing of emotion: Theory and empirical review. *Emotion Review,1*(1), 60–85.

Sjöberg, L. & Af Wahlberg, A. (2002). Risk perception and New Age beliefs. *Risk Analysis, 22*(4), 751.

Sjödin, U. (2002). The Swedes and the paranormal. *Journal of Contemporary Religion, 17*(1)*,* 75-85.

Smith, A. (2002). *The religion of adolescents in Walsall.* Unpublished PhD, University of Wales, Bangor.

Streib, H. (1999). Off-road religion? A narrative approach to fundamentalist and occult orientations of adolescents. *Journal of Adolescence, 22*(2), 255-267.

Suls, J. & Fletcher, B. (1985). The relative efficacy of avoidant and nonavoidant coping strategies : a meta-analysis. *Health psychology, 4*(3), 249-288.

Thoresen, S., Tambs, K., Hussain, A., Heir, T., Johansen, V.A. & Bisson, J.I. (2009). Brief measure of posttraumatic stress reactions:Impact of Event Scale-6. *Journal for Social Psychiatry and Epidemiology, 45*(3), 405-412.

Tobacyk, J. & Milford, G. (1983). Belief in Paranormal phenomena : Assessment instrument, development and implications for personality functionning. *Journal of Personality and Social Psychology, 44*(5), 1029-1037.

Vaidis, D. & Halimi-Falkowicz, S. (2007). La théorie de la dissonance cognitive : une théorie âgée d'un demi-siècle [Cognitive dissonance theory: A half-century year old theory]. *Revue électronique de psychologie sociale, 1*, 9-18.

Weiss, D. (2004). *The Impact of Event Scale-revised* in Wilson JP, Keane TM (eds).

Wolfradt, U. (1997). Dissociative experiences, trait anxiety and paranormal beliefs. *Personnality and Individual Differences, 23*(1), 15-19.

Zigmond, A. & Snaith, R. (1983). The hospital anxiety and depression scale. *Acta Psychiatrica Scandinavia, 67*(6), 361-370.