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EFFECT OF INDUCED FEAR OF DEATH ON BELIEF IN AFTERLIFE[1]

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Sixty subjects scoring high or low on a belief-in-afterlife (BA) scale were exposed to a death threat, shock threat, or control treatment. Only the high believers exposed to death threat showed an increase in score on an alternate BA scale; the scores of the other five groups remained unchanged. The results could not be attributed to anxiety alone, since self-ratings on anxiety did not differ between the death threat and the shock threat groups, although they were higher for these groups than for the control groups. The results were interpreted as confirming the hypothesis that strong BA may serve to deal with death anxiety.

This study was concerned with the notion that one function of belief in afterlife (BA) might be to help the individual to deal with anxiety over death. The earlier research most relevant to this hypothesis has focused on attempts to find correlates of fear of death. Much of this work has been reviewed by Alexander and Adlerstein (1960) and Lester (1967).

In elderly subjects, both psychiatric and normal, fear of death has been shown to be little related to age, sex, employment status, marital status, education, source of income, urban or rural residence, or religious persuasion (see Christ, 1961; Jeffers, Nichols, & Eisdorfer, 1961; Rhudick & Dibner, 1961). One possible reason for the failure to find appreciable correlates with fear of death is that some of these subjects were able to keep their fear of death to a moderate level by means of defensive measures. Handal and Rychlak (1971), for example, studying college students, found a U-shaped function when relating death content in dreams to scores on a Death Anxiety Scale. Their interpretation of this finding was that many low scorers on the scale were "repressing" death anxiety. Furthermore, Jeffers et al. (1961) reported, in an interview study of elderly subjects, an inverse relationship between BA and fear of death. Perhaps BA is a commonly used device for dealing with the fear that death means a loss of things one has valued and a confrontation with the unknown.

If BA does serve to moderate fear of death, then a procedure that intensified this fear should strengthen the individual's professed BA. Since a larger proportion of individuals with initially high BA than with low BA are likely to be using the belief defensively, those in the high-BA class are more likely to show the hypothesized effect. In the present experiment, subjects scoring high and low on a BA scale were exposed to a slide and tape presentation designed to arouse fear of death, and their scores on an alternate BA scale compared with scores of similar groups of subjects exposed to either the threat of being shocked or to a nonthreatening task.

METHOD

Construction of BA Scale

Fifty opinion statements referring to the existence of an afterlife were administered to 169 male and female students, aged 18 to 22, at C. W. Post Center. Of these, 111 were freshmen or sophomores in introductory psychology classes, 36 were junior psychology majors, and 22 were junior nursing students. The subjects responded to each statement on an 11-point scale, 0 representing total disagreement and 10, total agreement. Following Likert's method (Edwards, 1964), 20 statements found to discriminate

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significantly between the upper and lower 20% of the sample were randomly divided to make two equivalent forms of the BA scale. The items were as follows (a minus sign indicates that the subject's score for that item is to be reversed):

Form A

1. Earthly existence is the only existence we have. (−)
2. In the premature death of someone close some comfort may be found in knowing that in some way the deceased is still existing.
3. Humans die in the sense of "ceasing to exist." (−)
4. The idea of there existing somewhere some sort of afterlife is beyond my comprehension. (−)
5. We will never be united with those deceased whom we knew and loved. (−)
6. There must be an afterlife of some sort.
7. Some existentialists claim that when man dies he ceases to exist: I agree (−)
8. The following statement is true: "There is no such thing as a life after death." (−)
9. Millions of people believe in a life after death: they are correct in so believing.
10. Enjoy yourself on earth, for death signals the end of all existence. (−)

Form B

1. A belief in an afterlife may be useful for some, but I don't believe in one at all. (−)
2. The life we now lead is but a pebble cast upon the sands of our future lives.
3. Religiously associated or not, beliefs in an afterlife will never be shown to be true, for afterlives are nonexistent. (−)
4. The following statement is true: "Man must enter into some sort of existence after death, for the end of our earthly lives cannot wipe us from existence into nothingness.
5. When a human dies, that something called "life" dies with him. (−)
6. The millions killed by Hitler passed from life into nothingness. (−)
7. Many scientists believe in a life after death: they are right, there is one.
8. There is supportive evidence for the existence of an afterlife.
9. Death ends all forms of life forever. (−)
10. The existence of an afterlife can never be scientifically demonstrated for it is impossible to prove a "figment of someone's imagination." (−)

Procedure

Each of 333 male and female introductory psychology students was given Form A or Form B of the BA scale (BA_1); each student provided certain demographic data, including age, sex, and religious affiliation, and completed a self-rating of BA on a scale from 0 to 100 with 5-point intervals. Of these potential subjects, 65 were between 18 and 22 and met the criteria for inclusion in the experimental groups. Although total scores ranged from 0 to 100, in order not to limit experimentally induced score changes, experimental subjects were chosen from the ranges 20–29 (low-BA groups) and 70–79 (high-BA groups). From each of these two groups, 10 subjects were assigned to each of three treatment conditions—death threat, shock threat, and control—yielding six groups in a 2×3 factorial design, designated: high BA—death threat, low BA—death threat, high BA—shock threat, low BA—shock threat, high BA—control, and low BA—control. Sex was balanced across the resulting six groups, and religious affiliation, although it was confounded with BA level, was balanced across treatment conditions. Measures were taken to prevent the experimenter from knowing the BA level of each subject during the experimental procedure.

Death threat treatment. Each subject assigned to the death threat was read the following:

> The experiment in which you are about to participate may cause some degree of nervousness or anxiety. In order to guard against any adverse psychological effects I would like you not to participate if either you have had a close relative or friend die recently, you have a close relative or friend near death or in a situation that is considered very hazardous, or you have an extreme aversion to being reminded about death.

If the subject reported that any of the above categories applied to him, he was replaced. (One subject was replaced because of a recent death in the family.) Otherwise he was read the following:

> If, at any time, this experiment becomes too anxiety-provoking (makes you too nervous), and you wish to stop the experiment, simply say, "stop," or stand up; that part of the experiment will be stopped immediately.

The subject was then told to pay close attention to the presentation that followed. A taped communication was played, giving an exaggerated estimate of the probability of an early death for individuals aged 18 to 22 due to accident or disease related to food contamination. The tape contained a background of dirgelike music. A series of 42 death-related slides was coordinated with the communication, including scenes of auto wrecks, realistically feigned murder and suicide victims, and corpses in a funeral home setting. The average rate of presentation was 9.4 seconds. The presentation lasted 6 minutes 35 seconds.

Next, the subject completed the alternate form of the BA scale (BA_2) and was then asked to estimate his anxiety level before and after taking BA_2.

Finally, the subject was told that the tape and slide communications were false. He was assured that the actuarial death rate for his age group was far below that cited in the communication and was shown the real rates in a copy of the *1968 Information Please Almanac*. He was further cautioned to report any continuing change in anxiety level to

TABLE 1

MEAN SCORES OF SIX GROUPS ON THE BA SCALE ON THE SCREENING AND POSTTREATMENT ADMINISTRATIONS AND THEIR DIFFERENCE

Experimental treatment	Initial BA level					
	Low			High		
	BA_1	BA_2	M_{diff}	BA_1	BA_2	M_{diff}
Death threat	23.5	23.6	.1	76.1	85.6	9.5
Shock threat	26.4	30.4	4.0	75.6	71.4	−4.2
Control	25.4	26.1	.7	75.0	74.9	−.1

Note. BA = belief in afterlife; BA_1 = screening administration of the scale; BA_2 = posttreatment administration of the scale.

the experimenter as soon as possible. The subject was told the purpose of the experiment, was asked not to divulge what was told to him in confidence, and was dismissed.

Shock threat treatment. Each subject was read the same two precautionary paragraphs as were read to the death threat subjects and the following instructions:

> You are going to be given a series of electric shocks to determine the various thresholds of pain for varying intensities of shock. If, when you feel the shock, you also feel pain, say "pain." If, when you feel the shock, there is no pain, say "no pain."

Two female subjects asked that the experiment be stopped after the instructions were read. Their data (which were comparable to the rest of the data resulting from this treatment) were included, for it was evident that the attempt at anxiety manipulation was successful. They were given BA_2 and the anxiety scales, debriefed, and dismissed.

An impressive but harmless assortment of stimulating programming and recording equipment was present in the laboratory and identified as a shocking device. The remaining subjects in this condition were told they were to be connected to the device by electrodes, and at this point the experimenter turned on the equipment, producing a sequence of clicks and lights. After a brief, unsuccessful "search" for the electrodes, the experimenter said he was going to get a pair from down the hall. Cautioning the subject not to touch the apparatus lest he receive a shock, the experimenter left the room. The search for electrodes in and out of the room took approximately 6 minutes 35 seconds. When the experimenter returned, he said there would be a further wait for the electrodes and asked the subject to complete BA_2 and the two anxiety scales while waiting. Following this, the subject was debriefed.

Control treatment. Each subject was screened in the same way as were those in the death threat and shock threat conditions and spent 6 minutes 35 seconds practicing with a child's toy involving flipping a ball into a cup, to which it was attached by a string. The subject was then administered BA_2 and the anxiety scales and debriefed.

RESULTS

The mean scores of the six experimental groups on BA_1 and BA_2, as well as the mean difference (M_{diff}) scores ($BA_2 - BA_1$), are shown in Table 1. The greatest treatment-induced change in BA score occurred in the high BA—death threat group. Nine out of 10 subjects in this group *increased* their scores on BA_2, as compared with a maximum of 6 subjects changing in one direction in any other group. A repeated-measures analysis of variance yielded a significant interaction between initial BA level, first versus second administration of the BA scale, and treatment condition ($F = 34.03$, $df = 2/54$, $p < .001$). Multiple comparisons (Newman-Keuls) showed the high BA_2—death threat group mean to be the only mean differing significantly ($p < .05$) from any other. This mean differed significantly, furthermore, from *all* other means.

Table 2 shows the mean anxiety ratings (A_1 and A_2) for the six groups, as well as the differences ($M_{diff} = A_2 - A_1$). A repeated-measures analysis of variance showed A_1 and A_2 not to be significantly different, the only significant effect being due to the treatment conditions ($F = 19.84$, $df = 2/54$, $p < .001$). Multiple comparisons (Newman-Keuls) showed the death threat and shock threat means not to differ, but both of them to be higher than the control means ($p < .05$).

TABLE 2

MEAN RATINGS OF ANXIETY AFTER TREATMENT AND AFTER POSTTREATMENT OF BA ADMINISTRATION AND THEIR DIFFERENCE

Experimental treatment	Initial BA level					
	Low			High		
	A_1	A_2	M_{diff}	A_1	A_2	M_{diff}
Death threat	2.4	2.3	−.1	2.5	2.4	−.1
Shock threat	2.9	2.5	−.4	2.5	2.4	−.1
Control	1.5	1.1	−.4	1.4	1.2	−.2

Note. BA = belief in afterlife; A_1 = anxiety after treatment; A_2 = anxiety after posttreatment; ratings on anxiety: 1 = very slightly anxious, 2 = somewhat anxious, 3 = moderately anxious, 4 = very anxious.

Table 3 shows a breakdown of the data on BA_1 according to the form of the BA scale (A or B), sex, and religious persuasion.

The subjects' estimate of their BA level correlated significantly with their scores on the BA scale ($r = .428$, $df = 309$, $p < .001$), indicating a reasonable degree of validity for the BA scale.

None of the subjects in the experiment contacted the experimenter to report any continuing anxiety.

TABLE 3

SUMMARY OF MEAN SCORES AND STANDARD DEVIATIONS ON BA_1 MEASURE FOR FORMS A AND B, MALES AND FEMALES, AND CATHOLICS, PROTESTANTS, JEWS, AND ATHEISTS–AGNOSTICS

Group	*n*	*M*	*SD*
Form A	156	53.0	24.41
Form B	155	51.0	25.57
Males	156	52.3	24.83
Females	155	51.4	24.30
Catholics	88	61.4	22.57
Protestants	29	62.5	25.41
Jews	124	42.4	26.42
Atheists–agnostics	70	48.9	24.76
Total	311	52	

Note. BA = belief in afterlife.

DISCUSSION

The results confirm the prediction that intensifying fear of death raises the BA scores of those initially scoring high in BA. Furthermore, the effect cannot be accounted for in terms of a higher level of general anxiety, since all four death threat and shock threat groups, while made more anxious than the control groups, were made equally so.

The mechanism envisaged is one in which, when fear of death has been aroused, if the individual thinks in positive terms about a life after death, he experiences cognitions and affects incompatible with those comprising fear of death. Thus, accepting BA results in a reinforcing fear reduction, so that the individual is likely in the future to use BA to produce the same effect. Furthermore, because its cognitive aspects distinguish fear of death from other fears (e.g., of pain), and because BA is so much more relevant to the fear of death than to other fears (i.e., BA cannot reassure one that an electric shock will not produce pain), the defensive use of BA tends not to generalize to other fears.

Aside from its greater specificity, the mechanism proposed here differs in certain other respects from the defense mechanisms described in traditional psychoanalytic theory. First, it is motivated not by the need to maintain self-esteem or to avoid conflict with demands of the superego, but by an externally originating, in some measure realistic, fear. Furthermore, it does not depend on the individual's being unaware of its function in reducing fear of death, nor does it succeed in forestalling arousal of death anxiety (as evidenced by the finding that subjects presumably using the mechanism report as much anxiety as others exposed to a threatening procedure).

It was reasonable to expect that in the high BA—death threat condition, anxiety induced by the experimental treatment should have been reduced by the increase in professed BA, but such a reduction did not appear in the anxiety ratings. Since both anxiety measures were taken after the administration of BA_2, this is possibly due either to the subjects' failure to discriminate between anxiety levels before and after BA_2, or simply to a slow-acting anxiety-reducing effect of avowing a higher BA.

As is evident in Table 3, the two forms of the BA scale yielded quite comparable data, and males and females performed similarly. The mean BA scores of the different religious groups are roughly comparable to the ratings Kalish (1963) obtained with a slightly older student group on a scale of from 2 to 10. He found mean BA ratings of 7.37 for Catholics, 6.73 for Protestants, 4.20 for Jews, and 3.97 for atheists–agnostics. In both sets of data, Catholics and Protestants are relatively high in BA, and Jews and atheists–agnostics are relatively low in BA. Also of interest is the finding in both studies that atheists–agnostics average well above the low end of the BA range. In fact, in the present study, more than half scored higher than the midpoint of the score range.

The major findings are compatible with the kind of position held by Katz and Stotland (1959) of many attitudes being instrumental in satisfying individual needs. The belief dealt with in this study is related to a value system regarding religion (as suggested by its correlation with religious persuasion) and may in many individuals serve one of the functions for which it is intended, that of helping to keep unpleasant affect to a minimum. In so doing, of course, it doubtless adds support to a positive attitude toward religion.

Since with the available population it was not feasible to vary initial BA level independently of religious persuasion, there is some possibility that the critical independent variable interacting with the experimental treatment was a correlate of religious persuasion in other than BA level. For example, data on strictness of religious upbringing may be more strongly correlated with use of the mechanism than BA level. This possibility, however, would not refute the notion of BA being used to moderate fear of death but would only call into question the means of identifying those individuals who use this mechanism.

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