



Does religion affect humour creation? An experimental study

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ABSTRACT *Humour has been hypothesized to be negatively affected by religion. In a recent study (Saroglou, 2000), religiosity and religious fundamentalism (contrary to 'quest' religiosity) were found to be negatively associated with humour creation. The present experiment investigated whether this association reflects causality. Eighty-five students were tested for their propensity to spontaneously produce humour as a response to hypothetical daily hassles after exposure to a religious video or to a humorous one vs. a non-stimulation condition. Significant effects of condition, gender and interaction were observed, and this in the predicted direction: religious stimulation inhibited humour, while humorous stimulation promoted it. Participants' religious fundamentalism and orthodoxy predicted low humour creation in the religious condition but not in the humorous one. The possible impact of conscientiousness is also discussed.*

Introduction

Beyond the presence of humour in religion, mistrust exists in many religions towards laughter and humour. One may suspect that, from a psychological perspective, this attitude is not an historical accident, but reflects a deeper reality. A brief survey of theory and research into the psychology of humour and the psychology of religion reveals that many components substantial to humour as well as many personality traits related to sense of humour are, respectively, prohibited by, and related in an opposite direction to, religion (see Saroglou, in press, for details).

Humour is defined by or linked to the perception (Nerhardt, 1996) and enjoyment (Morreall, 1989) of incongruity, the playful and gratuitous attitude (Ruch & Hehl, 1993; Suls, 1983), the tolerance of ambiguity (Ruch, 1992), low conservatism (Thomas *et al.*, 1971; Wilson & Patterson, 1969) and low dogmatism (Dixon *et al.*, 1986; Miller & Bacon, 1971). Aggression and sexual content or character are inherent, at least to some extent, in humorous phenomena (Freud, 1905/1960; Nevo & Nevo, 1983; Prerost, 1984).

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On the contrary, religion expresses the need for the reduction of uncertainty (e.g. Schwartz & Huismans, 1995) and is associated with a risk avoiding attitude (Miller & Hoffmann, 1995), with orderliness (Lewis, 1998), the need for control (Hood *et al.*, 1996), conservatism (e.g. Campiche, 1997), and somehow dogmatism (see studies cited in Francis, 1997). Aggression and sexuality are not encouraged.

Although contemporary Christian religion does not present an explicit anti-humour discourse, one may hypothesize that the number of traits mentioned above is so important that religion may be negatively associated with, and even affect, sense of humour. In a recent study, Saroglou (2000) found that religiosity and religious fundamentalism were negatively correlated with spontaneous humour creation as a response to hypothetical daily hassles. Does this association, however, reflect a causal relation between religion and humour? In other words, and because it is hard to consider that humour abilities have an impact on religion, it seems appropriate to test empirically the alternative, more intuitive hypothesis, that religion affects the tendency to create humour.

We then hypothesized in the present study that religious stimulation might have an 'inhibiting' effect on participants' spontaneous humour production in response to daily hassles. In contrast, a humorous stimulation may have an opposite, promoting effect on humour creation. It is important to note that our hypothesis presumes the effect of religion in a laboratory situation. In a natural setting (e.g. in a church, during a religious ceremony) it would not make sense to test the humorous behaviour of participants through observation, because the obvious aim of such a situation is not to distract people or improve cheerfulness. On the contrary, in the laboratory, with a sample whose religiosity may be considered as representative of the religiosity of the general population and not of specifically religious people, it is less obvious whether the experimental activation of a religious framework could be proved to be efficient in diminishing the likelihood of a humorous response to a task immediately after exposure to a religious stimulus.

In addition, we hypothesized that not only religion as a *state* may decrease humour creation, but also participants' religiosity (religion as a *trait*) would be negatively associated with humour creation, consistent with Saroglou's (2000) findings. This should be the case in both experimental conditions, the religious and the humorous one.

Effectiveness of religious and humorous stimulation

Although experimentation in the psychology of religion is rare, several studies suggest that religion as an independent variable may be effective in the laboratory. For example, the status of a priest vs. the status of a student seems to influence the resistance to temptation (Augustin *et al.*, 1979); a pro-religious manipulation produces more favorable religious attitudes under the non-anonymous condition of behavioral response (Ungar, 1980); a description of a person as religiously involved produces more positive evaluations of this person as a possible dating partner or friend (Bailey & Garrou, 1983).

A number of experimental studies have investigated the impact or the moderating effect of humor on pain tolerance, stress and depression (see Lefcourt & Thomas, 1998, for a review). The experimental design usually used in these studies (humorous video or audio stimulation vs. a control condition, which may be non-humorous or serious or even tragic), has been proved to be efficient. Previous studies have also investigated how a humorous video affects related humor behaviors such as laughter (e.g. Dillon *et al.*, 1985). Finally, some studies have proved the effect of canned laughter on behaviors such as rated smiling and laughter while participants are viewing cartoons (Cupchik & Leventhal, 1974; Leventhal & Cupchik, 1975, 1976).

Is humour dependent on situational-environmental variables?

We may consider that providing different kinds of stimuli (such as a religious or humorous one) and testing the consequent humour performances constitutes a research strategy. This allows us to investigate the impact of situational variables on humour. There is some evidence in favour of this assumption. For example, the rated funniness of a recorded humorous monologue may be influenced by instructions to inhibit laughter and smiling while listening to the monologue (Olson & Roesse, 1995). In another study, Olson (1992) found that information about environmental factors might have a discounting or augmentation effect on the subjects' inference about the funniness of a humorous stimulus. A number of studies have also investigated the social dynamics of sharing humour in the company of friends and strangers, and the effect of the gender of the companion (see Lampert & Ervin-Tripp, 1998).

Personality and humour creation

Finally, we decided to investigate whether spontaneous humour creation is related to personality. Humour in general and specific humour behaviours and performances are related to personality (see Martin, 1998, for a review). There is some evidence supporting links between humour creation and personality, although by 'humour creation' in research tradition one has to understand not the spontaneous use of humour but rather humour creativity (quantity or quality of humour participants are *asked* to produce) and the reported use of humour.

More precisely, in one study using the Five Factor Model, it was found that a quality (wittiness, originality and fantasy) of punchline created as a humorous response to an explicit demand was negatively related to conscientiousness and positively related to openness to experience (the latter factor predicted also the quantity of production; Ruch & Köhler, 1998). In another study using Eysenck's three-dimensional model of personality, quantity of humour production after explicit demand was associated with extraversion, whereas quality of humour production was associated with psychoticism (Köhler & Ruch, 1996). Regarding

conscientiousness it is worth reporting that order, as a personality trait, is negatively associated with reported humour generation (Thorson & Powell, 1993). Furthermore, self-report measures of humour creation have been found to be positively associated with extraversion (e.g. Ehrenberg, 1995; Köhler & Ruch, 1996). Finally, in two studies within the FFM framework, reported use of humour as a coping mechanism was predicted by high extraversion, high openness and low conscientiousness (Costa *et al.*, 1996; McCrae & Costa, 1986).

In conclusion, humour creation seems to be related to high extraversion, low conscientiousness and high openness. We expected then that these three factors would also be involved in spontaneous humour creation as a response to hypothetical stressful everyday situations.

Method

Participants

Participants were 85 students at the Catholic University of Louvain (French-speaking) who chose this experiment to obtain a credit for their introductory psychology course. The study was advertised as a 'study in coping and the ways in which individuals cope with stressful situations'. Fifty-six students participated in the two experimental groups. Twenty-nine participants (12 men and 17 women) watched a religious video, while 27 other participants (12 men and 15 women) watched a humorous one. The control group was composed of a sample of 29 students extracted randomly (8 men, 21 women) from a previous study (Saroglou, 2000), where participants performed the same task as the one in the present study (see below, dependent variable) without any specific stimulation.

Videotape stimuli and control group

Both videos lasted 15 minutes. The religious video consisted of: (1) scenes from a documentary film on pilgrims in Lourdes (France); (2) scenes from the movie '*Jesus of Montreal*' (only those on Jesus' life, rather than the modern scenes focusing on the group of actors); and (3) extracts of a Belgian TV broadcast ('*Nom de Dieu*') containing a discussion between a journalist and a monk about religious and spiritual issues. A particular effort was made to balance the video, so that it contained religious ideas and related universal humanistic values as well as religious ceremonies, positive presentation of religious figures and of their message, traditional elements (Lourdes) and more modern conceptions of religion (e.g. extracts from the movie). We tried to avoid a very traditional look of religion as well as a too modern, 'symbolic', understanding of the religious message. For reasons specific to Belgian Catholicism we avoided scenes presenting the Pope. The purpose was to have a 15 minute video which was representative of positive common religiosity and thus respectful of religion. We also tried not to offend the sensitivity of non-

religious people. For example, of the following sentence from the third source: 'In some way, everybody is looking for God . . . without being aware of it', we retained only the first part. Finally, in order to avoid abrupt changes between the different parts of the video, we interfaced them with four stable images each containing one of the following sentences: 'Religion is a source of inestimable spiritual force'; 'The Christian religion is founded on the message and testimony of the life of Christ'; 'Faith animates men and women living according to the religious message'; and 'Honour all people (Saint Benedict)'.

The humorous video consisted of: (1) scenes from a famous French comedy, *Les Visiteurs*; (2) sketches by a famous French comedian (Coluche), including an ironic sketch with Belgians as the target; and (3) extracts from 'The best of' by a very well-known group of French comedians, *Les Inconnus*. No obscene or sick humour was included. Most of the content of the humorous video included convivial, tendentious or non-tendentious humour, irony, satire and comic.

As a control group we preferred a non-specific stimulation group to subjects exposed to a 'neutral' (e.g. a documentary) video; this is for two reasons. First, situations, atmosphere, feelings, emotions and cognitive associations based on the content of such a 'neutral' video, do not guarantee its control character. It is difficult to ensure that none of the elements of such a video could present any affinity with characteristics inherent to a humorous stimulus (e.g. creation of a secure atmosphere during the experiment) or to a religious stimulus (e.g. ethical, moral, educational elements). Second, there is some evidence that, in experimental humour studies, the effectiveness of a documentary film as a control condition is problematic. For example, in an experiment by Nevo *et al.* (1993), people high on reported sense of humour seemed to have found the documentary almost as amusing as the film that was intended to be funny. In another experiment, Danzer *et al.* (1990) investigated the effects of humorous intervention on depression. They found no difference between the two control conditions, i.e. a non-humorous tape (a recorded geology lecture) and a no-tape waiting condition, on depression inducted before tape manipulation: it was only the humorous audio group which decreased depression scores.

Procedure

Subjects participated in the experiment individually. In order to prevent a possible bias from communication of the information about the study among students, we preferred to investigate the effect of the second condition (humorous) after the 29 first participants came to the laboratory and saw the religious videotape. On entering the laboratory—which was a 'neutral' room in the faculty of psychology with two tables, two chairs and a closed cupboard—participants were greeted by the (male) experimenter and seated facing a television. They were told that they would be asked to watch a videotape of 15 minutes on their own, after which the experimenter would come back and give them a test to fill in.

Dependent variable

After the video exposure participants were asked immediately to fill in the punch lines of all 24 pictures of the Rosenzweig's test presenting frustration in daily life situations. The test was administered with the usual instructions that invite individuals to imagine how they would react in the situations depicted. Participants were unaware that the experimenter was only interested in the spontaneously produced humorous responses. Responses were evaluated by raters as humorous or non-humorous and were assumed to indicate, because of the projective character of the Rosenzweig's pictures, the degree to which people would be prompted to use humour spontaneously, as a reaction to situations of daily hassles. (Rosenzweig himself (1950) investigated the fact that some people tended to answer humorously in his test.) The most important criteria we established (in a team) in order to code answers as humorous were the following:

- (1) Judges had to evaluate the fact that participants tried to produce humour and not to focus on creativity, originality and fantasy of humour produced.
- (2) All kinds of comic responses were included (i.e. irony, sarcasm, non-tendentious, innocent humor).
- (3) Adages were coded as humorous.
- (4) One- and two-word answers were considered as providing insufficient information to possibly be coded as humorous.
- (5) An ambiguous answer was classified as humorous only if it was very original compared with the common answers to the specific situation or if the person was generally high on humour.

To give an example, in a situation where a woman comes back to a shop and protests by saying that, for the third time, the clock she bought a week earlier stopped once she arrived home, participants made the employee answer by saying (1) 'That's not normal. I'll examine it' or 'Then, we need to replace it' (non-humorous), and (2) 'You're lucky, time ends in your house' or 'It was the way I had to make you come back' (humorous). The inter-rater reliability (one male and one female judges) on evaluation of responses was satisfactory (effective $R = .89$), similar to a previous study (Saroglou, 2000; effective $R = .82$).

Religiosity and personality measures

Afterwards, participants in the two experimental conditions were asked to change room for 'another' study. Participants were administered the following measures of religiosity and personality.

Religious Fundamentalism Scale (RF; Altemeyer & Hunsberger, 1992). A 20-item balanced scale, in a six-point Likert type format in the French version. Religious fundamentalism is defined by the authors as a construct combining the following characteristics:

- (a) the belief that there is one set of religious teachings that clearly contain the fundamental, basic, and inherent truth about humanity and deity;
- (b) the belief that this truth is fundamentally opposed by the forces of evil;
- (c) the belief that this truth must be followed today accordingly to the practices of the past; and
- (d) the belief that those who believe and follow these fundamental teachings have a special relationship with the deity.

Post-Critical Belief Questionnaire (see Hutsebaut, 1996). A 7-point Likert format questionnaire whose 24 items reflect three dimensions of religiosity, three cognitive ways to be religious—orthodoxy, historical relativism and critical attitude toward religion. (For data analysis, we retained only the subscales of orthodoxy and critical attitude toward religion, because the subscale of historical relativism in the French translation did not demonstrate an acceptable level of internal consistency.)

Religiosity Index. A three-item, seven-point scale that investigates the importance of God, the importance of religion in life and frequency of prayer. The three items proved to be highly inter-correlated in a previous study (Saroglou, 2000), and may be considered as indicators of intrinsic religiosity (for validity of single- or few-item scales as estimators of intrinsic religiosity, see Gorsuch & McFarland, 1972; Schwartz & Huismans, 1995; the same seems to be the case for frequency of prayer; Maltby *et al.*, 1995).

Bipolar Rating Scales Based on the Five-Factor Model of Personality (Vandenplas-Holper *et al.*, 1995). This French measure, a short measure of the five factors of personality, is based on 25 bipolar adjective scales of a 9-point Likert-type format. The five-factor structure of this measure has been confirmed in peer- and self-ratings among more than two thousand people.

Results

Main results

The dependent measure (humour creation) was submitted to a 3 (conditions: religious stimulation vs. humorous stimulation vs. control) \times 2 (gender) analysis of variance. As it may be seen in Table 1, the ANOVA revealed a main effect of condition as well as a main effect of gender. Furthermore, there was a significant interaction of condition with gender.

TABLE 1. Analysis of variance for humour creation

<i>Source</i>	<i>df</i>	<i>SS</i>	<i>F</i>	<i>p</i>
Condition	2	198.72	7.69	<0.001
Gender	1	106	8.20	<0.005
Condition × gender	2	84.30	5.85	<.005

Note. $n = 85$.

Regarding the effect of *gender*, as it may be seen in Table 2, *t*-tests for gender differences within conditions revealed a tendency for higher scores on humour creation among men than among women. This difference was most significant in the humorous condition. This finding is consistent with gender differences on spontaneous humour creation (Saroglou, 2000), as well as on humour creation in general (using other strategies; Saroglou, 1999, for review). As it may be seen in Table 2, the men's mean score on humour creation after exposure to the humorous video was particularly high, a finding suggesting that the interaction between gender and condition on humour creation may be explained by the fact that the humour condition permitted a high humour productivity in men in a more important way than in women.

Regarding the impact of *religious* vs. *humorous* stimulation vs. *control* group on humour creation, *t*-tests of between-conditions comparisons for the total sample revealed, as Table 3 details, that people who were exposed to the humorous video spontaneously produced more humour in comparison with either people who saw the religious video or those who belonged to the control group. Comparison of mean scores on humour creation between religious and neutral condition (a comparison which should constitute the empirical confirmation of our main hypothesis that religious context decreases humour creation) failed to demonstrate a significant result, although this result was in the expected direction.

Nevertheless, it could be hypothesized that the effect of the stimulation (religious and humorous) should decrease with time. When we considered the participants' total score in only the first 10 of the total 24 pictures, an ANOVA

TABLE 2. Descriptive statistics and gender differences on humour creation

<i>Humour creation</i>	<i>Men (n = 32)</i>		<i>Women (n = 53)</i>		<i>t-test</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Religious condition	3.17	2.25	2.18	1.47	1.44
Humorous condition	9	7.50	3.73	3.61	2.23*
Control	4	2.14	3.24	2.18	0.88

* $p < 0.05$ (two-tailed).

TABLE 3. *T*-tests of between-conditions comparisons of humour creation

<i>Humour creation</i>	<i>Humour—religion</i>	<i>Control—religion</i>	<i>Humour—control</i>
Total 24 pictures	2.83**	1.62	2.10*
First 10 pictures	3.43**	1.93*	2.35*

* $p < 0.05$. ** $p < 0.01$ (two-tailed).

design identical to the previous one again revealed main effects of condition, $F(2, 83) = 11$, $p < 0.001$, gender, $F(1, 84) = 7.18$, $p < 0.01$, and interaction of condition \times gender, $F(2, 83) = 5.08$, $p < 0.01$. In addition, this time, as shown in Table 3, the mean humour score of people exposed to a religious stimulation was significantly lower than that of the control group, and not only lower in comparison with that of humorously stimulated people. Similarly, the effect of the humorous condition on humour creation was stronger.

Impact of the participants' religiosity on humour

When correlations were computed between humour creation and religion measures, overall, no significant results were obtained. Partial correlations between religiosity and humour creation, controlling for gender, and distinctly for every condition were then conducted. Not surprisingly, as Table 4 details, in the religious condition, religiosity (RF and orthodoxy) tended to predict low propensity to humour creation. (Similarly, religiosity and RF were negatively correlated with humour creation in the control group, $r_s = -0.36, -0.33$, $p < 0.10$, but this result was expected as the control group was extracted randomly from a previous study where the same associations were typical of the entire sample.) Interestingly, though, in the humorous condition, religion was found to be unrelated to humour creation (Table 4).

TABLE 4. Impact of religiosity on humour creation as function of the experimental condition

<i>Humour creation</i>	<i>Religious fundament</i>	<i>Orthodoxy</i>	<i>Critical to religion</i>	<i>Religiosity</i>
Religious condition ($n = 29$, $df = 25$)	-0.31†	-0.36†	-0.12	-0.21
Humorous condition ($n = 27$, $df = 24$)	0.19	0.20	-0.01	0.01

Note: Partial correlations controlling for gender.

† $p < 0.10$ (two-tailed).

Personality and humour creation

This investigation of the relationship between personality factors and humour creation demonstrated that people high in conscientiousness tend not to create humour spontaneously when faced with hypothetical daily hassles. This negative association was significant in the total sample ($r_s = -0.25, p < 0.05$) and remained marginally significant ($-0.23, p < 0.10$) even after gender and condition effects were partialled out. However, contrary to our expectations, humour creation was not associated with extraversion or with openness. Regarding the latter, one possible explanation is that constructs of the Fifth Factor differ, in their conceptualization, across measures. For example, the NEO-PI-Openness was found to be positively correlated with cheerfulness and negatively correlated with seriousness, but the BFQ-Openness failed to do the same (Ruch & Köhler, 1998).

Discussion*Effects of religion and humour on humour creation*

Our main hypothesis that religion, and more precisely religious stimulation, inhibits humour creation was confirmed. Religious video stimulation (ideas, values, rituals, holy figures, contemporary spirituality and religious atmosphere in general) ‘inhibited’ spontaneous humour creation in comparison with both the humorously conditioned group and the control group not subjected to specific stimulation. On the contrary, humorous stimulation promoted spontaneous use of humour in comparison with the religiously conditioned and the control groups. The differences between conditions were more prominent when we considered the scores on the first ten pictures. The promoting effect of humorous condition was much more important among men, a finding that explained the interaction between the two independent variables, condition and gender. This experimental study indicated that not only is religiosity negatively associated with humour creation, as Saroglou’s (2000) recent study suggested, but also that religion affects this humour performance. In other words, religion both as a trait and as a state seems to predict low humour spontaneous responsiveness.

Through which mechanism did the experimental conditions have the effects predicted? First, regarding religion, it is important to note that we investigated how humour is affected, neither in religious natural settings, nor in a laboratory experimental religious ‘experience’, but in a laboratory religious video stimulation. We may assume that in our experiment the religious video stimulation had an impact on spontaneous humour creation through the activation of a religious cognitive (ideas, values) and emotive (ceremonies, holy figures, emotive scenes) context or framework. Further investigation is needed in order to determine through which processes the activation of a religious framework decreased the level of humour production.

Second, regarding the impact of humorous stimulation on humour creation,

a possible explanation to be advanced is that humorous exposure contributed to a climate of *security*. As theorized by Rothbart (1996; see also Suls, 1983), it is incongruity or incongruity/resolution that defines humor, but what distinguishes humor generation or humor appreciation (as resolution of an incongruous stimulus) from other successful problem-solving efforts is that for humor '*the respondent must be in a playful setting and the emotional climate must be appropriate*', which means that humorous stimuli must be interpreted as safe and non-threatening (Suls, 1983, p. 43). An alternative interpretation is that the humorous condition increased the spontaneous use of humor through the mechanism of contagion. In the humorous video, there was laughter on the part of protagonists several times, and, sometimes, canned laughter. Canned laughter has been found to increase the rated funniness of cartoons (e.g. Leventhal & Cupchik, 1975) and more recently Provine (1992) found that laughter *itself* is contagious and then is a sufficient stimulus for laughs and mirth.

Impact of condition and conscientiousness on the religion—humour association?

The hypothesized negative association between religion measures and humour creation turned out to be true only of the religiously stimulated group. In the humorously stimulated group, religion measures were unrelated to humour creation. These findings, together with those of a previous study (Saroglou, 2000), where religiosity and RF were negatively correlated with spontaneous humour creation measured without any specific stimulation, may suggest ideas in order to better understand the religion—humour relation and may, consequently, provide some indications for further research.

Why may religion be negatively related with, and even inhibit, spontaneous humour production? Theoretically, and if we follow the Feingold and Mazella's (1993) distinction between three stages in the humour process, three hypotheses, not necessarily incompatible, may be advanced. First, religious people as people with a need for the reduction of uncertainty (see Schwartz & Huismans, 1995) may be intolerant of incongruity and ambiguity, and, consequently, not be so able to *perceive incongruity*, an ability essential to the humour process. Second, seriousness of religion and its negative attitude to playfulness may predispose to lower *humour motivation*. A third possibility could be that religious people, although equally able to perceive and even to enjoy incongruity of reality, in comparison with the non-religious, inhibit their *emotional expression* and *communication of humour*.

If the first hypothesis (cognitive difficulty with incongruity) is pertinent, religious fundamentalism would be a predictor of low humour creation stronger than (intensity of) religiosity *per se*. Such a prediction was not substantially confirmed either by the present study or by the previous one (Saroglou, 2000). Regarding the other two hypotheses (low playfulness/humour motivation and inhibition of emotional expressiveness), results in the present study may be considered suggestive.

First, the moderating effect of condition on the religion—humour relation, suggests that, possibly, the humour of religious people is not affected in an 'inherent

way' (e.g. ability of perception of incongruity), but rather that the propensity for and the expression of humour may be affected by the situation and the context. Second, conscientiousness was the only factor of the Five Factor Model that was in this study related (negatively) to humour production, in line with recent studies (see introduction). Interestingly, religiosity is associated with orderliness and obsessional personality traits (Lewis, 1998), as well as with conscientiousness (Saroglou & Jaspard, 2000) and low impulsivity (Francis, 1992), a trait that is associated with conscientiousness (Hogan & Ones, 1997).

In conclusion, further research should investigate whether behind the apparent inhibiting effect of religion on humour, the empirical reality could rather be that religious people, because of their high conscientiousness, internalize in their way the biblical imperative: 'there is a time for weeping and there is a time for laughing' (Ecclesiastes, 3.4).

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