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THE EFFECTS OF ALCOHOL INTAKE AND INDUCED FRUSTRATION UPON ART VANDALISM

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In this study we examined the interactive effects between alcohol intake and frustration upon art vandalism. A total of 100 participants were randomly assigned to 1 of 5 experimental conditions (control, alcohol, alcohol+frustration, frustration and placebo) with 10 men and 10 women in each group. Participants were provided with the opportunity to scrawl on a picture of Adam and Eve (the AET test). AET was evaluated also on levels of destruction, aggression, and sexuality. The results indicated that alcohol alone did not increase the degree of vandalism, but that there was a significant increase in scores of scrawling graffiti under the influence of alcohol+frustration. Female participants performed graffiti-scrawling to a significantly greater extent than did male participants in all 5 groups.

Keywords: art vandalism, influences, alcohol intake, induced frustration.

The concept of *vandalism* has been defined *as a conscious act directed towards the destruction or damage of an object(s) belonging to another person or institution* (Moser, 1992), *a conscious act intended to inflict physical damage which results in the loss of aesthetic or financial value of an object or property* (Harrison, 1976), *all forms of destruction of property, whether on purpose or not* (Baughman, 1971), and *all destructive behavior from littering to arson-manslaughter* (Ducey, 1978). Common to all these definitions is the requirement of some type of damage infliction in vandalism.

Different vandalism researchers have postulated that the behavior may constitute creative action (Allen, 1984), that it possesses a communicative

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aspect (Cordess & Turcan, 1993; Daun, 1982), that it results from the neutralization of social norms (Matza 1972; Matza & Sykes, 1961), or that it is, in the main, situation-dependent (Roos, 1986; Weinmayr, 1969). Goldstein (1996) and West, Drummond, and Eames (1990) found that alcohol consumption is a frequent component of vandalizing behavior. Concurrently, in several experimental reports (reviewed by Gustafson, 1991) it was demonstrated that the aggressive behavior evidenced during alcohol intoxication increases only under conditions wherein individuals are concurrently exposed to frustration. Further, much literature (cf. Goldstein, 1996) supports a significant gender effect in connection with vandalism independent of causation, environment, situation, or age whereby the offender is almost exclusively male. At the same time, as Gustafson indicates, most experimental investigations concerning alcohol and aggression are performed on male participants.

In a study of art vandalism at galleries in England, Scotland, and Wales (Cordess & Turcan, 1993) it was found that minor damage, such as scratches, scraping, and scrawling graffiti, often carried out surreptitiously by anonymous offenders, was likely to be caused by primary or younger secondary school children trying to impress their peers. Major damage, such as slashing, stabbing, tearing, cutting, arson, or destruction of statues and vases, was inflicted by more hardened offenders who did not show particular care to avoid attention. Interestingly, the authors interpreted damage upon artworks depicting humans, e.g., Madonna and child, to represent attacks upon both objects and persons, as a substitute for assaulting a real person.

Although a vast number of studies have been directed at alcohol and aggression (Gustafson, 1991), only two have been related specifically to alcohol and graffiti (Korytnyk & Perkins, 1983; Norlander, Nordmarker, & Archer, 1998). In the first study it was indicated that young men who had consumed alcohol wrote and sketched more graffiti compared with men who had not drunk alcohol, which was interpreted as the tendency for alcohol to increase vandalism-related behavior. There are draw-backs with this explanation: the study did not control for a frustration factor, it was gender-limited, i.e., only men were included, and finally there was no distinction amongst graffiti containing destructive, aggressive, or sexually-charged components. Also, creative components, such as elaboration, may be considered since in several investigations the influence of alcohol on creative expression has been demonstrated (for reviews see Norlander, 1997, 1998).

In the other study (Norlander, Nordmarker, & Archer), 42 participants (21 males and 21 females) participated, and were divided into three groups: control, alcohol and alcohol+frustration. These results indicated that alcohol by itself did not elevate the degree of scrawling graffiti (as measured by the AET test) whereas a significant increase was obtained when alcohol-affected participants

were exposed concurrently to some degree of provocation/frustration. Furthermore, a gender difference was obtained whereby the female participants (in each group) were shown to be significantly more graffiti-oriented (mild damage), destructive, and elaborative than the male participants. Additionally, it was found that "destructiveness" was a much more important component of scrawling graffiti than "aggression", "sexual-charge", or "elaboration". However, it was not tested in this study whether frustration by itself (i.e., without alcohol), or how a placebo condition should affect scrawling graffiti. Considering the background of demonstrated interactive effects shown by female participants regarding alcohol and preventive pills (Eriksson, Fukunaga, & Lind-man, 1994; Inoff-Germain et al., 1988; Lindman, Koskelainen, & Eriksson, 1997) which resulted in increased aggression, it was deemed necessary for appropriate controls to be organized over the women's contraceptive pill intake, and their menstrual cycle status.

Our aim in the present study was to examine the effects of factors such as frustration and gender, missing from the Korytnyk and Perkins (1983) study, as well as the consistency of the main findings obtained by Norlander et al. (1998) particularly with regard to the inclusion of a placebo condition and a frustration (without alcohol) condition.

METHOD

PARTICIPANTS

A total of 100 participants, 50 men and 50 women, were recruited at Karlstad University, Sweden. They were all born and raised in Sweden. Participants were randomly assigned in equal numbers to one of five experimental groups. The mean age for the entire population was 24.61 years (SD = 5.40, range = 19-48) and the mean weight was 71.71kg (SD = 12.43, range = 46-120). The mean alcohol consumption per individual was 448.94ml of 100% alcohol per month (SD = 329.87) which may be compared with the Swedish average (per capita 15 years or more) of 633ml of 100% alcohol per month (Hein, 1995). There were no significant differences found via two-way analysis of variance (ANOVA) between groups or between sexes with regard to age (ps > 0.25). There was no (two-way ANOVA) significant difference between groups with regard to weight (p = 0.593) but there was a significant difference between sexes [F(1, 90) = 50.96, p < 0.001] indicating that men (M = 78.88, SD = 8.48) were heavier in comparison to women (M = 64.54, SD = 11.64). There was no (two-way ANOVA) significant difference between groups with regard to alcohol consumption (p = 0.467) but there was a significant difference between sexes [F(1, 90) = 22.95, p < 0.001] indicating that the males (M = 593.59, SD = 348.18) had higher alcohol (per month) consumption than the females (M = 304.28, SD = 171.90).

Further analysis (using Kruskal-Wallis test) showed no differences between groups with respect to the number of academic terms (each term represents half an academic year) spent at Karlstad University, living situation, or conditions while growing up, involvement in acts of vandalism, number of siblings, position in order of siblings, relationship with family and friends, sports and leisure activities, cultural interests, female participants' menstrual status, intake of contraceptive pills, or parental profession, (ps > 0.129).

Two personality inventories were administered to each of the participants in order to provide further background information. One test was used to measure attitude-to-creativity with respect to change and stability, namely the FS (change and stability) test (Holmquist, 1986). A two-way ANOVA showed no differences between groups and no difference between sexes and there was no interaction between group and sex (ps > 0.1). The FS scoring results were transformed into stanine scores after a norm of industrial employees, both workers and officials (Ekvall & Holmquist, 1986), thereby making possible comparison to a broader population. The mean FS score for the entire group was 4.95 (SD = 1.62) and a one-sample t test showed no significant difference in comparison to the norm group (p = 0.758).

The other test was used to measure both the creative attitude and a rational, critical attitude, namely the BPE (Self-estimation on Personality Traits) test (Ekvall & Holmquist, 1986). A two-way ANOVA showed no differences between groups, and there was no interaction between group and sex (ps > 0.14), but there was a significant difference between sexes (p = 0.026) indicating that women scored higher on BPE (M = 5.72, SD = 1.93) than did men (M = 4.84, SD = 1.90). The BPE scoring results were transformed into stanine scores after a norm from industrial employees, both workers and officials (Ekvall & Holmquist), thereby making possible comparison to a broader population. The mean BPE score for the entire group was 4.66 (SD = 1.55) and a one-sample t test showed a significant difference in comparison to the norm group (p = 0.030) indicating that the BPE scores in the present study were lower as compared to the norm group.

Design and Alcoholic Beverages

Participants were randomly assigned in equal numbers (10 men and 10 women) to one of five experimental groups, namely control (group 1), alcohol (group 2), alcohol+frustration (group 3), frustration (group 4), and placebo (group 5). Each participant received a beverage containing: in the control group and in the frustration group, 5.0ml tonic water (Schweppes) per kg of body weight; in the alcohol group and in the alcohol+frustration group, 1.0ml of 100% alcohol per kg body weight given in the form of colorless commercial Swedish vodka (Absolut

Vodka) holding 40% by volume mixed with an equal volume of tonic water; in the placebo group, 5.0 ml tonic per kg body weight plus 25ml vodka essence (Simpson), with a few drops of vodka smeared on the inside of the glass to provide a taste and smell of alcohol.

INSTRUMENTS

During the experiment seven different tests were applied, two before the manipulation (FS and BPE) and four after the manipulation (AET, Tearing, Elaboration, and LOT) and a modified version of a test (The Cheap Necklace Problem) applied as a manipulative step (i.e., for the alcohol+frustration group and the frustration group).

FS – Change and Stability. The Attitude to Change and Stability Test (Holmquist 1986) which correlates highly with several creativity tests was applied. The test consists of 20 items of the type: "Risk-taking is necessary for success", and each participant was asked to respond on a 4-point scale, ranging from *agree* to *disagree*. There was no time limit for the FS test.

BPE – Self-estimation on Personality Traits. The BPE test (Ekvall & Holmquist, 1986) consists of 40 items measuring both creative attitude and a rational, critical attitude. Each item is an adjective describing a personal trait. The participant is required to select the ten items which best characterize himself/herself. There was no time limit for the BPE test.

AET – "Adam and Eve" test. A test (Norlander et al., 1998) consisting of color illustrations depicting Adam and Eve in the Garden of Paradise (Lukas Cranach, 1472-1553, Adam and Eve). The picture was originally set against a background of artwork depicting religious and political art, naked portraits as well as images of the ideal unattainable woman, which are especially targeted for vandalism (Cordess & Turcan, 1993). Participants were provided with an illustration of "Paradise" accompanied by instructions to draw on the picture. The assignment was to be per-formed over seven minutes. The results were examined and judged by two panels from different viewpoints. Panel A consisted of two high school teachers, who were assigned the task of judging the extent of graffiti scrawling (on a scale of 0-10). Panel B consisted of an image-therapist and a psychologist-cum-image artist who were assigned the task of assessing the degree of destruction, aggression, and sexuality (on a scale of 0-10) in the graffiti scrawling shown by each participant. Consensual definitions (Amabile 1983) of "graffiti scrawling", "destruction", "aggression", and "sexuality" were used. The AET measure is comparable with that referred to by Cordess and Turcan (1993) as "minor damage" in connection with vandalism.

The Tearing test. An additional test (Norlander et al., 1998) was derived from a further biblical anecdote consisting of color illustrations depicting the

struggle between Samson and the Lion (P.P. Rubens, 1577-1640, Samson and the Lion). The picture was chosen because of its strongly aggressive character which was intended to provoke participants to exhibit expressions of aggressiveness. Participants were instructed to tear apart the illustration in a number of pieces of their own choice and then place all the pieces in an envelope which was half the size of the illustration. This task did not carry any time limit, and the number of pieces produced was monitored as a dependent variable. The Tearing test is considered to offer a situation com-parable with that described by Cordess and Turcan (1993) as "major damage" in connection with art vandalism.

Elaboration. The test (Modeus, Ståhlbröst, Wester, & Ögren, 1987) consists of nine squares containing incomplete pictures. The task of each participant was to complete the nine pictures within 15 minutes. The judges from Panel A then assessed each square on a scale of 0-5 with regard to the amount of detail in each of the responses (elaboration).

LOT – Life Orientation Test. The test (Scheier & Carver, 1985) consists of eight items, plus four filler items. The task of each participant is to take up a standpoint on the extent to which they are in agreement with each of the items described, on a scale of 0-4, (0 = *strongly disagree*, 4 = *strongly agree)*. The test measures dispositional optimism, defined in terms of generalized outcome expectancies, and was chosen together with the elaboration test in order to secure possible correlates to scrawling graffiti.

The Cheap Necklace Problem. The test (Best 1995; Silveira 197) was originally constructed to provide a test of creative problem-solving ability. The links in the chains may be opened and shut. From four small chains with three links in each chain, the participant is required, by opening and closing the links, to construct one circle of chains which costs no more than 15 crowns. To open a link costs 2 crowns and to close a link costs 3 crowns. During this experiment the purpose of this particular treatment was to induce a state of frustration in the participants within two of the experimental groups (groups 3 and 4) in the frustrated condition. Therefore these participants were assigned the task of constructing the circle of chains at a total cost of 14 crowns during the 35 minute test interval. At the same time, these participants were informed "this is quite a simple task which most individuals can complete within 15 minutes".

PROCEDURE

When each participant arrived at the laboratory, he or she was required to provide a breath sample (LION SD 2) for breath alcohol analysis (BAL 1). None of the participants showed a positive result of the breathalyzer test and all were allowed to participate in the experiment. Next, the participant was asked to sign a contract where it was guaranteed that he/she did not use currently any form of

medication. He/she was required also to promise not to discuss the experiment with any other person(s) until all the experiments were concluded. Further, the participant promised not to drive a car or ride a bicycle until at least nine hours after the completion of the experiment, and that none of the female participants was pregnant (there was no separate contract for female participants). Next, he/she was weighed and, after that, was allowed to complete the FS and BPE tests and fill in a questionnaire concerning background information.

Then the participant received the appropriate drink, alcoholic or nonalcoholic. Each participant was allowed to drink during a 20 minute period and then made to wait during an additional 15 minutes. If the participant belonged to group 3 (alcohol+ frustration) or group 4 (frustration) he/she was allowed to consume his/her drink and spend the subsequent "waiting-period" (20 + 15 = 35 minutes) in carrying out the Cheap Necklace Problem. Following this, a second breath analysis sample was secured (BAL 2), and the AET, Tearing, Elaboration, and LOT tests were administered in a common randomized order to all participants. After the test session a final breath sample was collected (BAL 3), followed by a debriefing. Then the participant was reminded of the signed contract, i.e., the promise not to drive a car or ride a bicycle until at least nine hours after the completion of the experiment.

RESULTS

BLOOD ALCOHOL LEVELS (BALS)

All participants showed zero (undetectable) blood alcohol levels (BAL 1) when they arrived at the laboratory. The mean blood alcohol level as measured immediately before (BAL 2) and after (BAL 3) the test session was as follows: for the alcohol group 0.065% (SD = 0.021) and 0.081% (SD = 0.017), respectively, com-pared with BAL 2 (M = 0.076%, SD = 0.027) and BAL 3 (M = 0.091%, SD = 0.019) for the alcohol+frustration group. A two-way ANOVA, including only two of the experimental groups (i.e., the alcohol group and the alcohol+ frustration group) and sex as independent variables and BAL 2 as dependent variable did not show significant differences between groups or sex and there was no interaction between group and sex (ps > 0.07). Similarly, another two-way ANOVA with the two dose-groups and sex as independent variables and BAL 3 as dependent variable did not show significant differences between group or sex and there was no interaction effect between group and sex (ps > 0.07).

INTERJUDGE RELIABILITIES

Panel A. Pearson's r revealed a significant correlation between the judges' scoring on scrawling graffiti (r = 0.84, p < 0.001) and the elaboration test (r =0.87, p < 0.001). The scores produced by the two raters were averaged for the scrawling graffiti test and for the elaboration test.

Panel B. Pearson's r showed a significant correlation between the judges their regarding scoring on destruction (r = 0.61, $p < 0.001$), aggression (r = 0.60, $p < 0.001$), and sexuality (r = 0.28, $p = 0.005$). The scores produced by the two raters were averaged for destruction, aggression, and sexuality.

DEPENDENT VARIABLES

A Pillais' MANOVA (5 x 2 factorial design) was used applying group and sex as independent variables, and both the judges' scoring from scrawling graffiti, elaboration, destruction, aggression, sexuality, and the scores from the Tearing test and the LOT test as dependent variables. The overall analysis showed no significant interaction between group and sex ($p = 0.301$), a result which was confirmed by the univariate F tests (ps > 0.09). There were however significant differences between sexes ($p = 0.041$) and between groups ($p = 0.003$). The results from the univariate F tests concerning gender and groups are described below. For means and standard deviations, see Table 1 (men) and Table 2 (women).

TABLE 1
EFFECTS OF GROUP ON ESTIMATES (MEANS ± *SD*) ON TEST SCORES IN MALE PARTICIPANTS

Type of scores	Group 1 Control	Group 2 Alcohol	Group 3 Alc./Frust.	Group 4 Frustration	Group 5 Placebo
Scrawling					
Mean	4.05	2.80	5.35	3.85	3.75
SD	1.86	2.12	2.44	2.72	2.61
Destruction					
Mean	5.20	4.00	3.15	4.85	4.80
SD	1.77	2.24	2.10	3.00	2.53
Aggression					
Mean	4.90	3.40	2.95	4.20	4.40
SD	2.18	1.76	2.03	3.22	2.29
Sexuality					
Mean	2.90	2.90	2.75	3.15	2.85
SD	1.91	2.58	2.06	3.21	2.20
Tearing					
Mean	6.00	96.70	4.40	4.20	6.60
SD	3.30	228.69	2.84	3.39	8.32
Elaboration					
Mean	19.05	16.45	18.85	19.05	19.05
SD	8.75	9.19	7.46	5.60	4.87
LOT					
Mean	20.60	20.60	20.80	18.70	20.34
SD	2.67	3.66	4.96	4.03	3.91

TABLE 2
EFFECTS OF GROUP ON ESTIMATES (MEANS ± *SD*) ON TEST SCORES IN FEMALE PARTICIPANTS

Type of scores	Group 1 Control	Group 2 Alcohol	Group 3 Alc./Frust.	Group 4 Frustration	Group 5 Placebo
Scrawling					
Mean	3.70	5.20	6.15	4.10	6.80
SD	1.62	1.74	2.84	1.35	2.66
Destruction					
Mean	4.95	5.45	5.35	5.35	6.90
SD	1.42	1.99	2.21	1.94	1.85
Aggression					
Mean	4.45	5.35	4.50	4.85	5.70
SD	0.96	2.04	2.29	1.84	1.65
Sexuality					
Mean	3.00	3.45	3.10	3.05	3.60
SD	1.20	1.96	1.91	1.38	2.32
Tearing					
Mean	13.30	7.60	27.00	8.50	9.40
SD	13.14	6.36	44.14	8.42	7.75
Elaboration					
Mean	22.45	22.30	23.50	21.05	25.25
SD	9.74	8.07	9.99	8.73	8.95
LOT					
Mean	20.70	20.90	18.90	21.20	22.50
SD	2.95	5.36	5.36	3.43	3.50

(a) Scrawling-Graffiti. Univariate F testing revealed a significant difference between sexes [$F(1, 90) = 7.46$, $p = 0.008$] where women scored higher on scrawling graffiti in comparison to men. The univariate F test also showed a significant difference between groups [$F(4, 90) = 3.01$, $p = 0.022$]. A post hoc test (LSD, 5% level) indicated that the alcohol+frustration group scored significantly higher on scrawling graffiti compared to the control group, the alcohol group, and the frustration group but not in comparison to the placebo group. There were no other significant differences.

(b) Destruction. Univariate F testing revealed a significant difference between sexes [$F(1, 90) = 7.82$, $p = 0.006$] indicating that women tended to score more highly on destruction as compared to men. The univariate F test showed no significant difference between groups ($p = 0.210$).

(c) Aggression. Univariate F testing revealed a significant difference between sexes [$F(1, 90) = 5.67$, $p = 0.019$] indicating that women tended to score more highly on aggression as compared to men. The univariate F test showed no significant difference between groups ($p = 0.375$).

(d) Sexuality. Univariate F testing showed no significant differences between either sexes or groups (ps > 0.40).

(e) Tearing. Univariate *F* testing showed no significant differences between sexes or between groups (*p*s > 0.25).

(f) Elaboration. Univariate *F* testing showed a significant difference between sexes [$F(1, 90) = 7.10$, $p = 0.009$] indicating that women tended to score more highly on elaboration as compared to men. The univariate *F* test showed no significant difference between groups ($p = 0.859$).

(g) Life Orientation (LOT). Univariate *F* testing showed no significant differences between either sexes or groups (*p*s > 0.25).

CORRELATION STATISTICS

Correlation coefficients (Pearson's r) were computed between different variables and some results are presented here. There were significant correlations between scrawling graffiti and destruction in all five (i.e., control, alcohol, alcohol+ frustration, frustration and placebo) conditions (Min. r = 0.71, Max. r = 0.88, *p*s < 0.001), between scrawling graffiti and aggression in all five conditions (Min. r = 0.54, Max. r = 0.88, *p*s < 0.02), and between scrawling graffiti and sexuality in all five conditions (Min. r = 0.28, Max. r = 0.59, *p*s < 0.05). There were however no significant correlations between scrawling graffiti and elaboration (rs < 0.3, *p*s > 0.1) or between scrawling graffiti and LOT (rs < 0.3, *p*s > 0.1). Multiple regression according to the "enter" method applying destruction, aggression, sexuality, and elaboration as independent variables and scrawling graffiti as the dependent variable indicated an adjusted R^2 of 0.51 [$F(4, 95) = 26.85$, $p < 0.001$). The Beta values indicated strongly that destruction ($\beta = 0.70$) accounted for most of the variation in the dependent variable in contrast to aggression ($\beta = 0.02$), sexuality ($\beta = 0.03$), and elaboration ($\beta = -0.01$). These results were confirmed with a multiple regression according to the stepwise method, with destruction, aggression, sexuality, and elaboration as independent variables and scrawling graffiti as the dependent variable, and where the analysis included only destruction in the equation [$F(1, 98) = 110.34$, $p < 0.001$, adjusted $R^2 = 0.52$, $\beta = 0.73$].

DISCUSSION

In consideration of the particular group of participants (university students) participating in the experiment, it is perhaps not surprising that the "major damage" (Tearing Test) parameter did not produce a greater expression of vandalism, whereas a moderate degree of vandalism was obtained with the "minor damage" (AET) parameter. The results of this investigation confirm also earlier results of graffiti studies (Korytnyk & Perkins, 1983; Norlander, Nordmarker, & Archer, 1998) in which the "minor damage" parameter was

similarly pursued. Note however, that in the present study, in common with Norlander et al. (1998) aspects of antisocial behavior are addressed which were not observed by Korytnyk and Perkins (1983), i.e., the frustration factor, the gender factor, and the special character of the graffiti. The results of the present graffiti experiment may be summarized as follows:

(a) Group differences: The alcohol+frustration group scored significantly higher on scrawling graffiti compared to the control group, the alcohol group, and the frustration group. It must, however, be stated that no significant difference in comparison with the placebo group was obtained.

(b) Between-gender differences: Females performed graffiti scrawling to a greater extent than did males in all five conditions but both genders significantly increased scrawling-graffiti in the alcohol+frustration condition. Females gained higher scores in all five conditions on destruction and aggression compared to males and women also scored significantly higher in all five conditions on elaboration as compared to men.

(c) Correlations: There were, in all five conditions, significant correlations between scrawling graffiti and destruction, between scrawling graffiti and aggression, and between scrawling graffiti and sexuality – but no significant correlations between either scrawling graffiti and elaboration, or scrawling graffiti and dispositional optimism (LOT). Finally, destruction accounted for most of the variation in the scrawling-graffiti in contrast to aggression, sexuality, and elaboration.

The observations that alcohol is sufficient – but not necessary – to release a pattern of destructive/aggressive behavior, and that frustration contributes a powerful comorbidity factor are in agreement with results gained in several other studies (Gustafson, 1991; Norlander et al., 1998). These results support, too, the hypothesis that alcohol affects attentional processes such that a more limited number of dimensions may be attended to when under the influence of the drug (Pernanen, 1976). If, then, it be the case that “provocative” stimuli are closely attended to, it seems reasonable to assume that a heightened risk factor for destructive-aggressive behavior may be involved. Under conditions of sobriety, similar provocations may be perceived against a more comprehensive background and thus not be assigned the same degree of provocativeness.

Under conditions of society in general, it is the male perpetrator who inflicts most of the crimes of vandalism (Goldstein, 1996), but in the present experimental setting, it was the female participants. What may this gender difference depend upon? Could it be that men learn more to neutralize the norms of society and/or thatwomen possess a more suppressed aggressiveness which obtains a socially-acceptable expression in a secure laboratory environment? Female aggressiveness is thought to be related to an increase in circulating testosterone levels, amongst other things, in association with alcohol intake. This increase is more noticeable during a certain period of the menstrual

cycle (ovum release), but also in women consuming contraceptive pills (Eriksson, Fukunaga, & Lindman, 1994). This tendency was not confirmed, however, in the present study in which no correlation between female participants' aggressiveness and destructivity with phase of menstrual cycle or preventive pill consumption was forthcoming. It may be that female aggressiveness and destructivity are related to creative ability (i.e., elaboration), which should rein-force the notion that damage infliction is in itself a creative action (Allen, 1984). However, the plausibility of this explanation is undermined by the absence of any significant correlation between scrawling graffiti and elaboration in either sex.

Another aspect of vandalism which emerged from the study was the particular character of the graffiti. Significant correlations were obtained between scrawling graffiti and destructiveness, between scrawling graffiti and aggressiveness, and between scrawling graffiti and sexuality – wherein a multiple regression indicated that destructivity accounted for most of the variation accruing to scrawling graffiti. This correlational analysis suggests that experimental graffiti has, in the main, a destructive character and may, therefore, be classified as vandalism (Baughman, 1971; Ducey, 1978; Gustafson, 1991; Harrison, 1976; Moser, 1992).

The main findings that some degree of provocation/frustration, in addition to alcohol, is required to increase the risk of vandalism and the tendency for female participants to display more scrawling graffiti, destructiveness, aggressiveness, and elaboration than the male participants are, both separately and taken together important to build upon. It seems highly desirable that future researchers should concentrate more closely upon the frustration factor, i.e., examine different types of frustration (with or without the concomitant role of alcohol) as well as some of the possible ways in which frustration may express itself. It should also be of critical applied interest to derive techniques for developing frustration-coping strategies. Results gained in this study also point to a lucrative social dividend to be sought in analyzing gender differences in vandalism, destructivity, and aggression, and conditions under which experimental studies and field studies differ critically. Are these differences a consequence of social pressures (norms) which tend to allow men, under certain circum-stances, more room for aggression and destruction while women are more restricted in the expression of such feelings, so that instead such "pent-up" emotions achieve their expression only in the relatively "non-restrictive" atmosphere of the laboratory where these emotions may be "aired"?

Questions concerning alcohol intake and frustration induction, as well as the potential "pent-up" nature of female aggressiveness/destructivity, may contribute necessary concepts for future investigation if eventual prophylactic measures are to be developed. There are also important lessons to be learned from a better understanding of female participants' ability to select and mobilize their destructive tendencies upon objects under conditions of legality (the laboratory)

and even social acceptance. The present findings, in conjunction with those gained in previous studies (Korytnyk & Perkins, 1983; Norlander et al., 1998), and in comparison to extant notions (Gustafsson, 1991) imply a nonselective, crude template of male vandalism. Is it possible that the most obvious biological substrate, testosterone, is partially responsible for male inability to select situations wherein violence and vandalism will not become outcomes, unless subjected to a rigorous regime of disciplinary measures? Whatever the case, it appears that the masculine repertoire of destructivity would benefit from feminine modulation of its unrestricted aspect.

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