

SWANSON + STUDY 2

- (7) eating white meat (8) eating other proteins
(8) other proteins with meat att & self concept
(9) Humn, scrub,
(10) ⁴¹² food for food (24) same (0) p 215
7/6 cigarette is drug (25) same (0) p 215
(11) Single (all 3), 12 215 (26) 1 SD-food, 3 smoke p 215
(12) other protein p 215 smoking-study (27) 1 food, 3 smoke p 215
(13) exp. with all atts (28) 9 food, 4 smoke p 215
(14) not obs (0) p 215 (29) due to contrast p 215
(15) self-reg post (1) p 215 (30) same as when p 215
(16) ~~See the~~ (1) p 216 & 213 (31) smoke - 4
LOGS - see study 1 (32) NON-race (0) p 207
(17) ^{p 216} words (0) (33) dual (2) p 215
(18) ^{p 215} IATs (4) (34) EM 2nd (2) p 215
(19) IAT 3rd (3) p 215
(20) EM 2nd (2) p 215
(21) B ^{p 215} 1st (1)
(22) ^{p 215} att (2)
(23) ^{p 215} att (2)
Put right page now on ones
completed
- error: says 3 IATs in data file
error in original: some EMs marked self
- eggs - see study 2

WANSON - STUPY 3

- 7) Smoking ~~at~~ IAT, smoking self IAT
- 8) Smoking ~~at~~ att, smoking self
- 9) EMS + smoke them, smoking seen diff

10) ~~5~~ 7/6 Drug, p207

error: No self EM?

11) Single, I think - see p221

12) att, self, p221

13) att, (self) p221

14) Not obs, p.221

15) self-rep ^{p221} past
(inferred from study 1)

16) loss, p.222

17) pncs p221

18) 2 IATS) p221

19) IAT 3-d

20) ~~But~~ EM 2nd

21) Beh 1st

22) After p.221

23) After

24) Same

25) Same

26) 5 sd - smoker p221

27) 5 sd - smoke p221

28) control = ~~5~~ 5, p221

29) spu = ~~5~~ 5 S.S

30) spec = 6

31) oppose = 5 (smoke vs. not smoke)

32) Not race, p.207

33) dual, p.221

B-E-I

Using the Implicit Association Test to investigate attitude-behaviour consistency for stigmatised behaviour

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To consciously bolster behaviour that is disapproved by others (i.e., stigmatised behaviour) people may hold and report a favourable attitude toward the behaviour. However, achieving such bolstering outside awareness may be more difficult. Explicit attitudes were measured with self-report measures, and the Implicit Association Test was used to assess implicit attitudes toward behaviour held by stigmatised actors (smokers) and nonstigmatised actors (vegetarians and omnivores). Smokers' showed greater attitude-behaviour consistency in their explicit attitudes toward smoking than in their implicit attitudes. By contrast, vegetarians and omnivores showed attitude-behaviour-consistency at both implicit and explicit levels. Smokers' implicit negative attitudes toward smoking may reflect its status as a stigmatised behaviour, or its addictive nature.

There are many behaviours that people engage in despite knowing that others regard the behaviour as unwise, objectionable, and possibly immoral. How do the people who engage in such behaviours cognitively adjust to this stigmatised character of their own behaviour? Smoking provides an interesting behaviour to study because of its having changed in recent years from being a socially

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for inattention or anticipation. Latencies were log-transformed to meet distributional assumptions for analysis of variance.

Smoking IAT effects. Each subject's smoking IAT effect was calculated by taking the latency for the smoking + unpleasant task minus the latency for the smoking + pleasant task. Thus, more positive scores indicated greater facility for the smoking + pleasant task than the smoking + unpleasant task and were interpreted as more favourable implicit attitudes toward smoking relative to the contrast category (i.e., sweets or exercise). Because the contrast categories did not influence results, $F(1, 83) = 0.23$, $p = .633$, they were combined for the remaining analyses.

If smokers' implicit attitudes are consistent with their behaviour, their IAT effects should be more positive than those of nonsmokers. However, smokers and nonsmokers alike strongly preferred the contrast category over smoking ($M_s = -300$ ms vs. -354 ms, respectively), and their IAT effects did not differ significantly, $F(1, 83) = 0.83$, $p = .366$. By contrast, the explicit measures showed group differences in each case. That is, smokers liked smoking relative to the contrast category more than did nonsmokers, using both the thermometer, $F(1, 82) = 18.52$, $p = 10^{-5}$ and the semantic differential, $F(1, 82) = 10.62$, $p = .002$. These findings suggest that smokers cognitively accommodate their stigmatised behaviour at the explicit, but not implicit, level.

The correlations between the attitude IAT and the explicit measures were significant when the thermometer was used, $r(80) = .30$, $p = .007$, or marginally significant when the semantic differential was used, $r(80) = .21$, $p = .060$. The explicit attitude measures were also related, $r(80) = .52$, $p = 10^{-7}$.

The findings that smokers and nonsmokers have comparably negative implicit attitudes toward smoking, whereas explicit measures discriminated them, suggest that smokers are more successful at bolstering their smoking behaviour at the explicit than implicit level. However, an alternative explanation is that smokers may not implicitly identify themselves with the behaviour. If smokers dissociate themselves from an activity they dislike (as elderly people dissociated from their age group; Greenwald et al., in press), their cognitions could be described as consistent. Thus, Experiment 2 was conducted, in part, to test differences in implicit identification with smoking between smokers and nonsmokers. In addition, Experiment 2 sought to compare the psychological characteristics of stigmatised actors (smokers) and nonstigmatised actors (vegetarians and omnivores).

EXPERIMENT 2

The lack of differences in smokers' and nonsmokers' implicit attitudes in Experiment 1 suggested that smokers engage in a behaviour they do not implicitly like. However, the contrasts used in Experiment 1 were positive for both smokers and nonsmokers (sweets and exercise). One objective of

smoking and vegetarian IATs, respectively, for similar reasons. The final sample sizes consisted of 59 nonsmokers, 37 smokers, 66 omnivores, and 34 vegetarians.

Materials and procedure

Explicit measures. Subjects completed a measure that allowed us to classify them as smokers or nonsmokers and as vegetarians or omnivores. They also completed a measure that inquired about their smoking behaviour, including number of cigarettes smoked per day. A similar measure assessed the number of times per year that subjects ate white meat and other sources of protein.

Subjects also completed a set of six semantic differential items for each of the four target concepts (smoking, stealing, white meat, other protein). Each 7-point item consisted of polar-opposite adjective pairs (*beautiful-ugly*, *good-bad*, *pleasant-unpleasant*, *honest-dishonest*, *nice-awful*, and *harmless-harmful*). Subjects were instructed to check the middle section if the attribute dimension was irrelevant to the target concept. Composite scores for each target concept (e.g., smoking) were calculated by scoring the 7-pt scale from -3 to +3 and summing the ratings given on each adjective pair for a target concept. Difference scores that correspond to each of the IAT target-concept discriminations were calculated by taking the composite scores for the two target concepts and subtracting one from the other. In each case, high scores reflect more positive attitudes toward smoking (compared to stealing) and toward other protein (compared to white meat).

Finally, subjects indicated on a feeling thermometer how favourable they felt about each of the four target concepts. The feeling thermometer was identical in format to those in Experiment 1 except the range was from 0 to 100. Thermometer difference scores that correspond to each of the IAT target concept discriminations were calculated by taking the thermometer scores for the two target concepts and subtracting one from the other. In each case, high scores reflect more positive attitudes toward smoking (compared to stealing) and toward other protein (compared to white meat).

Implicit measures. Subjects completed a total of four IATs: two implicit attitude IATs and two implicit identification IATs. The two target-concept discriminations used for each type of IAT were smoking versus stealing and white meat versus other protein. Each of these was paired with the attribute dimension of pleasant versus unpleasant to assess attitudes, and with the attribute dimension of self versus other to assess identification.

The self, other, and white meat categories each had three stimuli due to the difficulty of finding items that were good exemplars and known to most people. The three self and three other stimuli consisted of pronouns that referred to self (i.e., me, mine, self) or other (i.e., they, them, other), and that have been used successfully in prior research to measure implicit identification (e.g., Farnham et al., 1999; see also Rudman, Greenwald, & McGhee, in press). The three white

19-25

29-30
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11 28
Behave

Explicit
13 30
27

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33

meat (chicken, turkey, poultry) and six other protein (e.g., tofu, nuts, cheese) items were from Swanson and Greenwald (1997). The six smoking items (e.g., smoke, cigarette) and the six stealing stimuli (e.g., steal, theft) were generated by the authors. The six pleasant and six unpleasant stimuli were selected from Greenwald et al. (1998). A complete list of the stimuli used in all the experiments is included in the Appendix. (17)

The same procedure was used as in Experiment 1, with the exception that subjects performed two IATs instead of one (IAT order was counterbalanced) and a newer version of the IAT software was used (Farnham, 1997, version 4/17/97).

Results and discussion

Other protein vs. white meat measures. Each subject's vegetarian attitude IAT effect was calculated by taking the latency for the other protein + unpleasant task minus the latency for the other protein + pleasant task. Thus, more positive scores indicated favourable implicit attitudes towards other protein relative to white meat. An analogous procedure was used to calculate the vegetarian self-concept IAT such that more positive scores indicated stronger identification with other protein than white meat. (16)

It was predicted that vegetarians would have more favourable attitudes toward other protein than meat and identify with other protein more than meat. Omnivores were expected to have more favourable attitudes toward meat than other protein and identify with meat more than other protein. Table 1 reveals that vegetarians preferred other protein to meat ($M = 114$ ms) and omnivores preferred meat to other protein ($M = -70$ ms). Omnivores and vegetarians implicit attitudes were significantly different, $F(1, 76) = 24.03$, $p = 10^{-6}$. The effect size for this difference was large, $d = 1.01$. No other effects emerged, with the exception of an uninterpretable interaction between the procedural variables, IAT effect, and diet, $F(2, 76) = 3.17$, $p = .05$.

Vegetarians also implicitly identified more with other protein than meat ($M = 66$ ms), and omnivores implicitly more with meat than other protein ($M = -46$ ms). Omnivores' and vegetarians' implicit identification with other protein and meat was significantly different, $F(1, 76) = 15.19$, $p = 10^{-4}$, and the effect size for this difference was large, $d = .80$. However, this difference was somewhat qualified by a significant interaction with IAT task order. The differences between omnivores and vegetarians decreased the later the dietary self-concept IAT was presented, $F(2, 76) = 4.14$, $p = .020$.

Both explicit measures indicated that vegetarians preferred other protein to white meat and that omnivores preferred white meat to other protein. The effect sizes for these group differences were large ($ds > 2.00$; see Table 1). In sum, vegetarians and omnivores alike showed cognitive consistency between self-

TABLE 2
Correlations among implicit and explicit measures (Experiment 2)

(18)

all sample

Measures		1	2	3	4	5	6
Other protein vs. white meat comparison							
Implicit measures							
1. Other protein + Pleasant ^a	IAT		.65	.28	.31	-.31	.13
2. Other protein + Me ^b	IAT	.61		.20	.35	-.05	.03
Explicit measures							
3. Thermometer (prefers other protein) ^a		.54	.44	-	.70	-.57	.28
4. Semantic differential (prefers other protein) ^a		.51	.40	.79	-	.46	.18
5. No. of times/yr eat white meat		-.30	-.37	-.54	-.50	-	-.20
6. No. of times/yr eat other protein		.23	.09	.33	.21	.02	-

← vegetarians

(18)

Smoking vs. stealing comparison							
Implicit measures							
1. Smoking + Pleasant ^c	IAT	-	.39	-.15	.04	-.06	
2. Smoking + Me ^d	IAT	.29		-.03	-.11	.24	
Explicit measures							
3. Thermometer (prefers smoking) ^c		.11	.24	-	.73	.08	
4. Semantic differential (prefers smoking) ^c		.09	.22	.81	-	-.02	
5. No. of cigarettes smoked/day		.14	.30	.60	.49	-	

← smokers

Bold = $p < .05$. *Italics* = $p < .005$. For the other protein vs. white meat comparison, the lower half of the quadrant contains the correlations for all subjects (N s range from 101 to 107) and the upper half contains the correlations for vegetarians (N s range from 32 to 34). For the smoking vs. stealing comparison, the lower half of the quadrant contains the correlations for all subjects (N s range from 98 to 104) and the upper half of the quadrant contains the correlations for smokers only (N s range from 35 to 40).

- ^aAttitude measures are scored so more positive scores indicate more favourable attitudes toward other protein relative to white meat.
- ^bIdentification IAT is scored so more positive scores indicate greater association of self with other protein than self with white meat.
- ^cAttitude measures are scored so more positive scores indicate more favourable attitudes toward smoking relative to stealing.
- ^dIdentification IAT is scored so more positive scores indicate greater association of self with smoking than self with stealing.

implicit identity and explicit attitude measures (with r s ranging from .40 to .54). Thus, vegetarians and omnivores showed convergence among implicit and explicit measures of attitude and self-concept. Additionally, self-reported behaviour (frequency of eating white meat and other protein) each correlated in the expected direction with implicit attitudes, implicit identification, and explicit

101 protein
98 smoking

smokers' and nonsmokers' attitudes that matches their expected differences in identification with smoking.

The second goal was to test the possibility that smokers might achieve implicitly consistent cognitions by lowering their self-esteem. The pattern of consistent cognitions can be characterised as 'If I do X, and I identify with X, and X is bad, then I am also bad'. Therefore, it was important to examine whether smokers' self-esteem is lower than nonsmokers. Because past research has shown robust implicit self-esteem for a variety of social groups (Farnham et al., 1999), it was hypothesised that smokers would have equally positive implicit self-esteem as nonsmokers. As a result, any evidence for inconsistency among smokers' behaviour-relevant cognitions would not be attributable to lowered self-esteem.

Method

Subjects. These were 87 undergraduate psychology students at the University of Washington who received course credit for participation. Of these subjects, 53 were self-reported nonsmokers and 43 were self-reported smokers. A total of 21 subjects (12 nonsmokers and 9 smokers) were excluded from all analyses for technical reasons (e.g. high error rates).⁵ The similarity between the smoking and nonsmoking pictures was higher than what is generally found between the target contrast stimuli and may have led to the observed high error rates. The final sample consisted of 35 smokers and 41 nonsmokers.

Materials and procedure

Explicit measures. Smoking behaviour was assessed as in Experiment 2. Attitudes toward smoking were assessed similarly as in Experiment 1, with the exception that only a single feeling thermometer and a single semantic differential were used (each were labelled 'Smoking'). Self-esteem was measured using the Rosenberg Self-Esteem Scale (Rosenberg, 1979) and a feeling thermometer measure (labelled 'Yourself').

Implicit measures. Subjects completed three IATs that assessed attitudes toward smoking, identification with smoking, and implicit self-esteem. In the attitude and identification IATs, the target concepts were smoking versus non-smoking. Eight pairs of pictures were used to represent these concepts. Smoking versus nonsmoking pictures varied only in the presence versus absence of a cigarette and ashtray. The settings were common domestic situations in which one might smoke (e.g., reading the newspaper at a table; see Appendix). The

⁵Examination of the practice block distinguishing smoking and nonsmoking pictures indicated that smokers and nonsmokers performed equally well (both in terms of latency and errors) at this discrimination. Additionally, all analyses reported in the results section were repeated with these subjects included, and showed no change in the pattern of results presented herein.

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19-256
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attitude IAT paired these pictures with words that were pleasant or unpleasant in meaning. The identification IAT paired these pictures with self versus other words. The self-esteem IAT used the same self versus other words, paired with the pleasant and unpleasant words used in the attitude IAT (see Appendix).

The procedure was identical to that of Experiment 2 with three exceptions. First, the IATs were administered using a software program that allows both pictures and words to be used as stimuli.⁶ Second, subjects performed three IATs (IAT order was counterbalanced). Third, the IAT practice blocks that familiarised subjects with the stimuli differed from Experiment 2. Rather than do single categorisation practice blocks at the start of each IAT task, subjects did five initial blocks to practice the following discriminations (in the order listed): (1) smoking/nonsmoking pictures from pleasant/unpleasant words; (2) pleasant/unpleasant words from self/other words; (3) pleasant from unpleasant words; (4) self from other words; and (5) smoking from nonsmoking pictures. Subjects then completed the mixed categorisation tasks (e.g., smoking + unpleasant/nonsmoking + pleasant) for the three IATs as in Experiment 2 (one practice block and one critical block per task).

Results and discussion

Subject's attitude and self-concept IAT effects were calculated as in Experiment 2. In each case, positive scores indicate more favourable attitudes toward, and identification with, smoking compared to nonsmoking. The self-esteem IAT was scored such that more positive scores indicate more favourable than unfavourable attitudes toward the self. No differences due to procedural variables were found; therefore, the analyses reported below do not include them.

Smoking vs. nonsmoking measures. Table 3 shows the results of Experiment 3's implicit and explicit measures. As can be seen, smokers' implicit attitudes revealed a preference for nonsmoking over smoking ($M = -69$ ms), even though they identified with smoking more than nonsmoking ($M = 125$ ms). In contrast, nonsmokers' implicit attitudes showed a strong preference for nonsmoking over smoking ($M = -245$ ms), and they identified with nonsmoking more than smoking ($M = -20$ ms). Consistent with Experiment 2, this pattern shows more inconsistent implicit cognitions for smokers than nonsmokers that is due to smokers having attitudes inconsistent with their behaviour and their self-concept. Table 3 also reveals that smokers' implicit self-esteem ($M = 322$ ms) was as positive as nonsmokers' implicit self-esteem ($M = 330$ ms). Thus, smokers did not achieve consistency among their behaviour-relevant cognitions via low self-esteem.

⁶The program was *Inquisit*, written by Sean Draine (Draine, 1998).

— [Tendman & Woody '03 JAP]

(10) K/10 - clinical, pg 100

(11) ~~single~~ (1) for approach, w/ (2) for anxiety & disgust measures, pg 103

(12) belief (2), pg 100 pg 101

(13) belief (2), pg 100 pg 101

(14) (11) observed for approach, not (0) for anx, disgust pg 103

(15) obs (5) for approach, self-r emo (3) for anx, disgust pg 103

(16) milli (0), pg 103

(17) pics (1), pg 102

(18) 6, pg 18

(19) not rep (0)

(20) not rep (0)

(21) not rep (0)

(22) " " (3)

(23) " " (3)

(24) same (0)

(25) same (0)

(26) sd - (3) IM, pg 101

(27) sd - (3) EM, pg 101

(28) CON - (2) B, pg 103

(29) spec - (5) I, B pg 101, pg 103

(30) spec - (5) E, B pg 101, pg 103

(31) Comp - (2) I, pg 101

(32) not (0), pg 100

(33) dual (2) I, pg 101

error in old file: said Not rep (0) instead of counts