EFFECTS OF BYSTANDER DENSITY UPON ALTRUISTIC BEHAVIOR

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College students participated in a questionnaire study. The questionnaire booklet contained 11 pairs of situational descriptions in which someone in distress needed help. All pairs were dissociated and the 22 situations randomly ordered. One situation of each pair represented high bystander density and the other low. Subjects were requested to choose an altruistic or less altruistic response to each situation. Results were very similar for male and female samples. The bystander density was a determinant of altruistic behavior. The degree of altruism was a mediating factor of helping behavior in some situations. Sex, community size, experience of residential move, interpersonal affiliation, and trust in humans were negligible or weak intervening factors in the effect of bystander density upon altruistic behavior.

As can be seen in Freedman's (1973) review, a substantially increasing number of studies have been conducted on crowding (i.e., discomfort caused by density and its associated factors) within the past several years. Yet, studies are sporadic in regard to the effect of density (i.e., people per unit area) upon human behavior.

Mitchell (1971), Tucker and Friedman (1972), and Valins and Baum (1973) have found that density can differentiate human interaction patterns.

Bickman, Teger, Gabriele, McLaughlin, Berger, and Sunaday (1973) have discovered that differences in helping behavior is attributable to varying residential densities of different-sized college dormitories. Merrens (1973) has duplicated the findings in communities of varied sizes. Milgram (1970) has contributed an interesting review evidencing that density generates irresponsibility and non-involvement among urbanites.

These past studies demonstrate that density influences helping behavior in some situations. However, these studies compared large communities with small ones in the effect of density upon helping behavior and, consequently, composition of subjects was not controlled among different-sized communities. This lack of control over subject composition is the first problem of the past studies in this area.

There are also a series of experimental studies conducted by Latané and his collaborators. Latané and Darley (1968) found that the presence of other people inhibited intervention in emergency when a subject was in a smoke-filling room. Again, using situations where there was no danger to the subject himself for not acting, Latané and Rodin (1969) corroborated their findings. In Darley and Latané's (1968) study, subjects overheard an epileptic seizure. They believed either that they alone heard the emergency, or that one or four unseen others were also present. The presence of bystanders reduced the individual's personal responsibility and inhibited his intervention in the emergency.

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Although Latané and his collaborators have found that the presence of other people inhibits the individual's intervention in emergency, situations used seem to be laboratory-specific because at least he was in a laboratory as a subject if for other purposes and consequently a question may be raised as to if their studies are relevant to altruistic behavior of daily help-demanding situations. Therefore, research using daily help-demanding situations would seem in order.

The second problem is that such research is very limited in its number (Merrens, 1973; Korte & Kerr, 1975; Levine, Vilena, Altman, & Nadien, 1976). This makes it necessary to examine the effect of bystander density upon altruistic behavior in various daily help-demanding situations. Questionnaire technique, if properly used, is advantageous to investigating the effect of bystander density upon altruistic behavior in a wide variety of daily help-demanding situations.

Using questionnaire technique can solve the two problems of the past studies by means of requiring subjects to respond to both high- and low-density situations and making it possible to include a wider range of daily help-demanding situations.

Thus the present study was undertaken to examine the effect of bystander density upon altruistic behavior in daily help-demanding situations.

Furthermore, still unexplored in the past studies are interactional effects of bystander density with other intervening variables. Demographic variables such as community size and experience of residential move are assumed to affect interpersonal interaction including altruistic behavior. So are personality variables such as altruism, interpersonal affiliation, and trust in humans.

The present study was also designed to investigate the influence of these demographic and personality variables upon the effect of bystander density upon altruistic behavior.

METHOD

Subjects

One hundred and fifty-two female and 106 male students who were sophomores and juniors at two Japanese universities participated in this study. Data were collected in psychology classes as one of the course requirements.

Questionnaires

A questionnaire booklet which contained 11 pairs of situational descriptions was used. Each pair consisted of high- and low-density situations in which the subject might be expected to help someone in distress or to intervene in an ongoing incident. While a great number of witnesses were present besides the subject in the former situation, only one witness except for the subject was described in the latter. In addition to these differences of density, wording was varied between two situations of each pair to avoid or alleviate boredom. What these two situations represented were presumed not to differ except for the bystander density, however.

An example of paired situations is as follows :
High density—You witness a person being hit by a car. There are a number of people who witness the incident. What would you do then?

Low density—You witness a person being hit by a car. There is one female witness around except for you. What would you do then?

For each situation, the subjects were required to choose a suitable response category between two, i.e., either altruistic or less altruistic behavior. The degree of willingness to offer help was used as a criterion of altruism, implying that greater willingness represents altruistic behavior. All the paired situations were dissociated and randomly ordered in the booklet for the purpose of disguising the intention of the study.

In addition, the subjects were asked to describe in the questionnaire booklet what they believed to be the objective of this study. The booklet further requested subjects' demographic

TABLE 1
Responses to varying density conditions

Situations	High density	Low density	
		Al	Less
1. On your way home from school, you are asked by an old person to guide him to a place. It is not so far from here and you have enough time, so you are wondering whether or not you should take him to his destination.	Al Less	126 24	9 61*
2. On your way to shopping, you find a woman who looks painful and is crouching putting her hands on her belly. She looks like suffering from belly-ache.	Al Less	125 64	4 27**
3. In a botanical garden, you find three boys, who look like kindergarten children, are playing in a flower garden. A notice board reads "keep out."	Al Less	93 38	4 85**
4. You witness a person being hit by a car.	Al Less	122 80	2 16**
5. You have come to see an art exhibition. You find a woman dropping a new handkerchief behind.	Al Less	152 35	3 30**
6. When you come up to a park, two small children, apparently kindergarten children, are grappling each other.	Al Less	83 37	7 93**
7. You find a woman who are at a loss with her car in trouble.	Al Less	115 46	10 49**
8. When you come to a park, there is a quantity of garbage scattered. A garbage collector comes up to you gathering trash.	Al Less	53 46	9 112**
9. When you are waiting for a bus, a man approaches and asks you to lend him one hundred yen because he says he lost his wallet and he cannot get to his home.	Al Less	144 27	7 42**
10. On your way to school, you notice something like a new envelope on the street.	Al Less	100 34	3 83**
11. On your way home from shopping, you find a man running up after a woman while shouting "thief."	Al Less	69 45	9 97**

Note: Statements were varied for each situation between high- and low-density conditions. Numbers represent numbers of subjects.

* $p < .01$

** $p < .001$

information, i.e., community size (place of the longest residence) and number of residential moves. It also included three-point scales on two personality traits, i.e., interpersonal affiliation and trust in humans. An example of question items for each trait appears below: Interpersonal affiliation—I want to have as many friends as possible.

Trust in humans—Even strangers can be trusted.

Each trait was evaluated by five scales; the possible range of score for each trait was from zero to ten. Higher scores represented higher degrees of each trait. Content validity of these scales had been judged by three psychologists who were asked whether or not each item was suitable to represent the personality trait in question. Complete agreement of their judgements guaranteed content validity of all the scales. When the booklet was handed

to the subjects, they were told to respond to the questions carefully and honestly.

RESULTS

Data of 29 female and nine male subjects were discarded because they could rightly guess the objective of this study or because their data were incomplete. Accordingly, data of the remaining 123 female and 97 male subjects were used for later analyses.

Responses of entire subjects in each situation are presented in Table 1. Significance levels were examined by calculating McNemar's χ^2 values (two-tailed). There were significantly more subjects in all the situations who were altruistic in low density while less altruistic in high density (Lo-Al-Hi-Less) as compared to subjects who were less altruistic in low density while altruistic in high density. However, most of the subjects were not affected by density.

Further, sex differences were investigated in the effect of bystander density upon altruistic behavior by comparing responses of 97 male and 123 female subjects. Both groups of subjects were dichotomized into those who were Lo-Al-Hi-Less and the rest. Results are presented in Table 2. Levels of significance were examined by means of two-tailed χ^2 tests. Situations 3 and 6 indicate that there were significantly more Lo-Al-Hi-Less subjects among females than among males.

Response in each situation was scored one (altruistic) or zero (less altruistic) for each subject. The total score for altruism was obtained by adding all these scores.

Subjects were categorized into 21 males and 46 females whose scores were higher than 16 (Al Group), 34 males and 46 females whose scores were from 12 to 15 (Medium Group) and 42 males and 31 females whose scores were lower than 11 (Less Group). Responses of these groups were dichotomized into those who were Lo-Al-Hi-Less and the rest. Results are

TABLE 2
Response differences in terms of sex

Situations†	Groups	Lo-Al-Hi-Less	Others
1.	Male	8	89
	Female	16	107
2.	Male	31	66
	Female	33	90
3.	Male	10	87
	Female	28	95*
4.	Male	36	61
	Female	44	79
5.	Male	15	82
	Female	20	103
6.	Male	8	89
	Female	29	94**
7.	Male	21	76
	Female	25	98
8.	Male	17	80
	Female	29	94
9.	Male	9	88
	Female	18	105
10.	Male	14	83
	Female	20	103
11.	Male	17	80
	Female	28	95

Note: Statements were varied for each situation between high- and low-density conditions.

† For descriptions, see Table 1.

Numbers represent numbers of subjects.

* $p < .05$

** $p < .001$

shown in Table 3. Significant χ^2 values for Situations 2, 4, 5, and 7 indicate that there were significantly more Lo-Al-Hi-Less subjects in Medium Group and/or Less Group than in Al Group.

Concerning community size, subjects were dichotomized into 57 males and 56 females from cities (Large Community Group) and 40 males and 67 females from towns or villages (Small Community Group). The subjects of these groups were categorized as before. There were significant differences only in Situations 6 and 9. Regarding Situation 6 ($p < .05$),

TABLE 3
Response differences in terms of the
degree of altruism

Situations†	Groups	Lo-Al-Hi-Less	Others
1.	Al	7	60
	Medium	9	71
	Less	8	65
2.	Al	8	59
	Medium	24	56**
	Less	32	41
3.	Al	7	60
	Medium	19	61
	Less	12	61
4.	Al	13	54
	Medium	32	48**
	Less	35	38
5.	Al	3	64
	Medium	20	60*
	Less	12	61
6.	Al	8	59
	Medium	17	63
	Less	12	61
7.	Al	4	63
	Medium	23	57**
	Less	19	54
8.	Al	15	52
	Medium	19	61
	Less	12	61
9.	Al	4	63
	Medium	16	64
	Less	7	66
10.	Al	7	60
	Medium	16	64
	Less	11	62
11.	Al	15	52
	Medium	18	62
	Less	12	61

Note: Statements were varied for each situation between high- and low-density conditions.

† For descriptions, see Table 1.

Numbers represent numbers of subjects.

* $p < .01$

** $p < .001$

a ratio of the Lo-Al-Hi-Less subjects to the rest was 12 to 101 for Large Community Group and 25 to 82 for Small Community

Group. With respect to Situation 9 ($p < .001$), the ratio was 5 to 108 for the former and 22 to 85 for the latter. These results imply that there were significantly more Lo-Al-Hi-Less subjects from Small Community Group than those from Large Community Group.

While 66 males and 75 females had experienced residential moves, 31 males and 48 females had not. These two groups were dichotomized into the Lo-Al-Hi-Less subjects and the rest as before, but no significant χ^2 values were found.

In terms of the degree of interpersonal affiliation, 41 males and 52 females with scores higher than eight and 56 males and 71 females with scores lower than seven were divided into two groups as before, but there were no significant χ^2 values.

Finally, two groups were obtained in terms of trust in humans: 45 males and 64 females whose scores were higher than six (High Trust Group) and 52 males and 59 females whose scores were lower than four (Low Trust Group). These two groups were treated as before and only significant difference ($p < .01$) was found in Situation 7. A ratio of the Lo-Al-Hi-Less subjects to the rest was 13 to 96 for High Trust Group and 33 to 78 for Low Trust Group. The results indicate that Low Trust Group included significantly more Lo-Al-Hi-Less subjects than High Trust Group.

DISCUSSION

As in the past studies including Latané and his collaborators' (Darley & Latané, 1968; Latané & Darley, 1968; Latané & Rodin, 1969), the findings of this study confirm the axiom that in higher density people become less altruistic. This implies that the first problem of the past studies, i.e., the lack of control over subject composition, was negligible.

In spite of differences among situations used in this study, the effect of bystander density upon altruistic behavior was very

similar among them. But the scope of this study does not allow a generalizable conclusion of situational differences in the effect of bystander density upon altruistic behavior.

Regarding sex differences, findings of Situations 3 and 6 suggest that in higher bystander density situations females tend to be less altruistic than males. In addition, children were described in these two situations but not in all the others. Thus such sex differences seem to be applicable only to situations in which children need bystander intervention. However, whether it is true or not remains undecisive.

The role of altruism as a mediating factor of the bystander density effect upon altruistic behavior was partially demonstrated to be more salient in Medium Group and/or Less Group than in Al Group. Findings indicate that higher density inhibits altruistic behavior of less altruistic people more prominently than that of altruistic people. However, it would seem inexplicable why such bystander density effect was found in some situations but not in the others.

Although no interactional effects of residential move and interpersonal affiliation on bystander density in its effects upon altruistic behavior were detected, findings regarding community size and trust indicate that higher density inhibits altruistic behavior of those who are from smaller communities and that it has the same effect among those who have lower trust in humans. But these interactional effects were not strong.

In order to examine the independence of independent variables which yielded meaningful results, coefficients were calculated between community size and trust (.056) and between community size and the degree of altruism (.059). Thus community size was independent of the other variables. Similarly, the degree of altruism and trust yielded a significant but substantially low correlation coefficient ($r = .204$, $df = 218$, $p < .01$). This suggests

that interactional effect of trust with bystander density upon altruistic behavior may be attributable to the degree of altruism only to a negligibly low degree.

Darley and Latané (1968) demonstrated the significance of friendship with other bystanders and of prior acquaintance with the victim in the effect of bystander density upon social intervention. Latané and Rodin (1969) also provided the evidence that familiarity with and responsiveness of other bystanders might intervene in the effect of bystander density upon altruistic behavior.

Although these studies brought out some information about interactional effects of bystander density with demographic and personality variables upon altruistic behavior, the present study has revealed different variables will contribute to such interactional effects.

In conclusion, although this study shed light on the effect of bystander density upon one type of human behavior, i.e., altruistic behavior, and its interaction with some of demographic and personality traits, it is encouraged to extend this study to other types of behavior and other traits.

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