

Exhibit P-75

The effect of increased salience of a membership group on pain tolerance

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Membership in a group requires a certain amount of behavioral conformity to the rules, either explicit or implicit, which have been established by all members of that group. The concept of "group" itself signifies that there is some distinctive pattern of behaviors which characterizes members of a particular group and differentiates them from others. The fact that people are always members of more than one group indicates that their patterns of behavior should vary as they take on particular roles in one group and temporarily shed the roles of another. While this generalization is verified in the every day experiences of most human beings, few experimental demonstrations are available of behavioral variations attributable to changes in one's roles or his feelings of identification with certain groups. Newcomb (1950, p 275 ff) has discussed the significance of this phenomenon and Charters and Newcomb (1958) have demonstrated how social attitudes vary when individuals' awareness of being members of religious groups is experimentally modified. In their research plan, some Ss were made aware that they were expressing attitudes as Catholics (or Jews, or Protestants, depending on their actual religious affiliation) while other Ss gave their attitudes as they assumed the role of university students. Those Catholic Ss whose religious affiliation was made salient manifested a pattern of attitudes much more similar to the orthodox Catholic position than did control Ss for whom religious affiliation was not made salient. The results for Jews and Protestants were less clear, suggesting that the two roles required of Catholic students (as Catholics and as students) are comparatively more dissimilar, at least in terms of the attitudes given consideration in the study.

The purpose of the present studies was to extend our understanding of the effect of group membership by paying attention to aspects

of behavior other than social attitudes. We attempted to vary experimentally the salience of religious-group membership and to observe changes in *Ss*' responses to pain. Responses to pain have been related to religious affiliation by Chapman (1944) and Zborowski (1952). Chapman showed that samples of Jewish *Ss* exhibited both lower pain perception and pain-tolerance thresholds than non-Jewish *Ss* with North European ethnic backgrounds. Zborowski found that Jewish Americans tended to exaggerate their reactions and sensitivity to pain more than Americans of other religious or ethnic backgrounds. Social psychologists have become interested in the matter of pain tolerance since Moede (see Murphy & Murphy, 1931) demonstrated that thresholds for intolerable pain were increased when onlookers were present or when competition existed between *Ss*.

In the two studies presented here, *Ss*' pain-tolerance thresholds were measured, first, when they were asked to assume the role of university students volunteering to assist in a scientific investigation, and then, after certain information was given them, as potential contributors to their own religious group's comparative standing in ability to tolerate pain. Between the two measurements for pain tolerance, *Ss* were told that members of their religious groups had been found, on the average, to have a lower (in Experiment II, either lower or higher) pain-tolerance threshold when compared to other religious groups and that the objective of the experiment was to test the reliability of the evidence. We predicted that this procedure would prompt the experimental *Ss* to compete against the hypothetical "other groups," as though we were manipulating an ethnocentric prestige motive, somewhat analogous to rivalry in Moede's study.

EXPERIMENT I

Method

The sample consisted of 40 Jewish and 40 Protestant *Ss*, all women students ranging in age from 18 to 23 years. *Ss* were selected from the McGill University library and other parts of the campus in the following manner: each individual was approached by *E* (E.L.) and asked if she would be willing to participate in a short research project. Attention was paid to physical characteristics in order to estimate the religion of each *S*. At the time of testing, religious affiliation was verified and only the data from Jewish and Protestant *Ss* are considered here. *Ss* were alternately placed in experimental and control groups.

The instrument used for testing pain tolerance consisted of a clinical sphygmomanometer with sharp, hard rubber projections sewn into the pressure cuff. The cuff was adjusted with the hard rubber projections resting against the medial surface of the *S*'s upper arm, and the pressure was gradually increased at the rate of approximately 10 mm. Hg per sec. A pressure reading was taken at the moment when *S* first felt pain (this measure is not considered here) and then when the *S* pronounced the pain intolerable, the index of pain-tolerance level, measured as mm of Hg on a standard sphygmomanometer gauge. Pressure was then released. This method has high reliability and correlates well with the usual methods for producing superficial pain (see Clark & Bindra, 1956). After the pain-tolerance level had been determined each *S* was told that she would be given a retest approximately five minutes later "for purposes of establishing reliability." During this period of time, the experimental *S*s were told in a casual manner (usually they asked about the purpose of the study at this time) that there was experimental evidence that Jews (Protestants) have a lower pain-tolerance level (take less pain) than non-Jews (other groups), and that the object of the experiment was to test the reliability of the evidence. Control *S*s simply waited for five minutes between their first and second measures of pain tolerance.

Results and Discussion

From Table 1, it is clear that Jewish experimental *S*s significantly increased their pain-tolerance scores on retest while Jewish control *S*s showed an insignificant decrease. No difference was found between Protestant experimental and control *S*s; both groups showed hardly any change in pain-tolerance scores on retest. We conclude that the Jewish *S*s were clearly influenced by the interpolated statement which alluded to Jewish "inferiority" with regard to withstanding pain. The fact that an equivalent provoking statement had no apparent effect on Protestants can be interpreted as meaning that Protestantism does not function as a reference group in the same sense that Judaism does. It may well be, however, that the reference to own-group inferiority in comparison to non-Jews was more provocative for Jews in the sense that they very likely compared themselves with Christians and thought about the issue of Jewish-Christian prejudice. Protestants, on the other hand, were directed to compare their group's performance with other groups and they need not have interpreted this in terms of a Protestant-Jewish issue nor made any other comparison which would be emotionally involving. Following this reasoning, we predicted that an explicit comparison of Jews and Christians would be more equally provocative for members of both religious groups and that Christians

TABLE 1
PAIN-TOLERANCE SCORES FOR JEWISH AND PROTESTANT Ss, EXPERIMENT I

	Jewish				Protestant			
	Experimental (N=20)		Control (N=20)		Experimental (N=20)		Control (N=20)	
	Test 1	Test 2	Test 1	Test 2	Test 1	Test 2	Test 1	Test 2
Mean ^a	86	103	83	77	115	114	92	90
Mean Differences <i>t</i>	+17 2.78*		-6 n.s		-1 n.s		-2 n.s	

^a Units are in mm. Hg, the higher the score the greater the pain tolerance
* $p < 0.1$, 2-tailed test for correlated data.

receiving this information would display an increased pain-tolerance threshold

The change in the pain-tolerance threshold for the Jewish Ss indicates that they were motivated to reduce the discrepancy between their group's purported pain sensitivity and that of non-Jews, but it is not clear whether they were interested in (a) surpassing non-Jews (thereby making their own group distinctive) or (b) merely closing the gap (thereby making their own group indistinguishable from non-Jews). If Jewish Ss were told that their religious group reportedly could tolerate more pain than Christians, we could then determine the nature of their motivation: if motivated to surpass the Christians, their pain-tolerance thresholds should still increase, but if they reduced their pain-tolerance thresholds we could conclude that they were oriented to close the gap. The second experiment was carried out to investigate these extensions of the findings reported above.

EXPERIMENT II

Method

The Ss were 160 women undergraduate students of McGill University; 80 were Jewish and 80 were Protestant. The same general procedure used in Experiment I was repeated with several modifications. A different sphygmomanometer and different (but supposedly identical) hard rubber projections were used in the second study. Two Es, one recognizably Jewish and the other recognizably not Jewish, were both present at each testing, either one applying the pressure cuff and giving the interpolated information, the other recording the results which were read out to her in code.¹

¹ We are especially grateful to Sandra Freedman and Janet Barclay for their assistance as Es for this part of the study. As will be seen by comparing Tables

Between the first and second measures of pain tolerance, 30 Jewish *Ss* were told that it had been reported in the literature that Jews as a group take less pain than Christians, and 30 were told that Jews take more pain than Christians. Two groups of 30 Christian *Ss* were given the same information—for one group that Christians take less pain than Jews and for the other that Christians take more pain than Jews. Two control groups (one Jewish and one Christian) of 20 *Ss* each were given no information between their two tests.

Results and Discussion

The results are presented in Table 2. There is a clear replication of the findings of the first experiment in that the Jewish *Ss* reliably increased their tolerance threshold upon being informed that Jews as a group take less pain than Christians. The Jewish control *Ss*, who were given no interpolated information, show an insignificant decrease in their threshold, a finding that supports the conclusion that the change in threshold for the Jewish experimental *Ss* is not due to taking the test twice nor to the unreliability of the measure. When Jewish *Ss* are informed that Jews typically take more pain than Christians they tend to "hold the line" rather than reducing their thresholds ("closing the gap") or increasing their thresholds ("extending the differences"). Although this group does increase its mean tolerance threshold (from 163 to 172 units) this is not a reliable change. When the difference scores (subtracting the first from the second tolerance scores) for this group are compared with the difference scores for the Jewish control *Ss*, again there is no reliable increase for that group, $t = 1.29$ with 48 *df*.

The Christian *Ss* also are clearly affected by the interpolated information. There are significant increases in tolerance thresholds when they are informed that Christians typically take less pain or take more pain than Jews. We have evidence here that Christianity (which more clearly calls to mind the Christian-Jewish comparison) is a more effective reference group than Protestantism as used in the first experiment. We also have evidence that the Christian *Ss*

1 and 2, the means of the pain tolerance measures are markedly higher in the second study. We are unable to account fully for these differences. A different apparatus and different *E*'s were used, furthermore, in the second study measurements were always taken with one *E* as an onlooker while the other conducted the study. Whatever the reason(s), the measures were higher in the second study, and in three or four cases *Ss* were dropped because their pain perception thresholds were so high that the *Es* felt that there would be too little opportunity for change to be recorded after the experimental treatment.

TABLE 2
PAIN-TOLERANCE SCORES FOR JEWISH AND PROTESTANT Ss, EXPERIMENT II

Condition	Jewish						Christian					
	Take Less		Take More		Control		Take Less		Take More		Control	
Test	1	2	1	2	1	2	1	2	1	2	1	2
Mean ^a	160	179	163	172	139	133	187	202	158	180	156	150
Mean Difference	+19		+ 9		- 6		+15		+22		- 6	
<i>N</i>	30		30		20		30		30		20	
<i>t</i>	2.74 ^b		1.21		.68		2.34		2.76		.88	
<i>p</i>	.02		n.s.		n.s.		.03		.01		n.s.	

^a Units are in mm. Hg, the higher the score the greater the pain tolerance

^b Two-tailed tests of significance for correlated data are used throughout.

are motivated to extend the difference between Christians and Jews on pain tolerance in that they increase their threshold when informed that their religious group typically takes more pain than Jews

In summary, the over-all findings suggest that Ss do change their patterns of behavior in meaningful ways when they alternately refer themselves to different membership groups, in this case first as university students contributing to a scientific investigation and then as members of a particular religious group. Samples of Jewish Ss appear to be interested in both reducing any differences between their religious group and Christians with respect to ability to withstand pain as well as maintaining any superiority they may have in this regard (although the latter point is not clear from our data). Christian Ss (but not "Protestants") appear ready to eliminate any inferiority their group may have in regard to pain tolerance when compared to Jews and to extend the difference between groups when they are led to believe their group is superior in withstanding pain.

Others working with pain sensitivity have reported differences attributable to religious affiliation (e.g., Chapman, 1944). We were able to compare our Jewish and Christian Ss on their pain-tolerance thresholds (first test) since no experimental treatment was given to any S until after the first measure of pain tolerance. For the Ss in Experiment I, the mean threshold for Jews was not reliably different from that of the Protestants, $t = 1.63$, $df = 78$, corrected for heterogeneous variances. For Ss in Experiment II, the Jewish mean was again not reliably different from that of Protestants, $t = 1.08$, $df = 158$. We therefore offer no evidence for differences

in pain sensitivity attributable to religious affiliation for Jewish and Protestant women. In both studies, however, we do find significantly less variance of pain-tolerance scores for Jewish in contrast to Christians *Ss*, in Experiment I, $F = 3.15$ ($p = .01$) and Experiment II, $F = 1.56$ ($p < .05$). One explanation for this reliable finding comes from Zborowski's (1952) interpretation of the social and cultural significance of pain. He finds that Jewish patients typically search for the symptomatic meaning of pain and communicate their concern about their health and their family's welfare to family members and associates. Zborowski feels that this reaction pattern is acquired "by the individual members of the society from the earliest childhood along with other cultural attitudes and values which are learned from parents" (p. 28). He argues that each culture develops an ideal pattern of attitudes and reactions to pain which are passed on during socialization. Our findings of more homogeneous reactions to pain among Jews would suggest that something like an ideal pattern of reactions to pain is either more standardized and/or more effectively communicated among Jews than Christians.

SUMMARY

Jewish and Protestant female *Ss* were tested for their tolerance of pain first when they were asked as students to participate in a scientific study and then, after their religious membership group was made salient to them by having them believe that scientific evidence indicated that their religious group characteristically is less able to withstand pain than others. The Jewish, but not the Protestant, *Ss* showed a reliable increase in their mean pain-tolerance threshold after this information was given them.

In a second experiment subgroups of Jewish and Protestant *Ss* were told either that their religious group typically takes less or more pain than other religious groups but in this case an explicit comparison was made between Jews and Christians. Both Jewish and "Christian" *Ss* increased their pain tolerance when told their groups were typically inferior in regard to this variable. The Christian *Ss* who were informed that their group was superior in pain tolerance further increased their tolerance while Jewish *Ss*, similarly treated, showed no reliable change in their tolerance.

levels. The findings are conceptualized in terms of a theory of membership groups.

No evidence was found for differences in normal pain-tolerance thresholds attributable to religious differences, although Jewish Ss showed reliably less variability of pain-tolerance scores than did Protestant Ss in both studies.

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